The Water Report™
Water Rights, Water Quality & Water Solutions in the West

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Upcoming Stories:

Municipal Rights Acquisitions

Groundwater Connections

& More!

US & MEXICO: BOUNDARY WATERS

Q&A with COMMISSIONER MARIA-ELENA GINER
INTERNATIONAL BOUNDARY & WATER COMMISSION (El Paso, TX)

The International Boundary and Water Commission
STRUCTURE & MISSION

***The Water Report*: Please explain for our readers exactly what the International Boundary and Water Commission is and who the members of the Commission are?**

The International Boundary and Water Commission is a binational commission created by the Convention of 1889. The International Boundary and Water Commission (IBWC or Commission) is responsible for applying the boundary and water treaties between the United States and Mexico. The Commission is composed of the United States Section and the Mexican Section. Each Section is administered independently of the other and is headed by an Engineer Commissioner, appointed by his or her respective President.

The US International Boundary and Water Commission (USIBWC or United States Section) is a federal government agency that has its headquarters in El Paso, Texas. USIBWC operates under the foreign policy guidance of the US Department of State. The Mexican Section has its headquarters in Ciudad Juarez, Chihuahua, Mexico, and is under the administrative supervision of the Mexican Ministry of Foreign Affairs.

The joint mission of the US Section and the Mexican Section is to do the following:

- Distribute the waters of the boundary rivers between the two countries
- Operate international flood control along the boundary rivers
- Operate the international reservoirs for conservation and regulation of Rio Grande waters for the two countries
- Improve the quality of water of international rivers
- Resolve border sanitation issues
- Develop hydroelectric power
- Preserve the boundary in the area bordering the Rio Grande and Colorado Rivers
- Demarcate the land boundary

The USIBWC has five Treaty Officers: the Engineer Commissioner; two Principal Engineers (PE) (PE of Operations and PE of Engineering); the Secretary; and a Legal Advisor. The Mexican Section has the same structure.

***TWR*: What is your role as the US Commissioner of the IBWC?**

My role as Commissioner is to advance the mission of the IBWC to improve the quality of life for communities on both sides of the border. This includes border sanitation, flood control measures, and water diplomacy. I serve as the head of the US Section and oversee all of its activities.

IBWC

Experience

Mexico & US

Disadvantaged Cities

Infrastructure

Deferred Maintenance

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***TWR*: Please tell us about your experience in water management?**

Through my employment with the Border Environment Cooperation Commission and the North American Development Bank, I have over 25 years of experience in working with communities along the US-Mexico border. I have led the development and financing of $9 billion in environmental infrastructure — including water — benefiting about 100 communities and over 10 million residents. I worked with US and Mexican federal and state agencies in California, Arizona, New Mexico, Texas and the six Mexican border states.

***TWR*: What aspect of your experience in water management do you consider especially valuable to your role as Commission?**

My experience in both Mexico and the US has provided me the know-how to solicit and manage federal funding with demonstrated results, understand state and local challenges and processes related to water in both countries, and given me credibility with stakeholders at the federal, state, local, and non-governmental level.

***TWR*: What are you looking forward to most in your role as Commissioner?**

I am excited about having the opportunity to share my experience and knowledge in service to the residents of the US-Mexico border. This region has the most disadvantaged cities of the US, including lowest per-capita income, communities of color, and youngest population. I look forward to bringing additional attention and consequent resources to the region.

Physical Infrastructure and Authority of the IBWC

***TWR*: What is the physical infrastructure that the IBWC has authority over?**

The Commission has seven dams, including the two big international storage reservoirs and hydroelectric power plants on the Rio Grande: Amistad Dam near Del Rio, Texas – Ciudad Acuña, Coahuila; and Falcon Dam in Falcon Heights, Texas – Nueva Ciudad Guerrero, Tamaulipas. The others are smaller diversion dams used to support irrigation and flood control.

We maintain hundreds of miles of Rio Grande flood control levees in various communities, providing flood protection to hundreds of thousands of people.

The USIBWC operates two international wastewater treatment plants — at San Diego, California and Rio Rico, Arizona — and we provide oversight for a third international plant in Nuevo Laredo, Tamaulipas.

The Commission also has two international bridges over the Rio Grande: the Cordova International–Bridge of the Americas at El Paso, Texas–Ciudad Juarez, Chihuahua; and the Fort Hancock-El Porvenir International Bridge at Fort Hancock, Texas–El Porvenir, Chihuahua.

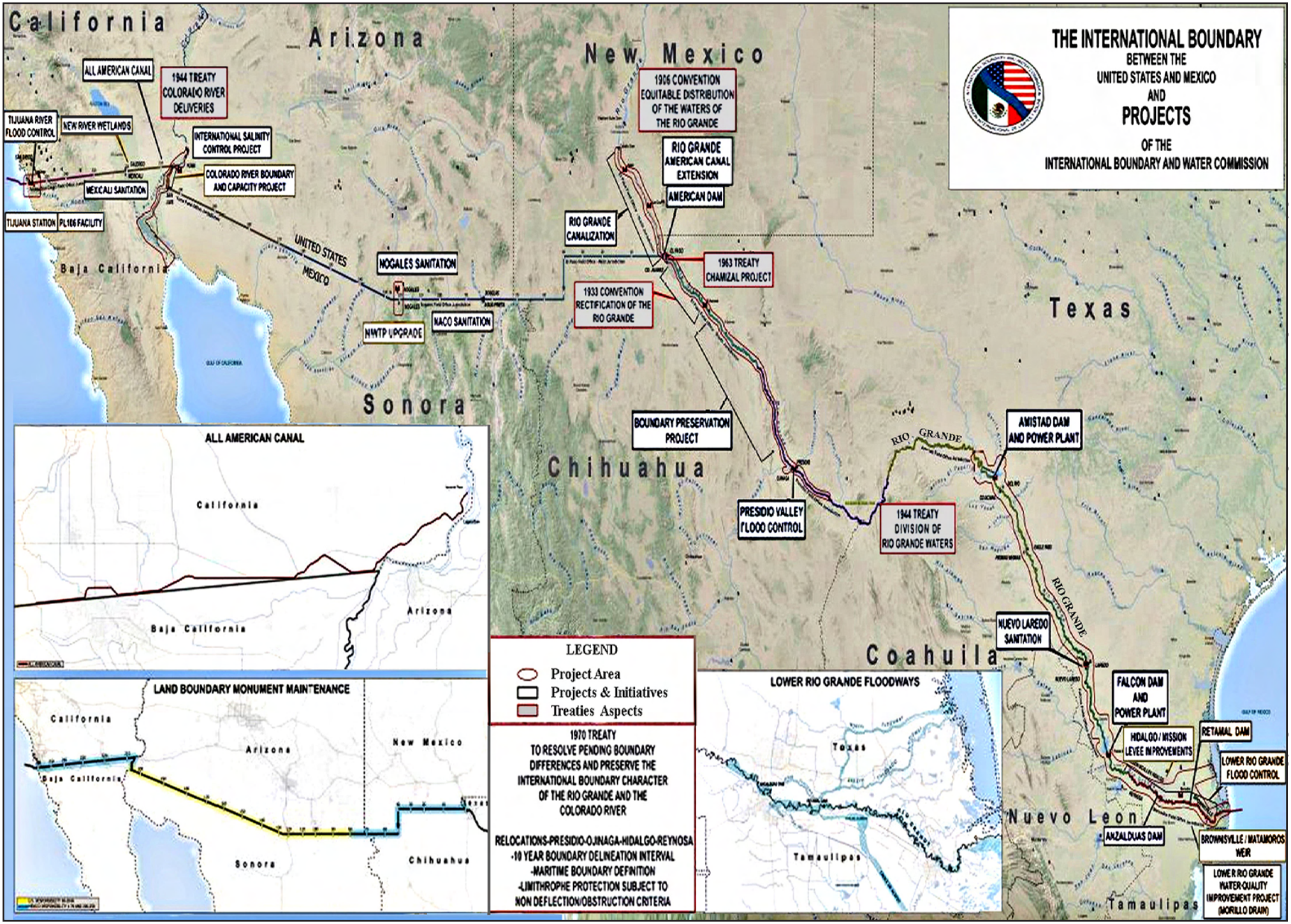
Another responsibility is to maintain the boundary monuments — the official markers of the U.S.-Mexico land boundary. There are 258 principal monuments, most a 6-foot-tall obelisk, on the international land boundary.

***TWR*: Please explain the authority of the IBWC in regard to the infrastructure it has authority over.**

We are responsible for constructing, operating, and maintaining this infrastructure. For facilities located entirely in the United States, the USIBWC performs the maintenance while the Mexican Section maintains those facilities located in Mexico. Facilities that span the boundary are generally operated and maintained jointly by both Sections of the Commission. For example, at Anzalduas Diversion Dam on the Rio Grande, personnel from both countries work together in a shared control room on the dam.

***TWR*: We understand that you recently finished a tour of locations and infrastructure governed by the IBWC. How has this helped you to prioritize the issues and needs facing the Commission going forward?**

We have ten field offices and in my tour of facilities I met with the IBWC field staff. I learned very quickly that staff is critical to the execution of our mission. They are the boots on the ground. Therefore, I am prioritizing operations as our deferred maintenance is quite significant. I want to ensure there is sufficient staffing and tools needed to operate and maintain our system. This includes filling positions, increased training, improved technology, and adequate facilities and equipment.


THE INTERNATIONAL BOUNDARY
BETWEEN THE
UNITED STATES AND MEXICO
AND
PROJECTS
OF THE
INTERNATIONAL BOUNDARY AND WATER COMMISSION
California
Arizona
New Mexico
Texas
Baja California
Sonora
Chihuahua
Coahuila
Nuevo Leon
Tamaulipas
ALL AMERICAN CANAL
1944 TREATY COLORADO RIVER DELIVERIES
TIJUANA RIVER FLOOD CONTROL
NEW RIVER WETLANDS
INTERNATIONAL SALINITY CONTROL PROJECT
COLORADO RIVER BOUNDARY AND CAPACITY PROJECT
MEXICALI SANITATION
TIJUANA STATION
PL106 FACILITY
UNITED STATES
MEXICO
NOGALES SANITATION
NAWTP UPGRADE
NACO SANITATION
1906 CONVENTION EQUITABLE DISTRIBUTION OF THE WATERS OF THE RIO GRANDE
RIO GRANDE AMERICAN CANAL EXTENSION
AMERICAN DAM
RIO GRANDE CANALIZATION
1963 TREATY CHAMIZAL PROJECT
1933 CONVENTION RECTIFICATION OF THE RIO GRANDE
BOUNDARY PRESERVATION PROJECT
PRESIDIO VALLEY FLOOD CONTROL
1944 TREATY DIVISION OF RIO GRANDE WATERS
AMISTAD DAM AND POWER PLANT
RIO GRANDE
NUEVO LAREDO SANITATION
FALCON DAM AND POWER PLANT
HIDALGO / MISSION LEVEE IMPROVEMENTS
RETAMAL DAM
LOWER RIO GRANDE FLOOD CONTROL
ANZALDUAS DAM
BROWNSVILLE / MATAMOROS WER
LOWER RIO GRANDE WATER-QUALITY IMPROVEMENT PROJECT (MORRILLO DRAIN)
ALL AMERICAN CANAL
California
Arizona
Baja California
LAND BOUNDARY MONUMENT MAINTENANCE
California
Arizona
New Mexico
Baja California
Sonora
Chihuahua
Texas
LOWER RIO GRANDE FLOODWAYS
Texas
Tamaulipas
LEGEND
Project Area
Projects & Initiatives
Treaties Aspects
1970 TREATY
TO RESOLVE PENDING BOUNDARY DIFFERENCES AND PRESERVE THE INTERNATIONAL BOUNDARY CHARACTER OF THE RIO GRANDE AND THE COLORADO RIVER
RELOCATIONS-PRESIDIO-OJINAGA-HIDALGO-REYNOSA
-10 YEAR BOUNDARY DELINEATION INTERVAL
-MARITIME BOUNDARY DEFINITION
-LIMITHROPHE PROTECTION SUBJECT TO NON DEFLECTION/OBSTRUCTION CRITERIA

IBWC

Asset Management Plan

***TWR*: What do you see as the most pressing infrastructure need for water resources management or development?**

There are many pressing issues related to aging infrastructure such as at Amistad Dam, Rio Grande levee system, and transboundary flows of water pollution. For existing infrastructure, I intend to complete an asset management plan that evaluates age, condition, and risk of our assets. This will assist in prioritizing funding needed and lead to the development of an asset management system that will support a maintenance program. New infrastructure will be added in Nogales, Arizona and San Diego, California which will address transboundary flows associated with pollution. Finally, pollution at the New River is an issue that will need to be addressed by working with local stakeholders to identify viable solutions.

Issues and Priorities

Transboundary Pollution

Conservation Efforts

***TWR*: What currently are the top priorities and issues of the IBWC?**

My policy priorities will focus on two primary issues, sanitation and water supply, both of which require cooperation with Mexico and our legislative, state, and local stakeholders. The first is developing a plan to ensure long-term sustainability of wastewater infrastructure in Mexico to mitigate issues with transboundary pollution associated with aging sanitation. This will include ensuring that sufficient funding is requested based on a methodological approach to maintain the necessary infrastructure. The second will focus on conservation efforts in the Colorado River and timely delivery of water in the Rio Grande through the creation of new water sources or water conservation efforts.

Water Availability

***TWR*: What are the biggest challenges facing Mexico and the United States over the next 10-20 years regarding their shared water resources?**

The biggest challenges I anticipate is aging infrastructure and water availability due to reduced runoff and temperature increases caused by climate change. The first will require investment in maintaining our water related assets and the second innovative solutions and cooperation with Mexico that will create new water sources and conserve existing ones.

Commissioners of the US and Mexican Sections

Border Backgrounds

***TWR*: We understand that, for the first time, both of the IBWC sections (US and Mexico) have women Commissioners — congratulations! Please describe your working relationship with Mexican Commissioner Adriana Reséndez Maldonado.**

Commissioner Resendez and I have a very close working relationship, communicate weekly, and are like-minded in seeking solutions. We are also both from the border, have about the same number of years working along the entire U.S./Mexico border, and understand the uniqueness of the region. We complement each other and together agree on how solutions need to be implemented.

Other Issues

Water Supply

***TWR*: Your responsibilities as Commissioner involve both the Rio Grande and the Colorado River. What is the most important issue on the Rio Grande?**

Water supply is a very important issue for both countries. Storage in the IBWC's two international reservoirs is currently very low. Amistad is at 34% of capacity and Falcon is at 16%. Ensuring Rio Grande water deliveries are made to the United States in accordance with the Treaty is critical [i.e., The Treaty of February 3, 1944 — *see* sidebar). We are also exploring opportunities to conserve water or generate new water sources to address the water supply challenges.

