

Case No. 13-40317

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**IN THE UNITED STATES COURT OF APPEALS  
FOR THE FIFTH CIRCUIT**

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THE ARANSAS PROJECT,  
Plaintiff-Appellee

v.

BRYAN SHAW, in his official capacity as Chairman of the Texas Commission on Environmental Quality; BUDDY GARCIA, in his official capacity as Commissioner of the Texas Commission on Environmental Quality; CARLOS RUBINSTEIN, in his official capacity as Commissioner of the Texas Commission on Environmental Quality; MARK VICKERY, in his official capacity as Executive Director of the Texas Commission on Environmental Quality; AL SEGOVIA, in his official capacity as South Texas Watermaster,  
Defendants-Appellants

GUADALUPE-BLANCO RIVER AUTHORITY;  
TEXAS CHEMICAL COUNCIL; SAN ANTONIO RIVER AUTHORITY,  
Intervenors Defendants-Appellants

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APPEAL FROM THE UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF TEXAS, CORPUS CHRISTI DIVISION

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**JOINT BRIEF OF INTERVENORS DEFENDANTS-APPELLANTS  
GUADALUPE-BLANCO RIVER AUTHORITY, TEXAS CHEMICAL  
COUNCIL, AND SAN ANTONIO RIVER AUTHORITY**

---

Molly Cagle  
Evan A. Young  
Carlos R. Romo  
BAKER BOTTS L.L.P.  
98 San Jacinto Boulevard  
Suite 1500  
Austin, Texas 78701-4078  
(512) 322-2500  
(512) 322-2501 (Fax)

Aaron M. Streett  
Michelle S. Stratton  
BAKER BOTTS L.L.P.  
910 Louisiana Street  
Houston, Texas 77002-4995  
(713) 229-1234  
(713) 229-1522 (Fax)

*Counsel for Intervenor Defendant-Appellant  
Guadalupe-Blanco River Authority  
(additional counsel listed inside front cover)*

Kenneth R. Ramirez  
LAW OFFICES OF KEN RAMIREZ  
PLLC  
111 Congress Avenue, Suite 400  
Austin, Texas 78701  
(512) 681-4456  
(512) 279-7810 (Fax)

Amy Leila Saberian  
ENOCH KEVER PLLC  
600 Congress Avenue, Suite 2800  
Austin, Texas 78701  
(512) 615-1200  
(512) 615-1198 (Fax)

*Counsel for Intervenor Defendant-  
Appellant Texas Chemical Council*

Edward F. Fernandes  
HUNTON & WILLIAMS LLP  
111 Congress Ave., Suite 510  
Austin, Texas 78701  
(512) 542-5010  
(512) 542-5075 (Fax)

Kathy Robb  
HUNTON & WILLIAMS LLP  
200 Park Avenue  
New York, New York 10166  
(212) 309-1128  
(212) 309-1100 (Fax)

*Counsel for Intervenor  
Defendant-Appellant  
Guadalupe-Blanco River Authority*

Edmond Robert McCarthy, Jr.  
JACKSON, SJOBERG, MCCARTHY &  
TOWNSEND, L.L.P.  
711 W. 7th Street  
Austin, Texas 78701  
(512) 225-5606  
(512) 225-5565 (Fax)

David W. Ross  
General Counsel  
San Antonio River Authority  
LAW OFFICES OF DAVID ROSS, PC  
115 E. Travis St., Suite 1630  
San Antonio, Texas 78205  
(210) 354-4659  
(210) 568-4245 (Fax)

*Counsel for Intervenor  
Defendant-Appellant  
San Antonio River Authority*

**CERTIFICATE OF INTERESTED PERSONS**

The undersigned counsel of record certifies that the following listed persons and entities as described in the fourth sentence of Fifth Circuit Rule 28.2.1 have an interest in the outcome of this case. These representations are made in order that the judges of this court may evaluate possible disqualification or recusal.