Water Treaty of February 3, 1944

Signed on February 3, 1944 and ratified by the United States and Mexico the following year, this treaty was titled: "*Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande*" and it set the distribution of the waters in the international segment of the Rio Grande from Fort Quitman, Texas to the Gulf of Mexico. This treaty also authorized the two countries to construct, operate, and maintain dams on the main channel of the Rio Grande. The treaty changed the name of the previous "International Boundary Commission" to the current "International Boundary and Water Commission" (IBWC). Article 3 of the treaty entrusted the IBWC to give preferential attention to the solution of all border sanitation problems.

IBWC

Declared Shortage

Minute No. 323

Canal Lining in Mexico

Treated Effluent Use

Desalination Study

Wastewater Treatment

***TWR*: What is the most important issue facing the Colorado River?**

The ongoing Colorado River drought is a tremendous challenge. This year marks the first declared shortage on the Colorado River, requiring cuts to water users in the United States and Mexico. We are partnering with entities in both countries to identify additional ways to conserve water to prevent even further declines at Lake Mead/Hoover Dam.

***TWR*: Please give us an update on the implementation of Minute No. 323 ("*Extension of Cooperative Measures and Adoption of Binational Water Scarcity Contingency Plan in the Colorado River Basin*"), including how the United States and Mexico are cooperating in light of the declared shortage on the Colorado River.**

Our Minute 323 Projects Work Group is evaluating a range of projects to conserve water in Mexico, such as lining canals and modernizing irrigation infrastructure. Last year we established a Minute 323 Work Group on Proactive Measures to identify additional actions that can be taken in the near term in response to the drought. At the same time, our other work groups are exploring a range of activities related to habitat restoration, salinity, and regulatory storage to enable more efficient water use.

***TWR*: Please describe the recent activities on the New River Improvement Project.**

The City of Calexico is the lead for this project. In January, we held a public meeting of our Colorado River Citizens Forum and invited the City to give an update on their work. They expect to start construction this year. Their plan is to use clean treated effluent to maintain the river's flow in Calexico while rerouting contaminated flow from Mexico around downtown.

***TWR*: The United States and the Republic of Mexico have been meeting since 2018 to discuss desalination proposals that would benefit both countries. Have there been any recent proposals on the desalination front?**

In 2020, our Minute 323 Desalination Work Group completed a Phase I feasibility study for a binational desalination plant in the Sea of Cortez. The Work Group expects to begin the Phase II study soon. Both countries remain interested in desalination to address water supply challenges in the Colorado River Basin.

***TWR*: Are there any other issues or IBWC projects of particular interest that of which you would like our readers to be aware?**

We are excited to partner with EPA and Mexico to improve sanitation infrastructure at San Diego, California – Tijuana, Baja California. As part of this effort, we expect to expand our existing international wastewater treatment plant in San Diego, using funds already appropriated to EPA. By treating greater volumes of Mexican sewage, we will reduce the flow of untreated wastewater into the United States.

For Additional Information:

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International Boundary and Water Commission website: www.ibwc.gov

FISHERIES MANAGEMENT LITIGATION UNDER THE ESA

by Glen Spain, J.D., NW Regional Director and General Legal Counsel
Pacific Coast Federation of Fishermen's Associations (PCFFA) & Institute for Fisheries Resources (IFR)

Fisheries & the ESA

Lawsuits Uptick

"Take" Rates

Fisheries Targeted

Industry Response

Impacts to Fisheries

Science & Sustainability

"Magnuson Act"

Viability Detriments

Salmon Declines

ESA Regulation

Inland Habitat

INTRODUCTION

It is no secret that there has been a recent uptick in lawsuits under the federal Endangered Species Act (ESA) (16 U.S.C. Sec. 1531-1544). Too often (not always) such suits have been filed by poorly informed environmentalist **n**on-**g**overnmental **o**rganizations (NGOs) against ocean commercial fisheries managers. These lawsuits most often complain of high fishing "take" rates of ESA-listed species intermingling in otherwise long-established and sustainably managed ocean fisheries.

After a slate of similar ESA suits against fish hatchery managers in past years, many of them successful, ocean commercial fisheries and their impacts on ESA-listed fish seem to be a new target of opportunity for some groups. Some of these Plaintiff groups have mixed motives (detailed below).

In this article, I summarize some of these recent ESA-driven federal lawsuits against commercial fisheries management and explore some of the ways in which the commercial fishing industry has creatively and effectively responded. I suggest ways the fishing industry might better respond in the future. I also discuss some of the serious pitfalls in using the ESA to change already well-managed, sustainable fisheries.

BACKGROUND

THE FISHING INDUSTRY AND THE ESA — AN AMBIVALENT RELATIONSHIP

The US fishing industry finds itself in a difficult position with respect to the federal ESA. As the health of inland, estuary, and nearshore habitats for commercially fished species have continued to decline under modern "development" and pollution impacts, more and more fish populations have declined in lockstep. More ESA listings is a symptom of those declines.

Still, after decades of hard work, declines of species *caused primarily by fishing impacts* are fortunately largely a problem of the past. It has *been required by law* that our national ocean fisheries be regulated under the best available science and be designed to protect long-term sustainability since the 1976 passage of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. Sec. 1801 *et seq*., known simply as the "Magnuson Act").

The Magnuson Act also expanded US "territorial waters" to 200 miles offshore. This was to eliminate the impact of foreign vessels fishing off our continental shelf, which had previously depleted many of our national fisheries. Today, with the exception of salmon fisheries, nearly every US ocean fishery is enjoying increasing abundance.

Fishing industry managers and our industry still have to be vigilant in preventing overfishing of the species upon which our livelihoods depend. However, by far the largest impacts today on fish species viability come from sources completely unrelated to fishing.

Leading detriments to fish species viability include: ocean acidification; warming climates; dewatered and over-appropriated rivers; impassable dams; polluted estuaries; and massive oil spills — none of which were caused by fishing. Many environmental problems are created by: depleted cold-water flows; damaged instream and forested landscapes; and vanishing wetland habitats that salmon must use for spawning and rearing. These conditions have — nearly everywhere — driven once abundant salmon runs into deep declines, and some to extinction.

These conditions have led to the US fishing industry — already highly regulated under the Magnuson-Stevens Act — being increasingly also regulated under the ESA. Many harvested fish species intermingle with ESA-listed species at sea. It has become increasingly difficult to shape offshore fisheries in ways that avoid, or at least minimize, incidental impacts on ESA-listed marine species. [The US fishing industry is also regulated under the Marine Mammal Protection Act (16 U.S.C. Sec. 1361 *et seq*.), although that statute is outside the scope of this article].

THREATENED & ENDANGERED SALMON

Salmon are the exception to rebounding fisheries because they are totally dependent on the health of their far-inland spawning and rearing areas. Decades of inland habitat destruction — completely unrelated to fishing — has led to many of these traditionally abundant salmon species being so weakened that a number of once-abundant salmon stocks have had to be ESA-listed to protect them from extinction.

Fisheries & the ESA

Marine Species

The number of ESA-listed marine species and distinct subpopulations of marine species has grown rapidly over the past several years. The National Marine Fisheries Service (NMFS), which administers ESA protections for marine and anadromous species, currently manages fisheries for the protection of 164 endangered and threatened marine species (79 endangered; 85 threatened), including 65 foreign species (39 endangered; 26 threatened) that originate in other countries but which travel through US waters. NMFS also has identified 13 marine "candidate species" that may be ESA-listed in the near future (*see* www.fisheries.noaa.gov/species-directory/threatened-endangered).

Salmonids

The complex of seven anadromous species generically referred to as "salmon" includes behaviorally distinct subspecies: "king" or Chinook salmon (*Oncorhynchus tshawtscha* — which includes fall-run, spring-run and one unique winter-run Chinook population); coho or silver salmon (*Oncorhynchus kisutch*); coastal sea-run cutthroat (*Oncorhynchus clarki clarki*); steelhead (*Oncorhynchus mykiss gairdneri*); chum salmon (*Oncorhynchus keta*); pink salmon (*Oncorhynchus gorbuscha*); and sockeye salmon (*Oncorhynchus nerka*). As a genus, these species are often lumped together and called "salmonids."

Salmonids' Life Cycle Needs

All anadromous salmonids require access to ecologically healthy inland, cold-water, forested watersheds that are fairly undisturbed. Salmonids lay their eggs in these watersheds' cold-water streams. Spawning adults migrate in from the ocean, sometimes swimming up to several hundred miles inland to spawn. Once their eggs hatch, the juvenile salmon must make their way back down to the estuary while the water is still cold and flowing. They make an amazing transition to salt-water life, setting out into the ocean to migrate widely in search of food. Once these baby salmon grow to full maturity in the ocean (about three years later for Chinook, the most commonly fished salmon species) they normally return to their original natal cold-water streams, often against great odds, to lay their eggs.

Nutrients Contribution

Coho and Chinook salmon typically die after spawning, contributing the nutrients contained in their bodies to the next generation and the ecosystem at large. Steelhead may spawn multiple times, but then also die in their natal streams. Salmon carcasses are the only known biological mechanism for returning nutrients from the oceans back to inland forests, where they nourish not only those forests but at least 138 other species (*see* Cederholm, C. J., et al. *Pacific Salmon and Wildlife – Ecological Contexts, Relationships, and Implications for Management*. Special Edition Technical Report by the Washington Dept. of Fish & Wildlife (March, 2000)).

ESA Listings

Many once abundant salmonid runs are now extinct because their rivers were blocked by dams built well before the ESA was passed. The first salmon stock to be ESA-listed were the Snake River sockeye salmon, in 1991. Currently, there are 26 different ESA listings of various salmonid stocks in the Pacific Northwest and Northern California. Most of these salmonids are highly migratory and intermingle at sea with non-listed and otherwise relatively healthy (mostly hatchery-origin) stocks, in mixed-stock fisheries.

FISHING INDUSTRY IMPACTS

Managed Sustainability

As noted, fisheries are strictly managed by law to maintain sustainability. Yet, more and more ocean-going (anadromous) fish species are being thrown into decline by accelerating environmental problems. Our ocean's fisheries are becoming harder and harder to manage in ways that avoid, or at least minimize, fishing impacts on ESA-listed salmon and other marine species.

Intermingling Species

Under the Magnuson Act, US ocean fisheries are managed in accordance with "weak stock management" principles — where the weakest of intermingling stocks at sea are the limiting factor for all intermingling harvests. As a result, it has become increasingly common for major ocean salmon fisheries to be shut down, often on an emergency basis, to avoid unduly impacting intermingling, ESA-listed, weak species.

Industry Obligations & Incentives

Where there are genuine impacts from fisheries on ESA-listed species, our fleet knows full well that its obligation is to work to minimize, and if possible eliminate, those impacts. The Pacific Coast Federation of Fishermen's Associations (PCFFA: the US west coast's largest trade association of commercial fishing families) knows first-hand that such conflicts can occur. We also know that these issues can be resolved — based on the best available science — in creative and cooperative ways.

Indeed, our industry has at least as much incentive to make sure our ocean ecosystems are protected and remain abundant than do any environmental organizations. Our livelihoods, our fishing-dependent communities, and our very futures depend upon it. The biological sustainability of our fisheries is not a principle on which we can ever compromise.

ESA FISHERIES-RELATED LAWSUITS

Below are some of the current batch of fisheries-related ESA lawsuits, some of which we or our member associations intervened in, as noted.

Fisheries & the ESA

Right Whales

Gear Entanglement

US v. Canadian "Take"

Amended Complaint

Demonstrable Benefit?

Distinctive Gear

Questionable "Solution"

West Coast Contention

Whale Entanglement Lawsuits

Maine Lobster Trap Gear Controversies

North Atlantic Right Whales (*Eubalaena glacialis*) have never really recovered from decades of past (now banned) industrial scale whaling. Their current populations are very low. By some estimates, fewer than 360 individuals of this species remain. Following a period of recovery, their overall population has reportedly been declining again since 2010. They have suffered serious losses from an ongoing "unusual mortality event" first noted in 2017.

A small risk of right whale entanglements in the New England lobster fishery gear does exist. In response, since at least 1997 the Maine lobster-boat fleet has done quite a lot to avoid gear entanglements — with great success. Unfortunately, the Canadian snow crab boat fleet and commercial ship strikes in Canadian water (particularly commercial boat traffic into and out of the St. Lawrence River seaway) are both still unregulated, and almost certainly account for most of the whale mortalities that still occur. Entangled whales can swim for hundreds of miles over years, and those entangled in Canadian gear can easily turn up in US waters.

Until 2020 there was also no easy way to distinguish between US and Canadian fishery rope gear. The Maine lobster boat fleet fears they will be unfairly held responsible for Canadian industries' unregulated "take" of these whales over which they have no control.

There have been years of NGO litigation against NMFS over these potential entanglement issues dating back to January, 2018. Recent new regulations were published by NMFS (*Atlantic Large Whale Take Reduction Plan Regulations*, 86 Fed. Reg. 51970 (Sept. 17, 2021)) in accordance with rulings in these lawsuits as well as years of negotiations. These regulations are set to go into effect at the start of the next fishing season (May 1, 2022).

Unhappy with these new regs, on September 9, 2021, a group of environmental NGO's involved in most of the prior litigation (including Center for Biological Diversity, Conservation Law Foundation, and Defenders of Wildlife) filed an Amended Complaint in their earlier successful prior action to challenge the new Biological Opinion and regulations as being too weak (*Center for Biological Diversity, et al. v. Raimondo & Maine Lobstermen's Association* (US Dist. Ct. DC, Civil Action No. 1:18-112). There are multiple Intervenors in this case, including the State of Maine, which intervened on September 27, 2021. The Plaintiffs filed a Motion for Summary Judgment on December 20, 2021, and the US Dept. of Justice filed a Cross-Motion for Summary Judgment on February 14, 2022. Both motions are now being briefed.

The lobstermen say these new regulations amount to a complete and indefinite fishery closure while accomplishing no demonstrable benefit to the whales. The Maine Lobstermen's Association has filed its own lawsuit against NMFS, claiming the new regulations and its parallel Biological Opinion are far too stringent. The lawsuit notes that, as a result of decades of internal gear changes and take reduction measures, "there has not been a single known North Atlantic Right Whale entanglement in Maine lobster gear in almost two decades. Moreover, there has never been a known North Atlantic right whale serious injury or mortality interaction associated with Maine lobster gear," and "critically important new scientific information about right whale migration patterns show that the Maine lobster fishery will continue to pose very little risk to North Atlantic right whales." (From *Maine Lobstermen's Association v. NMFS*, US Dist. Ct. of DC, Case No. 1:21-cv-2509, pg. 3 of the complaint). The State of Maine intervened on December 17, 2021, in support of the Maine lobster industry. There have been multiple other motions to intervene, and several Intervenor complaints and answers. The litigation is proceeding.

The Maine entanglement controversy and stakeholder negotiations produced a number of good ideas on how to modify lobster trap gear to minimize entanglements. One notable idea highlighted the need to have distinctive markings on all gear so that any entanglements that do occur can be forensically traced back to their origin.