The Aransas Project – Plaintiff

James B. Blackburn  
Charles William Irvine  
Mary B. Conner  
BLACKBURN CARTER PC

Charles Patrick Waites  
JOHNSON DELUCA KURISKY & GOULD, P.C.

David Alfred Kahne  
John Jeffery Mundy  
THE MUNDY FIRM PLLC

Bryan Shaw, Buddy Garcia,  
Carlos Rubinstein, Mark  
Vickery, Al Segovia – State  
Defendants

Jonathan F. Mitchell  
James Patrick Sullivan  
Evan S. Greene  
OFFICE OF THE ATTORNEY GENERAL OF THE  
STATE OF TEXAS

Toby Baker, Zak Covar,  
Esteban Ramos – State Defen-  
dants to be substituted pursuant  
to FED. R. APP. P. 43(c)(2)

Texas Chemical Council –  
Intervenor Defendant-  
Appellant

Kenneth R. Ramirez  
LAW OFFICE OF KEN RAMIREZ PLLC

Amy Leila Saberian  
ENOCH KEVER PLLC

Guadalupe-Blanco River Authority – Intervenor Defendant-Appellant

Aaron M. Streett  
Molly Cagle  
Evan A. Young  
Carlos Romo  
Michelle S. Stratton  
BAKER BOTTS L.L.P.

Edward F. Fernandes  
Kathy Robb  
HUNTON & WILLIAMS LLP

San Antonio River Authority – Intervenor Defendant-Appellant

Edmond R. McCarthy Jr.  
JACKSON SJOBERG MCCARTHY & WILSON  
LLP

David W. Ross  
LAW OFFICES OF DAVID ROSS, PC

San Antonio Water System – Movant

Joseph Michal Klise  
CROWELL AND MORING LLP

Union Carbide Corporation – Movant

Cristina Espinoza Rodriguez  
BAKER BOTTS L.L.P.

Texas Farm Bureau – Movant

Sydney W. Falk, Jr.  
Douglas G. Caroom  
BICKERSTAFF HEATH DELGADO ACOSTA  
LLP

American Farm Bureau Federation – Movant

Sydney W. Falk, Jr.  
Douglas G. Caroom  
BICKERSTAFF HEATH DELGADO ACOSTA  
LLP

City Public Service, City of San Antonio by and through The City of San Antonio Public Service Board – Movant

Carl Ryan Galant  
Russell S. Johnson  
MCGINNIS LOCHRIDGE KILGORE LLP

City of Kerrville – Amicus	Martin C. Rochelle LLOYD GOSSELINK ROCHELLE & TOWNSEND PC
	Michael C. Hayes
CMC Steel Texas – Amicus	Brad B. Castleberry Kristen O. Fancher Michael A. Gershon LLOYD GOSSELINK ROCHELLE & TOWNSEND PC
Guadalupe Valley Electric Co- operative, Inc. – Amicus	Mark C. Davis BRICKFIELD BURCHETTE RITTS & STONE PC
Caldwell County – Amicus	Pro se
City of Port Lavaca – Amicus	Pro se
City of Boerne – Amicus	Pro se
City of Bulverde – Amicus	Pro se
City of Cibolo – Amicus	Pro se
City of Lockhart – Amicus	Pro se
City of Luling – Amicus	Pro se
City of San Marcos – Amicus	Michael John Cosentino
City of Victoria – Amicus	Pro se
City of Yoakum – Amicus	Pro se
Fair Oaks Ranch – Amicus	Pro se
Foresight Golf Partners Ltd. – Amicus	Pro se

Golf Associates Ltd. – Amicus	Pro se
Guadalupe Basin Coalition – Amicus	Pro se
Guadalupe-Blanco River Authority Customers – Amicus	Will C. Jones, IV THE JONES LAW FIRM
Kendall County – Amicus	Pro se
Royal Marina Holdings, LLP – Amicus	Pro se
Royal Oaks Partners at Fulton Beach, LLP – Amicus	Pro se
SJWTX, Inc. – Amicus	Will C. Jones, IV THE JONES LAW FIRM
Texas Water Conservation Association – Amicus	Pro se
Victoria County – Amicus	Pro se
National Water Resources Association – Amicus	Pro se
Comal County – Amicus	Pro se
Calhoun County – Amicus	Pro se
Guadalupe County, Texas – Amicus	Pro se
City of Wimberly, Texas, Mayor Bob Flocke – Amicus	Pro se
City of New Braunfels – Amicus	Alan C. Wayland LAW OFFICES OF ALAN WAYLAND

California Farm Bureau Federation – Amicus	Sydney W. Falk, Jr. BICKERSTAFF HEATH DELGADO ACOSTA LLP
Oklahoma Farm Bureau Legal Foundation – Amicus	Sydney W. Falk, Jr. BICKERSTAFF HEATH DELGADO ACOSTA LLP
Oregon Farm Bureau Federation – Amicus	Sydney W. Falk, Jr. BICKERSTAFF HEATH DELGADO ACOSTA LLP
Wyoming Farm Bureau – Amicus	Sydney W. Falk, Jr. BICKERSTAFF HEATH DELGADO ACOSTA LLP
East Central Special Utility District – Amicus	Louis T. Rosenberg

*/s/ Aaron M. Streett*  
\_\_\_\_\_  
Aaron M. Streett  
*Counsel for Intervenor Defendant-  
Appellant Guadalupe-Blanco River  
Authority*

**STATEMENT REGARDING ORAL ARGUMENT**

This case has already been set for oral argument in August. Intervenors Defendants-Appellants agree that the issues in this case are sufficiently important and complex to warrant oral argument and that oral argument would be helpful to the Court.

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**STATEMENT OF JURISDICTION**

The district court had jurisdiction under 16 U.S.C. § 1540(g) and 28 U.S.C. § 1331, but lacked subject-matter jurisdiction to issue prospective injunctive relief. *See infra* Part III. This Court has jurisdiction under 28 U.S.C. § 1291.

**ISSUES PRESENTED**

- (1) Whether the district court abused its discretion by refusing to abstain under the *Burford* doctrine and instead interfering with the sensitive process by which Texas balances competing demands upon scarce water resources, where Texas courts could provide timely and adequate review of TAP's federal claim.
- (2) Whether TAP proved that TCEQ water-permitting practices proximately caused "takes" of endangered whooping cranes where TAP's expert on crane mortality used a defective method that has now been rejected by the U.S. Fish & Wildlife Service in a report that the district court improperly refused to admit, and where TAP relied upon an attenuated, seven-step chain of causation afflicted with numerous analytical gaps and a failure to exclude alternative causes at every step of the chain.
- (3) Whether TAP lacked standing to seek injunctive relief and failed to prove irreparable harm where the evidence shows that the crane population has steadily increased in the years since the alleged take, and where Texas has an "environmental flows" regime in place to increase freshwater inflows to the cranes' habitat.

## INTRODUCTION

The Endangered Species Act serves a high public purpose. But mistaken findings of liability under the Act can have harsh consequences. Here, the district court found that Texas officials should have restrained upstream human water usage during an extreme drought to enable more freshwater to flow to the estuarial habitat of the endangered whooping crane. To remedy this perceived violation, the district court asserted control over all future water permitting in the Guadalupe and San Antonio River Basins—state-owned waters that underpin a broad swath of the Texas economy.

Such muscular exertion of federal judicial power over a vital state resource may be undertaken, if at all, only after carefully considering the federalism doctrines that constrain federal interference in sensitive state regulatory processes. Such a novel theory of liability may be entertained, if at all, only if the plaintiff is strictly put to its burden of proving that the officials' actions proximately caused harm to the cranes. And such an open-ended injunction against future state action may be justified, if at all, only by a clear showing that cranes are likely to suffer imminent harm.