A more problematical idea was pushed by the environmental NGOs in the Maine lawsuits — i.e., using these ESA lawsuits to force the lobster fleet to convert all existing roped-trap gear to what the NGOs call "ropeless 'pop-up' traps" that supposedly would pose zero risk of rope entanglements. Some of these groups advocate such high-tech gear as "the solution" to the whale entanglement issue. The problem is that no such gear exists at prices or configurations or low enough failure rates to make any of these designs practical to use in the harsh ocean environment. However, this idea nevertheless popped up repeatedly as whale entanglement issues arose on the west coast (see below).

California Dungeness Crab Gear Suit

After their litigation success in the Maine lobster fishery, Center for Biological Diversity (CBD) moved its attention to the west coast California Dungeness crab trap fishery. By way of background, traditional California Dungeness crab traps use a rope and buoy arrangement for easy retrieval, and in the past there have been occasional humpback or blue whale entanglements, though such incidents were rare.

Fisheries & the ESA

"The Blob"

Foraging Whales

Entanglements

State Management

Working Group Response

Collaborative Effort

"RAMP"

Migration Tracking

Settlement Agreement

Conservation Plan

However, in 2014-2016 everything changed in the California coastal ecosystem when "the Blob" arrived. Beginning in 2014, a massive, unprecedented, ocean heat wave called "the Blob" hit the US west coast. Driven by climate change, a massive bloom of toxic algae resulted in widespread and extended domoic acid poisoning of Dungeness crabs. This required crab fishery closures throughout California until well into the usual 2015 season. The late, time-limited, 2015 crab season that opened on only a portion of the California coastline had the unintended consequence of concentrating the fleet in a much smaller than usual area. At just the same time, the Blob triggered a collapse of much of the ocean ecosystem further offshore where the whales typically migrated to find prey. The whales were forced to forage much further toward shore, propelling them right into the middle of the California Dungeness crab fleet.

As a result of all these converging factors, in 2015 the number of large whale entanglements in the California Dungeness crab fishing gear rocketed from just two in 2014, to seven in 2015, and to 21 (19 humpbacks and two blue whales) in 2016. These biological disasters were also a public relations disaster for our industry.

A peculiarity of the California Dungeness crab fishery is that it is one of the rare off-shore fisheries that is not jointly state and federally managed. This near-shore crab fishery is by statute managed solely by the State of California, under the authority of the California Department of Fish & Wildlife (CDFW). This means that any ESA-based litigation over this fishery must be brought against the State of California, not NMFS. It also means, as a benefit, that the process of solving these problems is amenable to state laws and regulations, which are much easier to put into place than federal ones.

The whale entanglement disaster shocked and galvanized our industry to advocate for, and through the Legislature establish, the "California Dungeness Crab Fishing Gear Working Group" in September, 2015 — staffed by the governmental entity known as the California Ocean Protection Council (OPC). The Working Group is comprised of commercial and recreational fishermen, environmental organization representatives, members of the whale disentanglement network, and both state and federal agencies.

The Working Group's charge is to:

- Collaboratively inform and guide the state of California (CDFW, OPC, Fish & Game Commission, and the Legislature) in addressing key information gaps and/or measures to reduce the risks of entanglements in Dungeness crab fishing gear
- Provide guidance and recommendations to the California Dungeness crab fishing industry, including the [already Legislatively created] Dungeness Crab Task Force (DCTF), about how to avoid/minimize whale entanglements and identify measures or experiments that can be developed or implemented by the fishing community to address the entanglement issue
- Guide whale entanglement reduction efforts by establishing priorities for the Working Group, and help inform other entities seeking to address the issue of whale entanglements in California.

(*See* www.opc.ca.gov/whale-entanglement-working-group).

Given their major concern about whale entanglements in other areas of the country, the Center for Biological Diversity (CBD) was deliberately included in the Working Group to work collaboratively with the fishing industry and state and federal agencies to come up with changes in fishery management that would minimize future whale entanglements.

Although sometimes difficult, many important and effective entanglement mitigation and prevention measures have come out of that collaborative effort. They include a decision-making process for Dungeness fishery management called the *Risk Assessment and Mitigation Program* (RAMP). Under RAMP, the determinations made regarding whether, when, and how to open or close crab fisheries are based on real-time survey data of whale migrations throughout the season. The principle of RAMP is simple: if you know where the whales are, you can much more easily avoid them. The best entanglement prevention is complete avoidance.

However, at some point in 2017 CBD got frustrated with the Working Group process and proceeded to file litigation in *CBD v. Bonham* (3:17-cv-05685 (N. D. Cal.)). PCFFA intervened in that litigation in support of California Department of Fish & Wildlife (CDFW) efforts to resolve these issues through the Working Group, rather than in Court. Ultimately, building on prior collaborative relationships with CBD, the litigants all sat down and worked out a hard-fought Settlement Agreement that was adopted by the Court on March 26, 2019, with a stay of these proceedings while its terms were being implemented.

This Settlement Agreement required that the RAMP process be formally implemented by rulemaking and the State of California agreed to seek a NMFS Biological Opinion and Incidental Take Statement (ITS) as part of NMFS approval of an acceptable long-term Conservation Plan for California's commercial Dungeness crab fishery. After several rewrites, a December 2021 draft Conservation Plan has been circulated for public comments and is expected to be finalized and submitted to NMFS for approval and issuance of an Incidental Take Statement in the very near future.

Fisheries & the ESA

RAMP Model

The RAMP mitigation program has now been codified by the State of California as Cal. Code of Regulations Sec. 132.8. Much more information on RAMP can be found at: https://wildlife.ca.gov/Conservation/Marine/Whale-Safe-Fisheries.

RAMP is now a model for similar Dungeness crab fishery mitigation programs in the States of Oregon and Washington, both of which are also dealing with whale entanglement problems. There is now considerable cooperation among these three states on developing solutions to these problems.

Entanglement Reforms

A number of important (largely fishery industry-initiated) Dungeness crab fishery management reforms have been implemented in California.

Reforms to minimize whale entanglements include:

- new universal gear marking rules to distinguish between California fisheries gear and other fisheries (*i.e.*, in Oregon, Washington, or Mexico)
- an active program to find and retrieve abandoned or lost fishing gear at sea
- better methods of ascertaining where the fleet is when fishing, in relation to whales
- better ways of locating and tracking whale migrations generally so as to avoid boat-whale interactions entirely
- frequently updated "best management practices" for crab fishing that avoid whale entanglements
- several improvements in rope and gear configurations that minimize the likelihood of entanglements, and if entanglements do occur, minimize the likelihood of mortalities
- much better research on whale migration routes, including more sophisticated modeling efforts to predict those migration patterns
- an active and well-funded program for developing and testing "alternative gear" that reduces risk or severity of entanglement, along with a parallel process of alternative gear use permits that allow the use of such gear, once tested and approved by CDFW, in active fisheries
- a better-organized and funded whale rescue rapid response network, so that whales identified as entangled can be reached and released as soon as possible

Progress

As a result of putting RAMP in place and making all these other changes within the fleet, the number of whale entanglements in the California Dungeness crab fishing gear has now dropped to only one entanglement incident in 2020, and again only one incident (which was non-fatal and the whale was quickly released) in 2021. This is progress.

Pop-Up Gear Proposal & Assessment

The so-called "solution" of "ropeless 'pop-up' gear" has also entered the debate once again in California, coming from certain NGO groups. Some of these groups introduced a bill in the California Legislature in February, 2021 to *require* the *exclusive use* of such "rope-less 'pop-up' gear" in California crab trap fisheries (AB 534, Bonta). The concept in RAMP of "alternative gear" could include such high-tech solutions if they actually worked. However, after field-testing many proposed alternative gear configurations, CDFW in its December 2021, draft Conservation Plan stated that:

> CDFW considered requiring the use of pop-up gear throughout the fishing season, rather than classifying it as one of many potential types of Alternative Gear whose use is limited to certain closures after April 1. Ultimately, CDFW decided against this alternative due to concern about gear conflict, enforceability, implementation costs, and compatibility with fishery operations… After consideration of the potential harm from gear conflicts and the anticipated economic impacts on the fishery, CDFW found this to be an impracticable alternative.

Draft *Conservation Plan for California's Commercial Dungeness Crab Fishery* (December, 2021), pp. 117-118.

Alternative Gear Research

There will be continuing research in California, including development and testing of various types of "alternative gear" in search of gear types and configurations that minimize the risk of future whale entanglements that are practical and cost effective.

Commercial fishing men and women are innovative and resilient, and just as concerned about avoiding whale entanglements as anyone. If alternative gear types that reduce entanglement risks can be demonstrated to work and are practical, the California crab boat fleet will likely adopt them quickly.

Management Councils Disputes

Legal Fights Over Salmon Fishery Management

Given the high economic stakes involved, there are frequent disputes over the details of federal and state salmon fishery management, particularly at the federal level through the Magnuson Act-created Fishery Management Councils. The Pacific Fishery Management Council (PFMC) manages ocean fisheries offshore the states of California, Oregon, and Washington, while the North Pacific Fishery Management Council (NPFMC) manages Alaska's ocean fisheries. Some of these disputes have recently resulted in litigation, including the following:

Fisheries & the ESA

Bycatch "Control Rule"

Salmon Intermingling

Incidental Take

Rule Review & Update

All Impacts

Orcas Impact

Relief Sought

Interagency Workgroup

Ocean Salmon Fisheries

Limited Impact

***Hoopa Valley Tribe v. Ross* (18-cv-6191) (N. D. Cal.):** This case was brought by a federally recognized Indian Tribe located in northern California which also has a small in-river commercial salmon fishery. The Tribe disputed the science behind a PFMC-adopted ocean bycatch "control rule" for the ESA-listed Southern Oregon/Northern California (SONCC) Coho salmon **e**volutionarily **s**ignificant **u**nit (ESU). These coho are typically found at sea within what is called the "Klamath Management Zone" (KMZ) in northern California and southern Oregon.

These SONCC Coho cannot be directly targeted in any commercial fishery because they are ESA-listed. In fact, all directed fisheries on this stock were closed down by the PFMC back in the mid-1990s, several years before their ESA listing in 1997, under "weak stock management" conservation principles. However, since many salmon species intermingle in the ocean, some SONCC Coho might accidentally be harvested as "bycatch" in much more abundant fall-run Chinook fisheries also located within the KMZ. The current PFMC-adopted "control rule" is that no more than 13% of the abundance of SONCC Coho can be harvested in the KMZ Chinook fishery as bycatch. In fact, incidental take of SONCC coho in that Chinook fishery has averaged only about 5.5% over 2010 to 2019, well within those ceiling limitations. That 13% control rule, though, had not been reevaluated since 1999.

NMFS's response to this suit is interesting as well as creative. They essentially admitted that the key point of the suit — that the control rule needed to be updated in the light of new science — was correct, and they pledged to do so in return for a long-term stay of that litigation. NMFS got the stay, then submitted the question to the PFMC itself, which formed an *ad hoc* interagency technical work group to review that control rule. The work group then put together a Risk Assessment final report dated October 2021, and reported its recommendations to the PFMC at its November 2021 meeting.

The PFMC made its recommendations to NMFS at its January 2022 meeting, and NMFS is currently considering those recommendations. The end result is likely to be a new control rule that is very similar to the old one, but updated to be in line with the best available science and as more inclusive of all impacts. This includes impacts from the Tribe's own in-river "mark fishery" (wherein the marking of hatchery stock allows for native fish caught in the net to be identified and returned to the river). In-river Tribal fishery impacts on SONCC Coho were not considered in setting the prior control rule.

***Center for Biological Diversity, Wild Fish Conservancy v. NMFS* (2:19-cv-487 (W.D. Wa.)):** This is another case in which PCFFA intervened. Originally this appeared to be an effort by Wild Fish Conservancy (allied with Center for Biological Diversity (CBD) due to its vast ESA litigation experience) to shut down major west coast ocean Chinook salmon fisheries. Their aim was to provide more ocean Chinook salmon for ESA-listed Southern Region Killer Whale (SRKW) orcas. The effort was based on the misguided theory that ocean salmon fisheries were taking food out of the mouths of starving ESA-listed orcas. According to allegations in the complaint and some feeding habit studies, SRKW orcas vastly prefer Chinook salmon over any other prey species (unlike their close cousins, the Northern Resident Killer Whale orcas).

The Pacific Northwest salmon fishery is managed by the Pacific Fishery Management Council through a Fishery Management Plan (FMP). This plan, unfortunately, has not been updated on this issue since 2012.

The primary relief sought by the Plaintiffs was to have NMFS update and redo its 2012 ESA consultation and develop an updated Biological Opinion. Plaintiffs sought to require PFMC to install new mitigation measures in its salmon FMP, to assure that ocean salmon fisheries under the FMP were managed to leave an adequate prey base of Chinook in the ocean for the SRKW orcas.

NMFS's response was direct, creative, and effective. Essentially, NMFS admitted the need to reconsult and develop an updated Biological Opinion, and pledged to do so (on a pre-agreed timeline) in return for a stay of the litigation. NMFS again referred the question to the third-party expertise of the Pacific Fishery Management Council (PFMC). PFMC again appointed another highly qualified *ad hoc* interagency technical workgroup to analyze the new data and forward a Risk Assessment with recommendations to the PFMC for action, which it did in May 2020. The working group met several times, with good public participation (including from both PCFFA and CBD). The analysis behind the Risk Assessment was in my opinion thorough, professional, and used the best available science.

On the basis of the best available science, the SRKW Risk Assessment concluded (along the same lines as the 2012 Risk Assessment) that ocean salmon fisheries actually had *little or no significant impact* on the prey base of the ESA-list orcas. The updated Assessment noted that all the ocean salmon fisheries combined only harvested between 1.2 to 7.7 % of the total abundance of salmon available in the ocean, depending on locations. It also showed that the actual ocean abundance of salmon has been steadily trending upwards in recent years, while salmon harvests have been trending downwards. Further, it found that there are roughly three times the number and density of Chinook salmon in the estuaries where

Fisheries & the ESA

"Boundary Condition"

Alaska Orcas

Salmon Management

Hatchery Mitigation Opposed

Mixed Rulings

Outcome Unclear

Boldt Decision

Harvest Reallocation?

Causes of Action Dismissed

orcas feed than are needed or could possibly be used by the orcas. It also confirmed that the salmon harvests that do exist are already targeted for times and areas that avoid even potential orca impacts.

NMFS finalized its new salmon FMP Biological Opinion on SRKW impacts on April 21, 2021. The PFMC amended its salmon FMP shortly thereafter. The amended salmon FMP did result in some "boundary condition" changes to the FMP harvest levels to be implemented to help the orcas in years of very low salmon ocean abundances, as a precautionary measure. No other changes were made to current fisheries given the current (and gradually increasing) salmon abundance. Because the relief the Plaintiffs in the case had requested has come to pass, this case was dismissed in October 2021.

***Wild Fish Conservancy v. Thom* (2:20-cv-417 (W.D. Wa.)):** A parallel, but more complex, case involves salmon fishery management and Southern Region Killer Whale (SRKW) orcas in Alaska. The Wild Fish Conservancy (this time without the Center for Biological Diversity) took on NMFS and the North Pacific Fishery Management Council (NPFMC) for flaws it saw in the NPFMC's Alaska salmon fisheries FMP. The Wild Fish Conservancy additionally opposed the federal delegation of that management authority to the State of Alaska, as had traditionally been done.