Though lengthy, the district court's opinion does not adequately engage these weighty issues. The district court refused to abstain under the *Burford* doctrine despite this Court's precedent ordering abstention in a materially identical

ESA case. The district court adopted wholesale the plaintiff's proposed findings concerning causation, rather than testing the plaintiff's evidence against scientific norms and traditional standards of proximate cause. And the district court imposed ongoing injunctive relief despite undisputed evidence that the whooping-crane population has grown to record levels under Texas's water stewardship in the years since the alleged violation.

It falls to this Court to ensure that the strong medicines of ESA liability and federal judicial oversight are prescribed only when they are truly warranted.

**STATEMENT OF THE CASE**

Intervenors adopt the Statement of the Case that appears in the State Defendants' brief.

## **STATEMENT OF FACTS**

The Aransas-Wood Buffalo (AWB) flock of the majestic North American whooping crane spends summers in Wood Buffalo National Park, Canada and winters in Texas, around the Aransas National Wildlife Refuge (Refuge) located on San Antonio Bay at the bottom of the Guadalupe and San Antonio River Basins. The AWB flock makes the 5,000-mile round-trip annually. 2 Tr. 195-96.<sup>1</sup>

The whooping crane is listed as endangered under the Endangered Species Act (ESA), but the recovery of the whooping-crane population is considered an ESA success. 1 Tr. 59. Estimates of the AWB flock's annual peak size have increased from 15 in 1941, to 237 (Winter 2006-07), 266 (2007-08), 270 (2008-09), 264 (2009-10), 283 (2010-11), and 300 by 2011-12. 1 Tr. 59, 175; DX226. Although a natural population decline occurs about every 10 years, 3 Tr. 130, this suit concerns Plaintiff-Appellee The Aransas Project's (TAP) alternative theory for the alleged deaths of 23 whooping cranes at the Refuge in 2008-09.

### **I. TAP's suit and experts**

TAP brought this ESA suit alleging "takes" of endangered species, *see* 16 U.S.C. § 1538(a)(1)(B), against State of Texas and Texas Commission on Environmental Quality (TCEQ) officials (collectively, State Defendants) who adminis-

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<sup>1</sup> "2 Tr. 195" refers to page 195 of the transcript of the trial's second day. Trial transcripts appear in volumes 9-12 of the Fourth Supplemental Record (pp. 4141-6545), and are identified by day and docket-entry number (from D.E. 277 (Day 1) to D.E. 285 (Day 8)).

ter Texas water laws. Record 43.<sup>2</sup> The Guadalupe-Blanco River Authority (GBRA) and the San Antonio River Authority (SARA), two governmental entities with oversight of their respective river basins, were admitted as intervenors, as was the Texas Chemical Council, a trade association.

TAP contended that the State Defendants caused 23 whooping-crane deaths by allowing lawful water diversions in the San Antonio and Guadalupe River Basins during the 2008-09 drought. Upstream diversions, TAP alleged, reduced the freshwater reaching the coastal marshes, with rising salinity harming the cranes' alleged main food sources (blue crabs and wolfberries) so much that cranes left their territories to search for freshwater and food. This "food stress" allegedly caused 23 whooping-crane deaths. Record 36-39.

Various expert witnesses supported TAP's theory. Former TCEQ Commissioner Larry Soward opined that TCEQ had legal authority to curtail existing water rights to ensure sufficient inflows reached the cranes. 4 Tr.266. Hydrologist Joe Trungale and ecologist Ronald Sass argued that there were correlations between low inflows and salinity in San Antonio Bay and low inflows and whooping-crane mortality. 3 Tr.281; 1 Tr.185. Whooping-crane biologists George Archibald and Felipe Chavez-Ramirez testified about the cranes' diet and general behavior, but

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<sup>2</sup> "Record" refers to the original Record on Appeal, which is cited only in the Statement of Facts. All other record citations in the brief are to the Fourth Supplemental Record and use the form "R." followed by a page number.

did not analyze “energetics”—how the composition of the cranes’ diet affects their energy level. 1 Tr. 78, 115; 2 Tr. 93, 195. Paul Montagna testified on the ecology of the estuary, including his study analyzing the effects of certain variables (such as average salinity) on blue crabs. 3 Tr. 229. Tom Stehn, a former Refuge biologist for the U.S. Fish & Wildlife Service (FWS), explained his aerial-survey methods used to establish the annual whooping-crane peak-population estimate and his conclusion that 23 whooping cranes died in 2008-09. 3 Tr. 136. The district court denied Defendants’ *Daubert* challenge to Stehn’s methods after he testified. 3 Tr. 148.

## **II. Defendants’ experts**

Defendants’ experts addressed each link in TAP’s theory of causation.

George Ward, a University of Texas research hydrologist, testified that average salinity would decrease by an insignificant 1 part-per-thousand (ppt) if there were *no diversions* and *all* water in the San Antonio and Guadalupe Rivers passed through to the bay. 7 Tr. 98, 135; DX424.

Long-time whooping-crane scholar Richard Slack, a Professor Emeritus at Texas A&M University, 6 Tr. 78, testified that based on his “comprehensive” study of whooping-crane diets and his work with graduate students, including Chavez-Ramirez, whooping cranes are “omnivores” and “top-level predators” able to shift diets based on available foods. 6 Tr. 118-19; *accord* 2 Tr. 158 (Chavez-Ramirez).

Warren Porter, the only energetics expert offered at trial, 7 Tr. 18, testified on the nutritional value of various foods eaten by whooping cranes, and opined that there was no evidence that a shortage of blue crabs or wolfberries caused any food stress. 7 Tr. 70. Stephen Davis, an estuary expert, testified that local drought, tides, and meteorological conditions are the most important drivers of food availability in the Refuge. 8 Tr. 11, 39, 57. Thomas Miller, an ecologist specializing in blue crabs, noted that blue crabs thrive in high-salinity waters, and discussed the over-harvesting and climactic conditions causing long-term crab population declines nationally. 7 Tr. 221, 226-27, 247, 249.

Richard Stroud, a veterinarian and diagnostic pathologist who served as FWS's top medical examiner for 19 years, 6 Tr. 17, testified on the known causes of death identified in the two necropsies of whooping-crane carcasses found in 2008-09. He opined that food shortage was not a cause of death. 6 Tr. 51.

Finally, Michael Conroy, who wrote the "standard reference" book on wild-life population modeling and surveys and who was independently asked by FWS to evaluate the reliability of Stehn's aerial surveys, 8 Tr. 79, 82, opined that Stehn's methodology for determining mortality was unreliable. 8 Tr. 93.

### **III. District court’s opinion and adopted findings**

The district judge, an avid birdwatcher and member of the Audubon Society, 1 Tr. 29, R. 6553,<sup>3</sup> adopted findings of fact and conclusions of law copied verbatim from those proposed by TAP. R. 7843. After trial, the district court refused to re-open the record to consider a new FWS report that repudiated Stehn’s aerial-survey methodology for determining crane mortality. R. 7822. The court rendered a declaratory judgment that the State Defendants had violated the ESA, enjoined the State Defendants from “approving or granting new water permits affecting the Guadalupe and San Antonio Rivers until the State of Texas provides reasonable assurances to the Court that such permits will not take Whooping Cranes in violation of the ESA,” and ordered the State Defendants to “seek an Incidental Take Permit that will lead to the development of a Habitat Conservation Plan.” R. 7856.

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<sup>3</sup> The Audubon Society frequently engages in litigation. *See, e.g.*, Canon 4B(1) of the United States Code of Judicial Conduct. Judge Jack denied a motion for recusal based on her membership in the group, R. 6955, and this Court denied mandamus relief, R. 7365 (No. 12-40454).