Wild Fish Conservancy also claimed that these Alaska salmon fisheries were being managed in ways that were detrimental to the survival and recovery of ESA-listed SRKW orcas as well as the salmon themselves. This same group of orcas also spend a great deal of their time each year feeding in the waters of southeast Alaska, again looking primarily for Chinook salmon as their preferred prey. The Alaska Troller's Association (with which PCFFA has a close working relationship) also intervened in this case, as did the State of Alaska. The outcome of this case is also of great interest to one of PCFFA's member associations, the Coastal Trollers Association representing salmon fishermen primarily in Washington State, many of whom also fish in Alaskan waters.

Wild Fish Conservancy brought this suit not just to protect the SRKW orcas, but oddly also to oppose one of the primary mitigation measures endorsed by NMFS and the State of Alaska to help these same orcas — i.e., increasing Alaska's Chinook hatchery production so that more Chinook would ultimately be available at sea for the orcas. If hatchery-based mitigations were blocked, presumably the only course NMFS would then have would be to reduce salmon fisheries generally.

It seems contradictory to both advocate for orcas while opposing one of the few ways that the orca prey base can be quickly expanded. However, Wild Fish Conservancy has often stated its opposition to ocean commercial salmon fisheries as they are now structured. The Conservancy favors returning all commercial fishing to in-river fish trap fisheries and recreational anglers (*see* www.wildfishconservancy.org).

On September 27, 2021, the Magistrate Judge in this case made numerous but mixed recommended rulings that pleased noone. Multiple objections to those recommendations were filed and responded to, and summary judgment motions in this case are now queued up for a determination by the Judge assigned to the case. It is unclear at this time what will happen after that hearing, which had not been assigned a hearing date at the time of this writing.

Suit to Reallocate Fisheries

***Fish Northwest v. Thom* (2:21-cv-570 (W.D. Wa)):** There are recreational angler groups in the Pacific Northwest that are still angry about the decision in *U.S. v. Washington* (Boldt Decision), 384 F. Supp. 312, aff'd 520 F.2d 676 (1975). The Boldt Decision collectively reallocated 50% of Washington's salmon harvests from existing fisheries to be split among various Native American Tribes.

Fish Northwest v. Thom appears to be an attack against the Boldt Decision allocation to the Tribes simply couched as an ESA suit. In seeking to protect certain ESA-listed fish that might be caught occasionally in Indian Tribal fisheries, the Plaintiffs apparently hope to reallocate more fish to Washington's recreational fisheries by demanding that Tribal fisheries be subjected to a higher level of ESA scrutiny.

The Plaintiff "Fish Northwest" is described in its April 28, 2021, complaint as "a Washington non-profit that is committed to the conservation and preservation of Puget Sound salmon and restoring and expanding fishing opportunities for Washington anglers." (pg. 3). The original complaint also brings in a number of federal officials and agencies (including the federal Bureau of Indian Affairs) as well as the State of Washington Department of Fish & Wildlife.

The original complaint was a mish-mash of somewhat vague causes of action, a number of which have since been dismissed, some with prejudice and others with leave to amend. A Third Amended Complaint was filed November 1, 2021. Where this considerably curtailed case will ultimately go is a puzzle.

Fisheries & the ESA

Management Council Challenged

Fishery Closure

Planning Authority

Constitutional Question

ESA: Regulation & Tool

Fishing Industry Contributions

Collaboration Essential

Correct the Problem

Attacks on the Constitutionality of the Magnuson Act

***Humbyrd v. Ramondo; United Cook Inlet Drift Association et al., v. NMFS*. Consolidated as (3:21-cv-00255 (W.D. Ak)):** This fascinating pair of cases started with *Humbyrd v. Ramondo* (3:21-cv-247) filed November 9, 2021. This initial case, brought by the Pacific Legal Foundation, challenged the constitutionality of the North Pacific Fishery Management Council's (NPFMC's) authority under the Magnuson Act to adopt Amendment 14 of the Alaska Salmon Fishery Management Plan (FMP).

Amendment 14 essentially closes down the once-productive Cook Inlet salmon fishery, which has plummeted in salmon productivity in recent years. The Plaintiffs claim that the closing is a decision that affects their livelihoods without rational basis or justification.

On motion by the federal government, this *Humbyrd* case was consolidated by the Alaska Federal District Court with *United Cook Inlet Drift Association, et al. v. NMFS, et al*. on January 6, 2022, (filing under Case No. 3:21-cv-00255). The original *Humbyrd* case file was administratively closed. While this case is not an ESA case per se, it has major implications concerning Magnuson Act fishery management councils' legal abilities to craft ESA-listed species mitigation measures in their Fish Management Plans — or even whether they have the legal authority to adopt FMPs at all.

The now merged *United Cook Inlet* case also challenges the NPFMC's Amendment 14 to the Alaska Salmon FMP. It asserts, more traditionally, violations of the Administrative Procedures Act and Magnuson Act. This new case is a followup from several years of similar prior litigation by these Plaintiffs over the previous Amendment 12, including *United Cook Inlet Drift Ass's v. NMFS*, 837 F.3d 1055 (9th Cir. 2016), which remanded these issues back to the NPFMC. With Amendment 14, NPFMC again attempted to address the underlying issues.

The State of Alaska was allowed to formally intervene on January 6, 2022, and several Alaskan cities have moved to file amicus briefs. As this case is still in its earliest stages, its outcome is uncertain. However, as the case has morphed into a direct challenge to the constitutionality of the NPFMC process under the Magnuson Act, it is likely to be strongly defended by the US Department of Justice. The fate of Alaska Salmon FMP Amendment 14 may be decided separately from this constitutional question if these entirely separate causes of action are bifurcated.

Conclusion

CREATIVE RESPONSES TO FISHING-RELATED ESA LAWSUITS

Even though the fishing industry is highly regulated under the ESA, that statute has also provided fishing industry champions like PCFFA with a valuable legal tool to halt the destruction of salmon habitat, dewatering of salmon rivers, pollution of salmon-supporting water sources, and support for the removal of salmon-killing dams. This is necessary because all too many salmon runs are so damaged by non-fishing impacts that they had to be ESA-listed just to give them a chance to survive.

But since we are also regulated under the ESA, this makes it morally mandatory for our industry to also clean up its own impacts however it can. Otherwise, how can we assert the moral authority to make the same demand of other industries?

I am proud to say that wherever fishing impacts adversely affect ESA-listed species, we are indeed addressing those problems realistically and doing what we can to minimize, mitigate, and avoid harming ESA-listed species through our operations. A good case in point is how our industry has navigated the difficult shoals of the California Dungeness crab gear whale entanglement crisis. Our industry's efforts — worked out in cooperation and with the collaboration of agencies as well as many environmental protection and whale groups — has made a huge difference. California's whale entanglements from crabbing gear has been reduced to almost nothing. Ongoing precautionary programs will also make such entanglements far less likely in the future.

It is important to work with alliances of groups to address common environmental problems. It is not enough to just work with (sometimes critical) environmental NGO's. It also involves collaboration with the timber industry on creating better forestry protections for salmon, with the agricultural industry in assuring more water for salmon, and with a multitude of other stakeholders in cleaning up our environment so that both human communities, as well as salmon, can prosper.

If you are Counsel for a fishing industry group getting sued under the ESA, it is not enough just to "win the case." Unless you correct the underlying problem, more lawsuits will surely follow. Your real job is helping your clients resolve the underlying problems that created the conflict. If there are indeed fishing impacts on ESA-listed species, don't deny it — rather, identify it with the best available science. Work with the litigants to craft a solution and a settlement so that the conflict *itself* can be diminished and mitigated. Establish a path to the underlying adverse impacts being avoided in the future. One must treat the problem, not just the symptoms.

Fisheries & the ESA

Rank-and-File Pragmatism

Litigation Limits

Ultimate Solution

Nourish Alliances

If you are Counsel for an NGO or another party suing fisheries groups — get all the parties talking to each other. Talk with rank-and-file fishing folks to get their ideas on how to solve the problem. Don't forget that the people whose livelihoods and communities depend on a healthy ocean environment have "environmentalism" built into their DNA and into their culture. They are just as eager to solve these conflicts as you and your clients are — maybe even more so. They will have many good and pragmatic ideas based on practical experience.

Litigation may be a good tool to bring a problem to public attention, but it's a lousy tool for creating real and lasting environmental improvement. What works best is a healthy agreement addressing the actual problem and then putting in the hard, collaborative work to solve it. Using the best available science, solutions should be crafted in such a way that the folks you have sued can accept it and still make a decent living. There are usually a lot of "win-win" solutions to work around potential environmental conflicts — find them!

Of course, the best way ultimately to address ESA listings is to recover the damaged species to full abundance. This is accomplished by giving them back a healthy ecosystem to live in. A healthy ecosystem is also the best way to prevent further erosion of our natural biodiversity and thus prevent the need for future ESA listings. It's also the best way to assure the future of our own completely environment-dependent fishing livelihoods, cultures, and communities.

There is plenty of room and many excellent reasons to create and nourish alliances between fishing industry groups and other groups to work on environmental restoration and sustainability issues — especially in the new era of rapid climate change.

We often forget that, as humans, a clean and healthy environment is the most fundamental foundation not only of our civilization's wealth, but of our very lives and futures.

For Additional Information:

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Pacific Coast Federation of Fishermen's Associations website: https://pcffa.org

Glen Spain, J.D., is the Northwest Regional Director for the Pacific Coast Federation of Fishermen's Associations (PCFFA), which is the US west coast's largest trade organization of commercial fishing families, and of its sister organization, the Institute for Fisheries Resources (IFR), which is dedicated to protecting and restoring habitats for salmon and other commercially fished species. He is also currently the Commercial Fishing Representative to the Habitat Committee of the Pacific Fishery Management Council (PFMC) and has been PCFFA/IFR General Legal Counsel since 1980.

Microplastics

MICROPLASTICS IN WATER

A SURVEY OF OREGON WATERWAYS

by Celeste Meiffren-Swango, State Director
Environment Oregon Research & Policy Center (Portland, OR)

Introduction

Ubiquitous Plastics

Plastic is everywhere and in everything. It's used as packaging, it's in food service products, and it's in clothing. All told, Americans generate over 35 million tons of plastic waste every year, 90% of which is landfilled or incinerated.[1] In fact, the US throws out enough plastic every 16 hours to fill the Dallas Cowboys stadium, and that amount is increasing.[2]

Often when talking about plastic pollution, the images that come to mind are turtles snared in bags or straws, massive trash gyres in the Pacific Ocean, or whales washed ashore with hundreds of pounds of plastic waste in their stomachs. So it may not be surprising that studies found 59% of all seabird species had ingested plastic, with that number expected to rise to 99% by the year 2050.[3]

Studies have also estimated that by 2050 there will be more plastic in our oceans than fish.[4]

Oregon Plastics Pollution

While the problem is global in scale, Oregon is facing the issue of plastic pollution directly. River cleanup events held on the Willamette River have found that 60% of the debris being removed is plastic.[5] One organization alone removed 389 pickup beds' worth of plastic from just the lower Willamette in one year, which is a fraction of the actual amount of plastic in the river.[6] To make matters worse, more than 10,000 tons of plastic recycling were dumped into landfills in 2018, illustrating the state's challenges with effective plastics waste management.[7]

Microplastics

However, litter alone doesn't capture the full scope of our plastic pollution problem. Research suggests that we could be not counting 99% of the plastic that makes its way into the ocean.[8] That's because plastic doesn't degrade in the environment like an apple or a piece of paper, instead it breaks into smaller and smaller pieces called microplastics. Microplastic is plastic less than 5 millimeters (mm) in length, or smaller than a grain of rice.[9] They've now been found in the deepest depths of the ocean and on the highest mountains in the world.[10, 11] A report from Oregon Public Broadcasting suggests that more than 57 million microplastics pass through the Willamette River in Portland each day on their way to the Pacific Ocean.[12]

Hazards

Bioaccumulation

A growing area of concern regarding our plastic waste is the environmental and public health threat posed by these microplastics. They are severe suffocation and starvation hazards to wildlife and have been found in our air, food, and bodies.[13, 14, 15] Microplastics also attract pollutants that may already exist in the environment at trace levels, accumulating toxins like DDT & PCBs and delivering them to the wildlife that eat them, often bioaccumulating through the food chain.[16]

Many Sources

Microplastics don't arrive in the environment from just one source. Plastic littered on roads, in streams, or in the ocean can release tons of microplastics, but plastic waste disposed of in landfills can also release microplastics into the environment through wind, rain, and landfill leachate.[17] The burning of plastic or other waste can also create airborne microplastic particles.[18] Microbeads from cosmetic and personal care products can enter the environment at their manufacture or through sinks and drains.[19] Nurdles, the raw plastic feedstock that are used to make new plastic items, are lost by the millions every year.[20] Synthetic materials, like those used in car tires, release microplastics onto roads that are swept into stormwater infrastructure.[21]

Textiles

Clothing and other textiles are also a major source of microplastics. Fibers are one of the most commonly found types of microplastic and they're sourced from synthetic and hybrid materials like fleece.[22] Normal wear and tear will release microplastics into the air, and cleaning these textiles in a washing machine releases millions of microfibers into wastewater infrastructure, which treatment plants are unable to fully filter out.[21, 23]

To better understand the scope of the microplastic problem in Oregon, Environment Oregon sampled 30 of Oregon's most iconic rivers, lakes, and urban waterways. We found microplastics in 100% of our samples. The project took samples from these waterways over the course of 2019 and tested them for four types of microplastic pollution.

Pollution Types

The four microplastic pollution tested for were:

Fibers: primarily from clothing and textiles
Fragments: primarily from harder plastics or plastic feedstock
Film: primarily from bags and flexible plastic packaging
Beads: primarily from facial scrubs and other cosmetic products

Microplastics

Findings

The results were troubling. Of the 30 sites tested, 30 (100%) contained one or more type of microplastics.

Overall results included:

- **30 Sites (100%) Contained Fibers**
- **Six Sites (20%) Contained Fragments**
- **One Site (3%) Contained Film**

(Microbeads were not found at any site)

It's clear that the scope of plastic pollution in Oregon extends far beyond what was previously thought. Many of the waterways sampled had little to no visual litter at the point of access and have dedicated organizations and volunteers working diligently to regularly clean up litter and trash. Yet despite those efforts, Oregon's most beloved waterways continue to be contaminated with plastic pollution.

Microplastics & the Environment

Every day, Americans throw away tons of plastic "stuff" — cups, plates, bags, containers, forks, knives, spoons and more.[24] Sadly, much of this plastic waste never makes it to the trash can and ends up soiling our parks and public lands, where it also washes into our rivers, harming wildlife. Once in our environment, plastic does not biodegrade.[25] Instead, it breaks into smaller and smaller pieces known as microplastics.