## SUMMARY OF THE ARGUMENT

For the reasons expressed by the State Defendants, the judgment must be reversed because water permitting by the State cannot proximately cause a “take” under the Endangered Species Act. But the district court erred for additional reasons of law and fact.

1. The district court should have abstained under *Burford*, because “[t]he regulation of water resources” is “a matter of great state concern,” and is the subject of a comprehensive regulatory program administered by TCEQ. *Sierra Club v. City of San Antonio*, 112 F.3d 789, 794 (5th Cir. 1997) (abstaining under *Burford* in similar ESA case). Adjudicating this case disrupts that program, which integrates consideration not only of environmental, but of geographic, economic, political, industrial, recreational, and agricultural concerns. The district court refused to abstain, despite all *Burford* factors pointing to abstention, because it believed that TAP was unlikely to prevail in state administrative proceedings. But *Burford* abstention does not depend on a district court’s predicting whether the state process will reach a desired result; it requires allowing the state process to unfold, subject to judicial review. TCEQ’s decisions are subject to full judicial review in Texas state courts, and any federal issue may be presented to the U.S. Supreme Court.

2. The district court also erred by adopting as its own TAP's extraordinarily attenuated chain of causation. First, TAP's argument that a "take" had occurred turned solely on Tom Stehn's testimony that 23 cranes died in 2008-09. Stehn's "methodology" was to declare dead any individual crane that was undetected on two successive, hurried flights (and even Stehn found only six flights reliable during Winter 2008-09). In the past, color bands permitted identification of individual cranes. Yet Stehn admitted that, in 2008-09, color-banded cranes were at an historic low and that "unusual," "chaotic" crane movements severely impeded even flock-size estimation—much less mortality conclusions—in 2008-09. The 2009-10 flock size confirmed the unreliability of Stehn's mortality count—it was far too large, *unless* Stehn grossly overestimated the 2008-09 mortalities. Moreover, Stehn's own employer, FWS, rejected Stehn's methodology in a study released after the trial. The district court improperly refused to admit that report.

But assuming 23 cranes did die, TAP still had to show that TCEQ's permitting of water diversions "proximately caused" the deaths. Even if a seven-step causation chain could ever constitute *proximate* cause, TAP's did not. At every step, analytical gaps and insufficient evidence plagued TAP's attempt to show that low inflows caused high salinity, which caused a lack of food sources, which caused food stress, which caused crane mortalities. TAP also failed to account for intervening causes—such as drought and tides—that were more consequential than

diversions from the rivers, and thereby break TAP's chain of causation.

3. The injunction must be vacated even if liability is affirmed. Both for Article III standing to seek an injunction and to satisfy substantive requirements, TAP must show the *likelihood*, rather than the *possibility*, of imminent irreparable injury. But nothing in the record suggests cranes are in any danger. TAP's own experts regarded 2008-09 as an "unusual" and "unprecedented" year, and the whooping-crane flock has since flourished, reaching a record population, while Texas has implemented measures to promote freshwater inflows to the bay.

## ARGUMENT

The State Defendants’ brief provides sufficient reasons to reverse the judgment below. The district court also erred for the following additional reasons.

### **I. The district court erred by refusing to abstain under *Burford*.**

In *Burford v. Sun Oil Co.*, 319 U.S. 315 (1943), the Supreme Court held that a federal district court should have abstained from reviewing a permitting action of the state administrative body charged with regulating oil and gas in Texas. Oil-and-gas regulation, the Court recognized, required complex consideration of competing demands on a finite resource that was “of vital interest to the general public.” *Id.* at 318-25. The Court emphasized that Texas “provide[d] a unified method for the formation of policy” by the state agency and specialized review of the agency’s actions in state court, which “can give fully as great relief . . . as the federal courts.” *Id.* at 327, 333-34. In such circumstances, the Court concluded, comity requires “proper regard for the rightful independence of state governments in carrying out their domestic policy.” *Id.* at 318.