Pathways

Microplastics can enter our environment through a myriad of pathways. Litter, illegal dumping, and what is broadly recognized as plastic waste are all obvious culprits. Microfibers are a prevalent type of microplastics and are introduced into the environment through clothes washing[26] — with wastewater treatment plants unable to fully filter these plastic fibers out, they can end up washed into waterways and ultimately into drinking water.[27, 28]

Nurdles

The creation of new plastic products uses small pellets called nurdles which are easily lost and frequently enter waterways.[29] Packaging and the factory processes in the creation of products like bottled water can even cause microplastic contamination.[30]

Landfill Sources

The small size of microplastics makes it easy for them to be carried by wind and rain and deposited in the environment far from their source. Meaning, plastic disposed of in a landfill can still contaminate waterways.[31]

For a bird or fish, it's easy to mistake these small pieces of plastic for food — especially when there are billions of pieces of microplastic floating in the waterway. Scientists have found that ingesting even tiny particles of plastic can alter the behavior and metabolism of fish in our lakes and rivers — and people can ingest these pollutants as they make their way up the food chain.[32, 33]

Widespread Pollution

RESEARCH ONGOING

Pervasive Problem

Scientists are still documenting the scope of plastic pollution and investigating its effects in freshwater ecosystems, but microplastics have recently been found in a number of remote environments throughout the world, showing how pervasive the problem has become.

Research Findings

Ongoing Research has Found:

- Microplastics have been found in global and domestic samples of tap water, sea salt, and beer[34]
- Microplastics have been found in a study of some of the most popular bottled water brands across several countries that point to contamination from packaging and manufacture[35]
- US Geological Survey researchers found microplastic in 90% of rainwater samples collected from sites in Rocky Mountain National Park and the Denver-Boulder urban corridor[36]
- Researchers at the University of Strathclyde in Scotland found microplastic concentrations in the air of a remote section of the French Pyrenees Mountains that were as high as concentrations in Paris[37]
- Plastic pollution has now been found in isolated marine environments in the Arctic and Antarctic[38]

Edible Plant Uptake

- Research from the Chinese Academy of Sciences has shown that microplastics in the soil can be taken up by the roots of wheat and lettuce crops and transferred to the edible portions of those plants[39]
- Recent studies from Utah State University and the University of Strathclyde among others have found high concentrations of microplastics in fog, dust, and ocean air[40, 41]
- In Oregon, a recent study from Portland State University found microplastics in the stomachs of oysters and razor clams off the Oregon Coast — only two out of the nearly 300 mollusks tested were found to be plastic-free[42]
- Microplastic pollution has been recorded at the highest elevation on Earth, Mt Everest, and the lowest, the Mariana Trench at the very bottom of the Pacific Ocean[43, 44]
- Microplastics have been found in human placentas[45]

Microplastics

Attractants

It's estimated that humans consume roughly a credit card's worth of plastic every week. The effects of this on human, animal, and environmental health are an evolving area of research.[46] Research from the National Oceanic and Atmospheric Administration has also shown that microplastic particles can attract heavy metals and chemical contaminants which are then consumed by fish, birds, and humans (among other organisms).[47] These can include PCBs and pesticides which can pose significant health risks when consumed by animals and humans.

Methodology

Study Goal

Sampling

The goal of the microplastic study was to examine the presence and type of microplastics in waterways across Oregon. Our 30 study sites were selected from three categories: scenic lakes, wild and scenic rivers, and urban waterways. We intended to capture a range of physical geography, population pressures, and waterbody types.

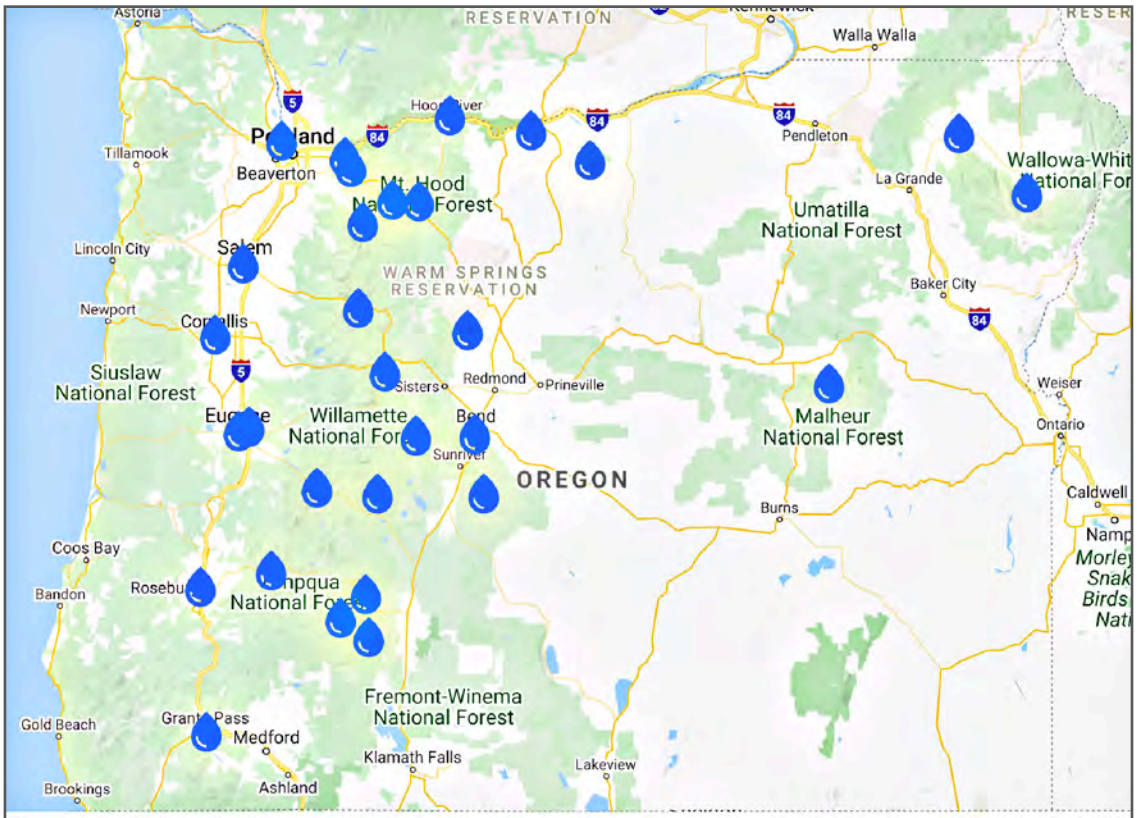
For water sampling and processing, we used the *Microplastics: Sampling and Processing Guidebook* protocol developed by: the National Oceanic and Atmospheric Administration; Mississippi State University Extension; Dauphin Island Sea Lab; and Sea Grant.[48] To aid in our identification of microplastics, we also used the *Guide to Microplastic Identification* by the Marine & Environmental Research Institute, (now Shaw Institute).[49]

Water Samples

Water samples were collected from our 30 sites in glass quart jars that had been cleaned and triple-rinsed in filtered water. Jars were sealed during storage, transport, and before sampling. At each site before collecting samples, jars were rinsed again, this time with the source water. To fill the jars, samplers walked to the water access point at a water depth of approximately two feet (where possible), and drew water samples from this point to avoid collecting sediment. For sites with no access to a depth of two feet, samples were taken at the deepest accessible depth. When taking samples from moving water, samplers collected upstream from themselves to minimize the potential for contamination. Samplers were instructed to avoid wearing fleece and other synthetic clothing materials to minimize the risk of contamination by clothing fibers.

Six quarts were drawn at each site. All jars were labeled and recorded in a field data sheet with the sample number, site description, and date. The jars were then transported to the lab for analysis.

TEST SITES LOCATION MAP



Locations of where the samples were taken. A more detailed map can be found at https://bit.ly/microplasticsinOR

Microplastics

Filter Tests

Analysis

All lab materials, including the filter funnel and petri dishes, were triple rinsed with filtered water between samples to minimize potential contamination from outside sources. Samples were processed by using a filter flask and hand pump to pass water through 47 mm gridded filtered papers. The filter paper was then transferred to a petri dish for visual inspection under a digital microscope at 40x magnification. To aid in visual identification, additional "squeeze tests" were performed with fine-tipped tweezers on any potential microplastic pieces. Any pieces that could not be positively identified through both a visual and squeeze test were not recorded.

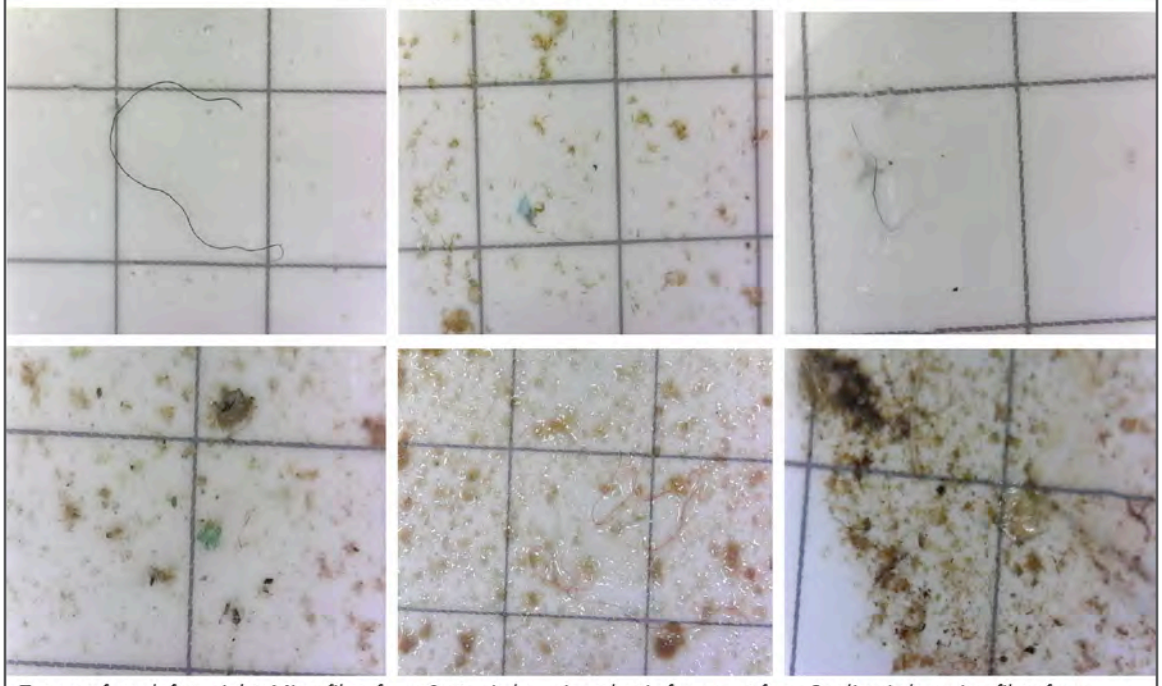
Categories

Identified Microplastics were Categorized into Four Types:

- Fibers from synthetic fabrics and filaments, such as fishing line and bailing twine;
- Fragments from rigid plastics, including polystyrene and clear plastic containers;
- Film from plastic bags and food wrappers; and
- Microbeads from older cosmetics and personal care products.[50, 51]

A digital photo was taken of each identified microplastic, and totals for each site were recorded in a data table (examples below).

Examples of Observed Microplastics



Top row from left to right: Microfiber from Crater Lake, microplastic fragment from Paulina Lake, microfiber from Clackamas River: Fish Creek; Bottom row from left to right: microplastic fragment from the Deschutes River, microfiber from John Day River, microplastic film from the South Umpqua River in downtown Roseburg.

Results

As noted above, of the 30 sites tested, all (100%) contained one or more types of microplastic. Thirty sites (100%) contained fibers; six sites (20%) contained fragments; one (3%) contained film. Microbeads were not found at any site.

Policy Recommendations

Given how widespread the threat of plastic and microplastic pollution is, there is no silver bullet solution to address the problem. Multiple policy changes at the local, state, and federal level are needed to combat this problem. Below are several recommendations and a chart of specific fixes.

Phase Out Single Use Plastics

Single-Use Ban

Nothing we use for a few minutes should be able to pollute the environment for hundreds of years. Congress, state governments, and municipalities should pass laws that phase out unnecessary single-use plastics such as polystyrene food service products, single-use plastic bags, and plastic utensils. Cutting off the source of some of the most prevalent forms of plastic pollution will help curtail the tide of microplastics entering the environment. The Oregon Legislature passed a ban on single-use plastic bags in 2019, but there is still more work to be done to reduce single-use plastics in the state.

Microplastics

RESULTS TABLE

(An interactive map with the full findings available at: https://bit.ly/microplasticsinOR)

Type of Site	Access Site Name	Waterbody	Microplastic Present?	Observed Microplastic Types			
				Fiber	Fragment	Film	Microbead
Scenic Lake	Crater Lake		Yes	•			
	Wallowa Lake		Yes	•			
	Trillium Lake		Yes	•	•		
	Waldo Lake		Yes	•			
	Paulina Lake		Yes	•	•		
	Detroit Lake		Yes	•			
	Lake Billy Chinook		Yes	•			
	Strawberry Lake		Yes	•			
	Devil's Lake		Yes	•	•		
	Diamond Lake		Yes	•			
	Clear Lake		Yes	•			
Wild and Scenic River	Salmon River Trailhead	Salmon River	Yes	•			
	Deschutes River State Recreation Area	Deschutes River	Yes	•	•		
	Dodge Park	Bull Run River	Yes	•	•		
	Cottonwood Canyon State Park	John Day River	Yes	•			
	Fall Creek Falls Trailhead	North Umpqua River	Yes	•			
	Upper Rouge River Trail	Rouge River	Yes	•			
	North Fork of the Middle Fork Willamette	Willamette River	Yes	•			
	Minam State Recreation Area	Wallowa River	Yes	•			
	Oxbow Regional Park	Sandy River	Yes	•			
	Fish Creek Trailhead	Clackamas River	Yes	•			
Urban Waterway	Cathedral Park	Willamette River	Yes	•			
	Salem		Yes	•			
	Corvallis		Yes	•			
	Eugene		Yes	•			
	Springfield	McKenzie River	Yes	•			
	Downtown Roseburg	South Umpqua River	Yes	•	•	•	
	Grants Pass	Rogue River	Yes	•			
	Hood River	Hood River	Yes	•			
	Downtown Bend	Deschutes River	Yes	•			

Microplastics

Producer Accountability

Pass "Producer Responsibility" Laws

Producer responsibility is a mechanism to shift the costs and management of postconsumer waste from local governments and consumers to producers themselves, requiring producers of plastic products to design, manage, and finance waste and recycling programs. The Oregon Legislature passed a law in 2021 that will bring in producers to start bearing some of the costs of the waste management system. The legislature should consider a *full* producer responsibility model for packaging and paper products in the coming years. Additionally, Congress should pass federal measures like the *Break Free From Plastic Pollution Act* to make these programs more widespread and shift the burden onto those who create the pollution.

Reuse

Encourage Reuse

Whenever possible, municipalities should adopt practices that make it easier for residents to use reusable materials instead of single use plastics. The State of Oregon should also update the rules to allow consumers to bring their own reusable food containers and produce bags to grocery stores and restaurants.

Fashion Accountability

Fight Fashion Excesses

Clothing production and use could spew 22 million metric tons of microplastics into the ocean between 2015 and 2050.[54] To fight textile waste, retailers must stop sending overstock, unsold, and unused clothing to landfills and incinerators. State and local governments should pass laws preventing this practice so that clothing manufacturers and retailers stop producing more clothing than we could ever need.

Stormwater Actions

Develop Green Infrastructure

A recent study from the San Francisco Estuary Institute found that car tire debris from stormwater runoff may be a significant contributor of microplastic pollution.[55] To keep this debris out of our water, municipalities need to reduce combined sewage overflow and ensure runoff is treated. Green infrastructure projects can reduce the amount of plastics that wash directly into our waterways.

POLICY SOLUTIONS

Reduce	Reuse	Recycle
Ban unnecessary single use plastics such as polystyrene foam (commonly called Styrofoam) food containers.	Pass Right to Repair Laws, giving consumers and independent repair shops the ability to fix their stuff when it breaks.	Pass full Extended Producer Responsibility Laws that make manufacturers responsible for dealing with the waste their products will become.
Require unnecessary single-use plastic accessories such as straws, utensils, and condiment packets, to be given only upon customer request	Allow consumers to bring their own reusable containers and produce bags to grocery stores and restaurants.	Expand curbside recycling and composting efforts.
Oppose the creation of new plastic production infrastructure.	Require sit-down restaurants to use reusable plates and foodware.	Mandate new products contain a certain percentage of recycled material.
Enact "Pay As You Throw" programs that charge consumers less if they throw out less trash.	Facilitate textile recycling and reuse programs to prevent clothing from becoming waste and disincentivize new clothing manufacture.	Ban food waste from landfills and encourage the creation of a comprehensive composting system.

Conclusion

Easing the burden on the overall waste system is imperative to mitigating plastic pollution. Minimizing various waste streams and creating systems to better prevent waste from being created will make it easier to deal with sources of plastic and microplastic pollution.

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Celeste Meiffren-Swango is director of Environment Oregon, a non-profit focusing on timely, targeted action to win tangible improvements in the quality of our environment. Celeste develops and runs campaigns to attain real results for Oregon. She has worked on issues ranging from preventing plastic pollution, stopping global warming, defending clean water, and protecting our beautiful places. Celeste's organizing has helped to reduce kids' exposure to lead in drinking water at childcare facilities in Oregon, encourage transportation electrification, ban single-use plastic grocery bags, defend our bedrock environmental laws, and more. She is also the author of the children's book — "*Myrtle the Turtle*" — empowering kids to prevent plastic pollution. Celeste lives in Portland, Oregon, with her husband and two daughters, where they frequently enjoy the bounty of Oregon's natural beauty.

FOOTNOTES

1. US Environmental Protection Agency (EPA) Office of Land and Emergency Management, "*Advancing Sustainable Materials Management: 2017 Fact Sheet*" November 2019
2. Adrian Pforzheimer and Alexander Truelove, "*Break the Waste Cycle: Producer Responsibility Policies to Move the U.S. Toward Zero Waste"* Environment Oregon Research and Policy Center, January 2021
3. Chris Wilcox et al. "*Threat of Plastic Pollution to Seabirds is Global, Pervasive, and Increasing*" Proceedings of the National Academy of Sciences, September 22, 2015
4. World Economic forum, "*The New Plastics Economy: Rethinking the Future of Plastics*" January 2016
5. Travis Williams, "*Willamette Riverkeeper Testimony In Support Of SB 582-1*" Oregon Legislature, February 22, 2021
6. *See* note 5
7. Oregon Zoo, "*Plastic Pollution*" accessed May 7, 2021
8. Rebecca Hersher, "*The Atlantic Is Awash With Far More Plastic Than Previously Thought, Study Finds*" National Public Radio, August 20, 2020
9. National Oceanic and Atmospheric Administration (NOAA), "*What are Microplastics?*" National Oceanic and Atmospheric Administration. March 3, 2020. https://oceanservice.noaa.gov/facts/microplastics.html
10. Sarah Gibbens, "*Plastic Proliferates at the Bottom of World's Deepest Ocean Trench*" National Geographic, May 13, 2019
11. Damian Carrington, "*Microplastic Pollution Found Near Summit of Mount Everest*" The Guardian, November 20, 2020
12. Jes Burns and Casandra Profita, "*Hunt For Answers Shows Oregon Rivers Not Immune To Microplastic Pollution*" Oregon Public Broadcasting, July 30, 2019
13. NOAA Marine Debris Program. "*Occurrence and Health Effects of Anthropogenic Debris Ingested by Marine Organisms*" National Centers for Coastal Ocean Science: Center for Coastal Environmental Health and Biomolecular Research, NOAA Marine Debris Program Office of Response and Restoration, 2014
14. *See* note 9
15. Janice Brahney et al. "*Plastic Rain in Protected Areas of the United States*" Science Vol. 368, Issue 6496, pp. 1257-1260. June 12, 2020
16. Julie Anderson et al. "*Microplastics in Aquatic Environments: Implications for Canadian Ecosystems*" Environmental Pollution Vol. 218, November 2016, Pages 269-280
17. Robert C. Hale et al. "*A Global Perspective on Microplastics*" Journal of Geophysical Research: Oceans Vol. 125. January 6, 2020
18. *See* note 17
19. 5 Gyres Institute "*Plastic Microbeads*" 5 Gyres Institute, 2020. www.5gyres.org/microbeads
20. Julissa Treviño and Undark, "*How the Plastic Particles Called Nurdles Pollute Oceans*" The Atlantic, July 5, 2019
21. Rebecca Sutton et al. "*Understanding Microplastic Levels, Pathways, and Transport in the San Francisco Bay Region*" San Francisco Estuary Institute, October 2019
22. Ellen MacArthur Foundation. "*A New Textiles Economy: Redesigning Fashion's Future*" 2017
23. *See* note 22
24. EPA, "*Plastics: Material-Specific Data*" EPA, 2020. www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/plastics-material-specific-data
25. Natalie Wolchover, "*Why Doesn't Plastic Biodegrade?*" Live Science. March 02, 2011
26. *See* note 22
27. *See* note 22
28. Mary Kosuth et al. "*Anthropogenic Contamination of Tap Water, Beer, and Sea Salt*" PLoS One, April 11, 2018
29. *See* note 20
30. Sherri A. Mason et al. "*Synthetic Polymer Contamination in Bottled Water*" Frontiers in Chemistry, September 11, 2018
31. *See* note 17
32. Karin Mattsson et al. "*Altered Behavior, Physiology, and Metabolism in Fish Exposed to Polystyrene Nanoparticles*" Environmental Science & Technology 2015, 49, 1, 553–561. December 7, 2014
33. Madeleine Smith et al. "*Microplastics in Seafood and the Implications for Human Health*" Current Environmental Health Reports, August 16, 2018
34. *See* note 28
35. *See* note 30
36. Gregory A. Wetherbee et al. "*It is Raining Plastic*" US Geological Survey, May 14, 2019
37. Steve Allen et al. "*Atmospheric Transport and Deposition of Microplastics in a Remote Mountain Catchment*" Nature Geoscience, June 18, 2019
38. Filipa Bessa et al. "*Microplastics in Gentoo Penguins from the Antarctic Region*" Nature, October 2, 2019
39. Lianzhen Li et al. "*Research: Crop Plants are Taking Up Microplastics*" Provided by Chinese Academy of Sciences for Phys.Org., July 13, 2020
40. *See* note 15
41. Karen McVeigh, "*Microplastics Discovered Blowing Ashore in Sea Breezes*" The Guardian, May 12, 2020
42. Erin Ross. "*Scientists Discover Microplastics in Oregon Oysters and Razor Clams*" Oregon Public Broadcasting, November 13, 2019
43. *See* note 11
44. *See* note 12
45. Antonio Ragusa et al. "*Plasticenta: First Evidence of Microplastics in Human Placenta*" Environment International, Volume 146, January 2021, 106274, December 2, 2020
46. Simon Scarr, "*A Plateful of Plastic: Visualising the Amount of Microplastic We Eat*" Reuters, December 31, 2019
47. *See* note 13
48. Mandy Sartain et al. "*Microplastics Sampling and Processing Guidebook*" Mississippi State University Extension, 2018
49. A.P.W. Barrows et al. "*Guide to Microplastics Identification, A Comprehensive Methods Guide for Microplastics Identification and Quantification in the Laborat*ory" Marine & Environmental Research Institute, Blue Hill, ME, 2017
50. The Microbead-Free Waters Act of 2015 required all personal care product manufacturers to phase out the use of microbeads in the United States by 2018
51. *See* note 10
52. "Wildlife Over Waste" Environment Oregon, 2021
53. "'*Refill Not Landfill' Aims to Stop Flathead County's Landfill from Growing*" KPAX, May 3, 2019
54. *See* note 22
55. Rosanna Xia, "*The Biggest Likely Source of Microplastics in California Coastal Waters? Our Car Tires*" Los Angeles Times, October 2, 2019

WATER BRIEFS

INFRASTRUCTURE US
FEDERAL FUNDING
WEBINAR MARCH 16

On March 8th, the US Environmental Protection Agency (EPA) issued a memorandum to guide collaborative implementation with state, local, and Tribal partners of $43 billion in water infrastructure funding through the Bipartisan Infrastructure Law. This law is providing the single largest investment in water the federal government has ever made. EPA's memo outlines requirements and recommendations for the Drinking Water and Clean Water State Revolving Funds (SRFs) to ensure delivery of clean and safe water and replace lead pipes for all Americans, especially disadvantaged communities.

The majority of water infrastructure funding — $43 billion — will flow through the Clean Water and Drinking Water State Revolving Funds (SRFs). EPA's implementation memo provides information and guidelines on how EPA will award and administer supplemental SRF Capitalization Grants.

EPA hosted a national webinar concerning this funding on March 10, 2022, and will be conducting another webinar in this regard on March 16, 2022. To register: www.epa.gov/dwsrf/forms/bil-implementation-memorandum-webinar.

For info: www.epa.gov/infrastructure

TOXICS REPORTING US
2020 ANALYSIS
PFAS REPORTING PROPOSAL

On March 3rd, EPA released its 2020 Toxics Release Inventory (TRI) National Analysis, which shows that environmental releases of TRI chemicals by facilities covered by the program declined by 10% between 2019 and 2020. More than 21,000 facilities report annually on over 800 chemicals they release into the environment or otherwise manage as waste. EPA, states, and tribes receive TRI data from facilities in industry sectors such as manufacturing, mining, electric utilities, and commercial hazardous waste management.

EPA has added demographic information to the "Where You Live" mapping tool, making it easy to overlay maps of facility locations with maps of overburdened and vulnerable communities. The 2020 Analysis is also the first to feature reporting on the 172 per-and polyfluoroalkyl substances (PFAS) added to TRI by the 2020 National Defense Authorization Act (NDAA). Facilities reported managing 800,000 pounds of these chemicals in 2020, but of that, only around 9,000 pounds were reported as releases. Most of the production-related PFAS waste was reported by hazardous waste management facilities or chemical manufacturers, and most releases of PFAS were reported by the chemical manufacturing sector.

EPA has used existing data to generate lists of potential producers and recipients of PFAS waste, and has contacted facilities with potential reporting errors, as well as those that were expected to report but did not.

EPA plans to enhance PFAS reporting under the TRI by proposing a rulemaking this summer that would, among other changes, remove the eligibility of the de minimis exemption for PFAS.

For info: TRI National Analysis at: www.epa.gov/trinationalanalysis

SOLAR-PANELED CANALS CA
IRRIGATION CANALS

Research conducted by a UC Merced graduate student is becoming a reality as the Turlock Irrigation District (TID) in California approved piloting the first-in-the-nation construction of solar panels over water canals.

The project is based on research commissioned by Solar AquaGrid, through the Sierra Nevada Research Institute and UC Water. Environmental engineering graduate alumna Brandi McKuin was one of the researchers who showed that covering the 4,000 miles of California's water canals could reduce evaporation by as much as 82%, saving about 63 billion gallons of water a year. That's comparable to the same amount needed to irrigate 50,000 acres of farmland or meet residential water needs of more than two million people.

Covering all of California's water canals with solar installations would also generate 13 gigawatts of renewable power, equaling roughly 1/6th of the state's current installed capacity — about half the projected new capacity needed by 2030 to meet the state's decarbonization goals.

"Using water canals for solar infrastructure conserves water while producing renewable electricity and avoids converting large tracts of land to solar development," McKuin said. "The cooler microclimate next to the canal mitigates panel heating, which enhances PV efficiency, and shade from the panels mitigates aquatic weed growth which is a major maintenance issue."

TID officially approved Project Nexus at its February 8th board meeting. California wants 50% of its electricity to come from renewable sources by 2030 and allocated $20 million for Project Nexus. The project is a public-private-academic partnership among TID, the Department of Water Resources (DWR), Solar AquaGrid and UC Merced.

McKuin and others from UC Merced wrote a paper that appeared in the journal Nature, demonstrating the advantages of solar canals. The challenges include a higher cost of associated structures relative to output; the need for access to the canals for maintenance (which makes it difficult to deploy the modules in the most cost-effective way); and handling delivery of the electricity to a useful load.

As they evaluate each "**k**ey **p**erformance **i**ndicator" (KPI), Kurtz, McKuin and other researchers, will look for opportunities to innovate to improve the bottom line, including a small number of simple engineering designs that could improve access and other details. They also plan to map the state's canals to identify which design is most beneficial for each segment and see if there are segments that would not be good candidates for adding solar panels. In addition, engineering professor Marie-Odile Fortier and one of her students will conduct a life-cycle assessment of the system. Engineering professor Roger Bales, who has been coordinating the project since research began in 2015, will also contribute to the scaling analysis, prototype analysis, and communications. A companion project on the UC Merced campus will allow researchers to make closer observations, potentially providing a way to include the Merced Irrigation District.

Groundbreaking on Project Nexus is scheduled for Fall 2022, with completion expected in 2024 at multiple locations throughout the TID service territory in the Central Valley. The project will use existing TID infrastructure on already-disturbed land to keep costs low and efficiency high while supporting the region's sustainable farming tradition. Energy storage will be installed to study how storage facilities can support the local

electric grid when solar generation is suboptimal due to cloud cover.
For info: www.universityofcalifornia.edu/news/solar-paneled-canals-getting-test-run-san-joaquin-valley

ABANDONED MINES US
RECLAIMING MINE LAND

The US Department of the Interior (Department) on February 7th announced nearly $725 million in Fiscal Year 22 funding is available to 22 states and the Navajo Nation to create union jobs and catalyze economic opportunity by reclaiming **a**bandoned **m**ine **l**ands (AML) as part of President Biden's Bipartisan Infrastructure Law. The law allocates a total of $11.3 billion in AML funding over 15 years, which will help communities eliminate dangerous environmental conditions and pollution caused by past coal mining. This funding allocation is expected to address the vast majority of inventoried abandoned mine lands in this country.