Since *Burford*, federal courts—including this Court—have uniformly found abstention warranted when federal adjudication “would be disruptive of state efforts to establish a coherent policy with respect to a matter of substantial public concern,” and “where timely and adequate state-court review” is available. *Wilson v. Valley Elec. Membership Corp.*, 8 F.3d 311, 314 (5th Cir. 1993) (internal quota-

tion marks omitted). Indeed, this Court held that *Burford* abstention was “manifestly warranted” in a prior ESA case alleging that water diversions in the Guadalupe River Basin caused unlawful “takes.” *San Antonio*, 112 F.3d at 791, 793. Yet in *this* ESA case, involving the same basin and the same issue—water diversion—the district court erred by reaching a different conclusion.

This Court has identified five factors that should inform a district court’s abstention decision: (1) whether the cause of action arises under federal or state law;<sup>4</sup> (2) whether the case requires inquiry into local facts or unsettled state-law issues; (3) the importance of the state interest involved; (4) the state’s need for a coherent policy in the area; and (5) the presence of a special state forum for judicial review. *Wilson*, 8 F.3d at 314. Each factor favors abstention.

This Court reviews a district court’s abstention decision for abuse of discretion. *Nationwide Mut. Ins. Co. v. Unauthorized Practice of Law Comm.*, 283 F.3d 650, 652 (5th Cir. 2002). “By definition, a district court abuses its discretion when it makes an error of law or applies an incorrect legal standard.” *Klier v. Elf Atochem N. Am., Inc.*, 658 F.3d 468, 474 (5th Cir. 2011). Because the law is clear that abstention does not turn on whether the state administrative body will grant relief

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<sup>4</sup> This Court has since clarified that “*Burford* abstention does not so much turn on whether the plaintiff’s cause of action is alleged under federal or state law, as it does on whether the plaintiff’s claim may be ‘in any way entangled in a skein of state law that must be untangled before the federal case can proceed.’” *San Antonio*, 112 F.3d at 795 (holding that *Burford* abstention was warranted in case presenting only federal ESA claim).

to the plaintiff, the district court erred as a matter of law when it refused to abstain. It further abused its discretion because all relevant factors point toward abstention. *See New Orleans Pub. Serv., Inc. v. Council of the City of New Orleans*, 491 U.S. 350, 361 (1989) (*NOPSI*) (holding that a “federal court sitting in equity must decline” jurisdiction where *Burford* factors are met).

**A. The district court’s adjudication disrupts Texas’s regulatory efforts to establish a coherent water policy, a state interest of paramount importance.**

1. *Water allocation in Texas is a matter of substantial public concern that requires unified, comprehensive regulation.*

In *San Antonio*, this Court recognized that Texas has a vital interest in the coherent management of its water resources. There, the district court enjoined water withdrawals from the Edwards Aquifer because they allegedly caused takes of endangered species in violation of the ESA. 112 F.3d at 792-93. Reversing, this Court emphasized that “[t]he regulation of water resources,” like Texas’s regulation of oil and gas in *Burford*, is “a matter of great state concern.” *Id.* at 794. And “[a]s in *Burford*,” the Court explained, “there is a need for unified management and decision-making regarding the aquifer, since allowing one party to take water necessarily affects other parties.” *Id.* Abstention was necessary “to allow the state’s comprehensive regulatory scheme to operate without the risk of competing attempts between the regulator and the federal courts to exercise control over the same entity.” *Id.* at 795.

The same is true here. Texas has a strong interest in the allocation of water in the Guadalupe and San Antonio River Basins. Competing for that limited resource are municipal, agricultural, industrial, commercial, and recreational users. Texas has also determined that “maintaining the biological soundness of the state’s rivers, lakes, bays, and estuaries is of great importance to the public’s economic health and general well-being.” Tex. Water Code § 11.0235(b). Just as in *Burford* and *San Antonio*, “the diverse economic and social interests dependent on the [basins] for water supply” necessitate uniform decision-making by the state regulator. 112 F.3d at 794 (quotation omitted).