AML reclamation projects support jobs for coal communities by investing in projects that close mine shafts, reclaim unstable slopes, improve water quality, and restore water supplies damaged by mining. AML funding also enables states to remediate abandoned mines that are leaking methane. AML reclamation projects also provide economic revitalization by reclaiming hazardous land for recreational facilities and other economic redevelopments. As required by the Bipartisan Infrastructure Law, this funding will prioritize projects that employ dislocated coal workers.

The Department will distribute nearly $725 million annually over the next 15 years, based on states' and Tribes' demonstrated needs. As required by the Infrastructure Law, these allocations are determined based on the number of tons of coal produced in each state or on Indian lands before August 3, 1977, when the Surface Mining Control and Reclamation Act of 1977 (SMCRA) was enacted. States are guaranteed at least $20 million over the 15-year life of the program if their inventory of AML sites would cost more than $20 million to address.

Consistent with *McGirt v. Oklahoma*, 140 S. Ct. 2452 (2020), and related cases, neither the State of Oklahoma nor any of its agencies are currently eligible for BIL AML funding. *Oklahoma v. U.S. Dep't of the Interior*, No. CIV-21-719-F, 2021 WL 6064000 (W.D. Okla. Dec. 22, 2021). If one or more entities become eligible for BIL AML grants this fiscal year, OSMRE is reserving BIL funds for AML reclamation on Indian lands in Oklahoma.
For info: Interior_Press@ios.doi.gov

WOTUS ROUNDTABLES US
REGIONAL IMPLICATIONS

EPA and US Department of the Army (the agencies) announced on February 24 the selection of ten geographically varied roundtables with participants representing diverse perspectives. The agencies will work with each selected roundtable to facilitate discussion on implementation of "waters of the United States" (WOTUS), while highlighting regional differences.

EPA and Army selected ten roundtables that highlight geographic differences and a range of perspectives — including agriculture, conservation groups, developers, drinking water and wastewater managers, environmental organizations, communities with environmental justice concerns, industry, Tribal nations, and state and local governments. The ten selected roundtables are:

Amigos Bravos (Southwest)
Arizona Farm Bureau (Southwest)
Cahaba Brewing (Southeast)
California Farm Bureau (West)
Kansas Livestock Association (Midwest)
Natural Resources Defense Council (Northeast)
National Parks Conservation Association (Midwest)
North Carolina Farm Bureau (Southeast)
Regenerative Agriculture Foundation (Midwest)
Wyoming County Commissioners Association / Montana Association of Counties / Idaho Association of Counties (West)

These regional roundtables are a mechanism for the agencies to consider the regional variation in implementation of WOTUS.

The agencies most recently concluded a public comment period on the proposed rule to re-establish the pre-2015 definition of WOTUS that had been in place for decades, updated to reflect consideration of Supreme Court decisions. Prior to proposal, the agencies requested written comments, hosted listening sessions, and conducted Federalism consultation with state and local governments. In addition, the agencies participated in a roundtable organized by the Small Business Administration.
For info: EPA's WOTUS website: www.epa.gov/wotus

RESERVOIR RIGHTS OK
ADAPTATION STRATEGIES

Legal Review of Water Rights and Adaptation Strategies: Issues, Constraints and Options, a component of the Upper Red River Basin Report and the Upper Washita River Basin Report, is a recently released 291-page review of the water rights and water supply of four reservoirs in western Oklahoma (US Bureau of Reclamation and the University of Oklahoma Board of Regents: Agreement Number R17AP00090).

The US Bureau of Reclamation (Reclamation), the Oklahoma Water Resources Board (OWRB), Foss Reservoir Master Conservancy District (Foss RMCD), Fort Cobb Reservoir Master Conservancy District (Fort Cobb RMCD), Lugert-Altus Irrigation District (LAID), and Mountain Park Master Conservancy District (MPMCD) entered into memoranda of agreement to study the water supply and water availability for the four western-most Reclamation reservoirs in Oklahoma: Foss, Fort Cobb, W.C. Austin, and Tom Steed. These five study partners decided to undertake this study in light of the extreme drought that afflicted Western Oklahoma from 2010 through 2015.

The study partners are evaluating non-structural adaptation strategies to improve water supply reliability in the four Reclamation reservoirs. The non-structural adaptation strategies align with the "Water Supply Reliability" recommendations of the 2012 Update of the Oklahoma Comprehensive Water Plan (OCWP).

This academic legal review is the work product of the legal review of water rights and water supply reliability for the four reservoirs. Reclamation signed a grant agreement with the University of Oklahoma for the completion of this review.

Chapter One is an introductory chapter. Chapter Two presents the legal background of the four reservoirs' water rights. Chapter Two focuses on Federal water law, Oklahoma water law, and general water law in the western US.

Chapters Three, Four and Five focus specifically upon each of the four Reclamation reservoirs. The report

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discusses the history of the planning and development of the focal reservoir, the specific federal authorizing legislation for each reservoir, the Oklahoma water right applications and the water right permits of each reservoir, judicial decisions about water law generated by these reservoirs, and the discussions/ agreements between the four Districts and Oklahoma regulatory agencies (primarily the OWRB) about water rights and water management. The report provides a discussion of how federal, Oklahoma, and Western water law applies to the unique circumstances of each reservoir. Chapters Three, Four and Five provide an in-depth analysis of how background water law (Federal, Oklahoma, and Western) applies to the individual histories and circumstances of each of the four reservoirs.

Chapter Six sets forth general and specific observations and conclusions reached through the research, discussions, mental meanderings, writing and revisions of this academic legal review.

The report makes a salient point regarding water rights and availability in its Conclusions: "Water laws allocate water between competing claimants desiring to use the available water. But water laws do not create physical water (wet water)… .The technical data from the hydrological studies appears to indicate that a drought lasting more than five years will parch the reservoirs dry. When the reservoirs are dry, water law has no ability to protect the Reservoirs' water supply. The only protection for the Reservoirs' water supply in an extended drought is for the drought to end. Rain or snow produces wet water — not water laws, cases, or regulations." Review at 289-290.
For info: Full Review at: www.usbr.gov/gp/otao/westokbasinstudies_academiclegalreview.pdf

INDIAN WATER RIGHTS US

SETTLEMENTS COMPLETION FUND

Secretary of the Interior Deb Haaland announced on February 22 the Department of the Interior's (Department's) plan to fulfill settlements of Indian water rights claims using historic funding from President Biden's Bipartisan Infrastructure Law (Law).

The Law invests more than $13 billion directly in Tribal communities across the country and makes Tribal communities eligible for billions more in much-needed investments. That includes $2.5 billion to implement the Indian Water Rights Settlement Completion Fund, which will help deliver long-promised water resources to Tribes, certainty to all their non-Indian neighbors, and a solid foundation for future economic development for entire communities dependent on common water resources. Following feedback received from Tribal consultation, the Department will allocate $1.7 billion of Infrastructure Law funding this year to enacted settlements that have outstanding federal payments necessary to complete their terms.

The following Tribes and settlements will receive funding this year: Aamodt Litigation Settlement (Pueblos of San Ildefonso, Nambe, Pojoaque, and Tesuque), Blackfeet Nation, Confederated Salish and Kootenai Tribes, Crow Nation, Gila River Indian Community, Navajo-Utah Water Rights Settlement and Navajo-Gallup Water Supply Project, San Carlos Apache Nation, Tohono O'odham Nation, and White Mountain Apache Tribe.

The Settlement Fund was created by Congress in 2009 and receives $120 million in mandatory funding annually from 2020 through 2029. Pending congressional action on the President's FY 2022 budget, additional Tribes will also see investments to address ongoing federal obligations.

There are 34 congressionally enacted Indian Water Rights settlements as of November 15, 2021, when the Infrastructure Law was signed. Indian reserved water rights are vested property rights for which the United States has a trust responsibility. Federal policy supports the resolution of disputes regarding Indian water rights through negotiated settlements. Settlement of Indian water rights disputes breaks down barriers and helps create conditions that improve water resources management by providing certainty as to the rights of all water users who are parties to the disputes.

An Indian Water Rights Settlement Completion Fund Executive Committee has been established, comprised of the Commissioner of the Bureau of Reclamation, Chairperson of the Working Group on Indian Water Settlements, Director of the Bureau of Indian Affairs, Assistant Secretaries of Water and Science and Indian Affairs, and the Solicitor. The Executive Committee will recommend future allocations of the remainder of the Completion Fund to the Secretary based on current project needs.
For info: Interior_Press@ios.doi.gov

IRRIGATION INDUSTRY US

ECONOMIC IMPACT

A new study released on February 14 measured the economic impact of the irrigation industry in the US in 2020 and found that it has been growing by 2% per year since 2010. It also found the industry has a direct economic impact of nearly $9 billion and indirect impacts of $23.3 billion, creating more than 70,000 direct jobs — 167,000 jobs when secondary impacts are included.

The study includes agricultural, commercial, residential, and horticultural irrigation and provides an update on the industry's growth since a similar study completed in 2010. The study was conducted by the Headwaters Corporation on behalf of the Irrigation Association and the Irrigation Innovation Consortium.

According to the Irrigation Association, quantifying the economic impact of the irrigation industry is important in order to document irrigation's output, increase its credibility, and provide insights for business planning.
For info: Study available at: www.irrigation.org/IA/Advocacy/Research-Reports/Economic-Impact-Study/IA/Advocacy/Economic-Impact-Study.aspx

DAM REMOVAL US

PROGRESS REPORT

American Rivers has released a new report entitled "*Free Rivers: the State of Dam Removal in the U.S.*" The report shares stories of river revival, explores challenges and opportunities, and spotlights the states leading the way. Fifty-seven dams were removed in 2021, reconnecting more than 2,131 miles of rivers. In addition, American Rivers is highlighting 25 dam removals to watch for in 2022 and beyond.
For info: www.americanrivers.org

WATER PURCHASE NV

TEN-YEAR AGREEMENT

On February 17, Vidler Water Resources, Inc. (Vidler) announced that the previously disclosed agreement between its subsidiary, Fish Springs Ranch, LLC (FSR) and Truckee Meadows Water Authority in Reno, Nevada (TMWA) has been formally

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approved by TMWA's Board. The agreement with TMWA includes the sale of up to 400 acre-feet of water credits from FSR inventory in northern Nevada for use in TMWA's service areas and an ongoing use of 3,000 acre-feet for Truckee River instream flow requirements and water quality enhancement, conjunctive use, groundwater recharge, effluent management alternatives and irrigation within the Reno and Sparks, Nevada area. The agreement is for a period of up to ten years and will generate $1 million in annual revenue to FSR each year over the term of the agreement.

Vidler Water Resources' President and CEO, Dorothy Timian-Palmer, commented: "We are very pleased that this agreement negotiated with TMWA last year has now been formally approved. We have an excellent working relationship with TMWA to ensure we are good partners in their water resource management efforts throughout their service areas in Washoe County and we believe this agreement benefits both parties. It allows TMWA to increase their overall water resources and provides them with a certain volume of water, while available, to efficiently manage their existing resources during the current drought. This agreement also reflects our collaborative efforts with TMWA to collect additional data relative to the aquifer quality and viability at FSR and aids our efforts in moving forward on the next 5,000 acre-feet of our permitted water rights which we aim to import to the North Valleys of Reno and/or other TMWA service areas. From our perspective, while we are receiving a lower price point per acre-foot of water than from sales in the North Valleys, this agreement provides a regular stream of cash flow of $1 million per year for the next ten years. Applied against our current estimate of our future annual net annual expenditures of approximately $4.8 million (that is, all net cash use without any sale or acquisition of assets or associated sale costs), it reduces our estimate of annual expenditures to approximately $3.8 million. We also believe utilizing some of our FSR inventory outside the North Valleys is a strategic entrance to potentially serving other areas in the Reno/Sparks region as and when demand occurs in other fast-growing areas of Washoe County."
For info: www.vidlerwater.com/

EPA ENFORCEMENT US

ACCOMPLISHMENTS FY 21

EPA has released a report on enforcement and compliance actions in Fiscal Year 2021. Consistent with President Biden's Executive Order on Tackling the Climate Crisis at Home and Abroad (Executive Order 14008), EPA's Office of Enforcement and Compliance Assurance strengthened enforcement of environmental violations with disproportionate impact on communities with environmental justice concerns. EPA continues to pursue a comprehensive strategy that leverages its enforcement authorities as well as additional actions to bring facilities back into compliance to prevent future violations, remediate past harm, and provide tangible benefits for these overburdened and underserved communities. In communities that faced acute threats to human health from environmental pollutants or contaminated drinking water, such as St. Croix, VI; Cahokia Heights, IL; and Jackson, MS, EPA used its enforcement authority to take swift action to protect residents.

Highlights of EPA's FY 2021 enforcement and compliance achievements include:

- Commitments of more than $8.5 billion to return facilities to compliance, the highest amount in four years (28% of those commitments were to address non-compliance in communities with environmental justice concerns).
- Proper treatment, minimization, or disposal of 7.6 billion pounds of hazardous and non-hazardous waste, more than in all but one of the past eight years.
- Private and federal party cleanup commitments of $1.9 billion, as well as more than $106.1 million for recovery of past costs EPA spent cleaning up Superfund sites. The cleanup commitment was the fifth largest amount in the history of the program, and $279 million more than in FY 2020.
- Assessment of over $1.06 billion in penalties, the highest amount in four years.
- Twenty-eight years of incarceration for defendants sentenced in criminal enforcement investigations.

For info: EPA's FY 2021 Annual Enforcement Results at: www.epa.gov/enforcement/enforcement-annual-results-fiscal-year-2021

FINANCIAL GUIDANCE US

WASTEWATER MANAGEMENT

PUBLIC COMMENT PERIOD

EPA has issued its Proposed 2022 Clean Water Act (CWA) Financial Capability Assessment (FCA) Guidance for public comment. The proposed guidance outlines strategies for communities to support affordable utility rates while planning investments in water infrastructure that are essential for CWA implementation.

The FCA Guidance is used by municipalities when devising plans to dramatically reduce discharges from Combined Sewer Systems. During that process, municipalities and EPA negotiate schedules with specific timeframes for implementation. The Proposed 2022 FCA Guidance describes the financial information and formulas the agency intends to use to assess the financial resources a community has available to implement control measures and timeframes associated with implementation.

Once finalized, EPA intends for the Proposed 2022 FCA to replace the 1997 Guidance for Financial Capability Assessment and Schedule Development to evaluate a community's capability to fund CWA control measures in both the permitting and enforcement context. The 2022 FCA will also supplement the public sector sections of the 1995 Interim Economic Guidance for Water Quality Standards (WQS) to assist states and authorized tribes in assessing the degree of economic and social impact of potential WQS decisions. Previous versions of the proposed FCA Guidance released in September 2020 and January 2021 are no longer being considered.

The guidance document is not legally binding and is intended only to provide clarity to the public regarding existing requirements under the law or agency policies. EPA is accepting public comment received on or before April 25, 2022, via the Federal eRulemaking portal, Docket ID No. EPA-HQ-2020-0426-0070 (www.regulations.gov/document/EPA-HQ-OW-2020-0426-0070).
For info: Guidance at: www.epa.gov/system/files/documents/2022-02/2022-proposed-fca_feb-2022.pdf; EPA Press Office (press@epa.gov)

SOURCE PROTECTION US

SOURCE WATER PRIORITY MAPS

USDA's Natural Resources Conservation Service (NRCS) has

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developed a new Source Water Protection page on their website that includes national maps of NRCS identified source water priority areas under the 2018 Farm Bill. These two maps show the 2022 priority source water areas by:

- Type of (water) system using either groundwater, surface water, or both.
- Resource concern for water quality, quantity, or both.

Source water coordinators, water utilities, and other partners play an important role in assisting NRCS offices in identifying and refining these priority areas annually, and following up to identify next steps to encourage implementation of conservation practices.

State and local source water partners can reach out to their NRCS State Conservationist's office to request a state specific map of priority source water areas. These maps can be used to identify project opportunities with source water partners like conservation districts for NRCS conservation program funding and technical assistance for agricultural producers, and private owners of forested lands and rangeland, to install conservation practices that address drinking water quality and quantity concerns. Under the Farm Bill, NRCS sets higher cost-share incentive rates for producers adopting conservation practices in these priority source water protection areas. One of the current funding opportunities for these projects is the Resource Conservation Partnership Program.

For tips on reaching out to your State Conservationist and to local conservation districts, use the Source Water Collaborative's Conservation Toolkit. For tips and state examples of success with potential solutions for addressing challenges, read the ASDWA and GWPC report, *State SWP Programs: A Progress Report on Agriculture and Forestry Coordination Since the Passage of the 2018 Farm Bill*. For more info, visit the new NRCS Source Water Protection website (below) or contact Martin Lowenfish, NRCS Areawide Planning Branch, at: martin.lowenfish@usda.gov.

For info: www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/

LEAD IN DRINKING WATER US

GRANT FUNDING AVAILABLE

On February 18, EPA announced $20 million in available grant funding to assist communities and schools with removing sources of lead in drinking water. This grant funding, and additional funding through the Bipartisan Infrastructure Law, will help make rapid progress on the goal of addressing lead and removing lead pipes across the country.

Under the Water Infrastructure Improvements for the Nation (WIIN) Act, EPA is announcing the availability of $10 million for projects to conduct lead service line replacements or implement corrosion control improvements and $10 million for projects that remove sources of lead in drinking water (*e.g.*, fixtures, fountains, outlets and plumbing materials) in schools or childcare facilities.

EPA will award this funding in alignment with the goals of the Biden Administration's Justice40 Initiative, which seeks to deliver at least 40 percent of the benefits of certain federal investments to underserved communities. The agency encourages applications that support equity by prioritizing underserved communities; those with lead reduction projects at drinking water systems with at least one lead action level exceedance within the last three years; those with schools with at least 50% of the children receiving free and reduced lunch; in Head Start facilities; and/or in areas with additional environmental health burdens (*e.g.*, areas with older buildings likely to have lead-based paint).

This WIIN grant will be competed through a Request for Application process. The funding opportunity will remain open for 60 days on www.grants.gov.

In addition to this announcement of funding availability, EPA is working with states, tribes, and territories to award over $50 million in fiscal year 2021 funding through EPA's two other drinking water grant programs established by WIIN — the Voluntary Lead Testing in Schools and Child Care grant program and the Small, Underserved and Disadvantaged Communities (SUDC) Grant.

For info: www.epa.gov/ground-water-and-drinking-water/drinking-water-grants

EXPERIMENTAL RELEASE CA

DELTA SMELT HATCHERY

Federal and state agencies recently took the unprecedented action of releasing captive-raised Delta smelt into the Sacramento-San Joaquin Delta (Delta) just south of Rio Vista. This first experimental release is part of a multiyear effort aimed at preserving an endangered fish found only in the Delta that are on the verge of extinction. The multi-agency collaboration released about 12,800 fish in three days and will do additional releases in the next month to reach a total annual release of approximately 40,000 fish.

Most of the two-inch Delta smelt complete their lifecycle in about a year and are hatched, mature, and reproduce within the slightly salty to freshwaters of the Delta. They are an indicator species for the Delta, meaning their survival or disappearance reflects the overall health of the estuary. Once a prominent species in the region, the Delta smelt population rapidly plummeted in the early 2000s. For decades, the changes wrought on the Delta by drought, climate change, water quality, land development, water diversions, and other factors have adversely affected living conditions for Delta smelt.

In its 2020 Long Term Operating Plan for the Central Valley Project and State Water Project, Reclamation outlined the need to take actions to protect Delta smelt, leading to this year's collaborative experimental release. The released fish are mature and can be expected to spawn in the next couple of months.

Delta smelt are produced at the UC Davis Fish Conservation and Culture Laboratory, which Reclamation funds. The laboratory maintains a population of genetically managed Delta smelt and supports research on captive-bred fish. Plans are in place to expand the laboratory facilities to increase rearing capacity to provide as many as 125,000 smelt each year.

For info: Gary Pitzer, Reclamation, 916/978-5100 or mppublicaffairs@usbr.gov

CALENDAR

March 14-16 TX
P3C's Public-Private Partnership Conference & Expo - 10th Annual Conference, Dallas. Sheraton Hotel. For info: https://thep3conference.com/

March 16 WA
Managing Stormwater in Washington, Tacoma. Greater Tacoma Convention Center. For info: https://washingtonstormwater.com

March 16-17 ID
32nd Annual Idaho Water Quality Workshop, Boise. Boise State University. Longest-Running & Best-Attended Gathering of Water Quality Professionals in Idaho. Agenda topics include stream restoration, nutrient and metal pollution, reservoirs and more. BSU/IDEQ Co-Sponsored. For info: www.deq.idaho.gov/events/annual-idaho-water-quality-workshop/

March 16-17 WEB
PFAS Monitoring: EPA's Fifth Unregulated Contaminant Monitoring Rule (UCMR 5) Information Meeting, EPA Hosting Two Identical Meetings (Via Webinar) Providing Comprehensive Overview of the UCMR 5 PFAS Monitoring Program. For info: EPA UCMR 5 website: www.epa.gov/dwucmr/fifth-unregulated-contaminant-monitoring-rule

March 17-18 UT & WEB
27th Annual Wallace Stegner Center Symposium: The Colorado River Compact: Navigating the Future, Salt Lake City. University of Utah S.J. Quinney College of Law. Convened by the Wallace Stegner Center for Land, Resources, and the Environment and the Water & Tribes Initiative | Colorado River Basin; College of Law & Virtual Event. For info: https://sjquinney.utah.edu/event/27th-annual-wallace-stegner-center-symposium-the-colorado-river-compact-navigating-the-future/

March 18-19 OR
Pacific Northwest Ground Water Exposition, Portland. Red Lion Hotel. Pacific Northwest Ground Water Association Event. For info: https://pnwgwa.org

March 21-23 TX
Geospatial Water Technology Conference, Austin. DoubleTree by Hilton. For info: www.awra.org

March 21-24 OH
Public Health and Water Conference & Wastewater Disease Surveillance Summit, Cincinnati. Duke Energy Convention Center; Organized by the Water Environment Federation & the US Centers for Disease Control and the Ohio Water Environment Association. Summit March 21 / Exhibition March 22-23/ Conference March 22-24. For info: www.wef.org/PublicHealth

March 23-25 MT
Montana Rural Water Systems Technical Conference & Exhibition, Great Falls. Heritage Inn. For info: https://headwaterco.com/more/news/events

March 23-24 WEB
Emergency Management for Public Water Systems Workshop - Virtual Event, For info: www.euci.com/events/

March 24 WEB
18th Western Boot Camp on Environmental Law - Virtual Event, March 24, March 31 & April 7 (Registration Deadline March 11). Presented by Environmental Law Institute - Immersion in Environmental Law. For info: ELI, 202/ 939-3800 or www.eli.org

March 24-25 WEB:
Tribal Water in the Pacific Northwest - Virtual Event, For info: Law Seminars Int'l: 206/ 467-4490; register@lawseminars.com or www.lawseminars.com

March 30-31 WEB
Geographic Information Systems for Water and Wastewater Utilities Course, For info: www.euci.com/events/

March 31 WEB
18th Western Boot Camp on Environmental Law - Virtual Event, March 24, March 31 & April 7. Presented by Environmental Law Institute - Immersion in Environmental Law. For info: ELI, 202/ 939-3800 or www.eli.org

March 31 OR
Contaminated Sediments Conference - Remediation & Management, Portland. World Forestry Center - Miller Hall. Hybrid Conference: In-Person & Remote Options. For info: Environmental Law Education Center, www.eleccenter.com

April 2 CA
Water Education for Latino Leaders (WELL) Central Valley Conference, Selma. Legends Tap House & Grill. RE: Central Valley Communities Disproportionately Affected by Drought, and Lacking Affordable Drinking Water. For info: https://latinosforwater.org/conferences/

April 4-7 TX
Texas Water 2022 Conference, San Antonio. Henry B. Gonzalez Convention Center. For info: https://www.txwater.org/

April 5 WEB
PFAS Drinking Water Regulations Meetings: EPA Virtual Meeting EPA Public Discussions on How Regulation of Two Forever Chemicals will Affect Marginalized Communities. Registration is Required; 5-8pm Eastern Time. For info: https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas?mc_cid=2f06a53fee&mc_eid=3c5503e3b0

April 5-7 VA
Interstate Council on Water Policy 2022 Washington DC Roundtable, Crystal City, Crystal City DoubleTree Hotel. In-Person Meeting. Co-Sponsoring with Western States Water Council & the National Water Supply Alliance. For info: Sue Lowry, ICWP, 307/ 630-5804 or www.icwp.org

April 6 WEB
Microplastics in Drinking Water Webinar, RE: Key Issues and the Frontier of Contaminant Knowledge. American Water Works Association Event. For info: www.awwa.org/Events-Education/Events-Calendar

April 6-8 CA
SEER 51st Spring Conference, San Francisco. Hyatt Regency San Francisco. For info: www.americanbar.org (Events)

April 6-8 FL
Water Quality Association Annual Convention & Exposition, Orlando. Orange County Convention Center. For info: www.wqa.org

April 6-8 NM
2022 New Mexico Water Workshop - "Pulling the Pieces Together: Managing Water in New Mexico", Albuquerque. Sheraton Albuquerque Airport Hotel. American Water Works Association / Rocky Mountain Section Event. For info: www.rmsawwa.org

April 7 WEB
18th Western Boot Camp on Environmental Law - Virtual Event, March 24, March 31 & April 7. Presented by Environmental Law Institute - Immersion in Environmental Law. For info: ELI, 202/ 939-3800 or www.eli.org

April 7-8 WEB
Project Management for Water and Wastewater Utilities Workshop - Virtual Event, For info: www.euci.com/events/

April 8 CA
Water 101 Workshop, Sacramento. McGeorge School of Law. Hot Topics & History, Geography, Legal & Political Facets of Water in California. Water Education Foundation Event. For info: www.watereducation.org/event-calendar

April 8-9 CA
The P3 Water Summit, San Diego. Manchester Grand Hyatt San Diego. How Public-Private Partnerships Can Deliver Critical Water Projects On Time & On Budget. For info: www.p3watersummit.com

April 11-12 WEB
NEPA Compliance for Energy & Utilities - Virtual Event, For info: www.euci.com/events/

April 11-14 CA
California Water Environment Association (CWEA) Annual Conference, Sacramento. Sacramento Convention Center. For info: www.cwea.org (Events)

April 11-15 CA
11th International Symposium on Managed Aquifer Recharge, Long Beach. Hilton Long Beach. Technical Sessions, Plenary Sessions, Field Trips & Networking. For info: https://ismar11.net

April 13-14 OR
Pacific Northwest Water Research Symposium - Restoration & Renewal, Corvallis. CH2M Hill Alumni Center. Student-Centric Conference Highlighting Student Research in Water Resources Science, Engineering & Policy. For info: https://blogs.oregonstate.edu/hydrophilessymposium/

April 18-21 UT
Western Snow Conference: Drought, Fire, and Precipitation Extremes, Salt Lake City. University of Utah. For info: westernsnowconference.org

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

(continued from previous page)

April 20-21 WEB
Overview of TSCA New Chemicals Collaborative Research Program - Virtual Public Meeting. Presented by EPA, Office of Chemical Safety & Pollution Prevention. For info: www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/new-chemicals-collaborative

April 22 CA
Berkeley Law's Annual Environmental Awards Banquet & Ecology Law Quarterly's 50th Anniversary Celebration, Oakland. Scott's Seafood in Jack London Square. Honoring Environmental Leadership Award Winner Dr. Robert Bullard. For info: Center for Law, Energy, & the Environment, 510/642-7235, clee@law.berkeley.edu or www.law.berkeley.edu/research/clee/events/annual-energy-environmental-awards-banquet/

April 25-27 AL
American Water Resources Association 2022 Spring Specialty Conference - "Water Risk Under a Rapidly Changing World: Evaluation and Adaptation", Tuscaloosa. Bryant Conference Center at the University of Alabama. Co-Hosted by the AWRA Future Risk Committee & the Alabama Water Institute. For info: www.awra.org

April 25-28 LA
Gulf of Mexico Conference (GoMCon), Baton Rouge. Raising Canes River Center. Conference Combines: the Annual Gulf of Mexico Alliance All Hands Meeting; the Annual Gulf of Mexico Oil Spill & Ecosystems Science Conference; and the Triannual State of the Gulf Summit; Integrating Science & Management for Decision-Making. For info: www.gulfbase.org/event/gulf-mexico-conference-gomcon-2022

April 26-27 DC
National Association of Clean Water Agencies (NACWA) 2022 National Water Policy Fly-In, Washington. Hilton National Mall. For info: www.nacwa.org/conferences-events

May 6 WEB
Ecosystem Restoration Conference, Interactive Online Broadcast. For info: Law Seminars Int'l: 206/ 467-4490; register@lawseminars.com or www.lawseminars.com

May 10-11 TX
Environmental Trade Fair & Conference, Austin. Austin Convention Center. Presented by the Texas Commission on Environmental Quality. For info: www.tceq.texas.gov

May 12 WEB
Immerse 2022: Virtual Benefit for The Freshwater Trust, 7:00pm Pacific Time. For info: thefreshwatertrust.org

May 16 IL
SEER Superfund Master Class, Chicago. TBA. Sponsored by the ABA Section on Environment, Energy, and Resources (SEER). For info: ambar.org/SEERevents

May 17-18 NC
US Water Treatment Conference / Integrating Renewables & US Water Treatment, Charlotte. For info: www.lmnpower.com

May 17-20 TN
National Association of Clean Water Agencies (NACWA) 2022 National Pretreatment Workshop & Training, Nashville. TBA. Sponsored by the ABA Section on Environment, Energy, and Resources (SEER). For info: www.nacwa.org/conferences-events

May 19 MT
Easements in Montana Conference, Helena. TBA. For info: The Seminar Group: 206/ 463-4400, info@theseminargroup.net or theseminargroup.net