2. *Texas has established a comprehensive administrative program to allocate water for the protection of environmental habitats.*

TCEQ is tasked with the uniform and comprehensive management of Texas’s water. Tex. Water Code § 5.013. In 2007, through what is commonly known as Senate Bill 3 (S.B. 3), Texas established an “Environmental Flows” process. That administrative program requires TCEQ to “adopt appropriate environmental flow standards for each river basin and bay system in this state that are adequate to support a sound ecological environment, to the maximum extent reasonable considering other public interests and other relevant factors.” *Id.* § 11.1471(a)(1). TCEQ must then set aside “an amount of unappropriated water, if available,” to satisfy the environmental-flow standards. *Id.* § 11.1471(a)(2). If the set-aside water is insufficient, TCEQ must “explore[] and pursue[]” “a variety of

market approaches, both public and private, for filling the gap.” *Id.* § 11.0235(d-3)(2).

The environmental-flows process involves an elaborate system of state and regional working groups that advise TCEQ. *Id.* §§ 11.0236-11.02362. Local expert science teams must recommend flows for each river basin “based solely on the best science available,” *id.* § 11.02362(m), made “without regard to the need for water for other uses,” *id.*, and “adequate to support a sound ecological environment and to maintain the productivity, extent, and persistence of key aquatic habitats,” *id.* § 11.002(16). Committees of basin and bay-area stakeholders—which include agricultural, recreational, municipal, industrial, conservation, environmental, and public-interest groups—also make recommendations. *Id.* § 11.02362(f), (o).

TCEQ must condition any new or amended water permits on compliance with environmental-flow standards and set-asides and may not issue any permit that would impair a set-aside. *Id.* §§ 11.134(b)(3)(D), 11.147(e-3), 11.1471(d). Pursuant to the environmental-flows process, TCEQ established environmental-flow standards for the Guadalupe and San Antonio River Basins in August 2012. *See* 30 Tex. Admin. Code §§ 298.350-298.390 (2012).<sup>5</sup> To Intervenors’ knowledge, no party has challenged the standards or alleged that TCEQ has issued a

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<sup>5</sup> In refusing to abstain, the district court mistakenly asserted that TCEQ had not completed the environmental-flows process for any river basin. *See* R.7765. Even if that were correct, it would be legally irrelevant. This Court has held that *Burford* abstention is proper even though a state agency has not completed its regulatory process. *See San Antonio*, 112 F.3d at 796, 798.

permit that does not comply with flow requirements.

3. *The district court's adjudication needlessly interferes with Texas's regulatory program and entangles the court in a skein of state law and highly localized facts.*

Undeterred by Texas's comprehensive regime, the district court ordered Texas to undertake *another* environmental-flows process, under the supervision of the federal court and FWS. *See* R.7856-57 (ordering Texas to apply for an Incidental Take Permit and develop a Habitat Conservation Plan (HCP)). The court enjoined TCEQ from granting new permits for water use in the Guadalupe or San Antonio River Basins until Texas “provides reasonable assurances to the Court” that such permits will not take whooping cranes. R. 7856.

“Few public interests have a higher claim upon the discretion of a federal [court] than the avoidance of needless friction with state policies,” *Burford*, 319 U.S. at 332 (citation and quotation omitted), yet the district court’s injunctive relief creates just that. The federal regulatory process ordered by the district court—which will “require the TCEQ defendants to address freshwater flows” “based on the best science available,” yet provide “stakeholder participation” and “balance between the often conflicting interests of property owners, developers, and conservationists” (R.7748, 7836, 7839, 7855)—duplicates Texas’s environmental-flows process. *See, e.g.*, Tex. Water Code § 11.1471(b).

Worse, the relief granted by the district court requires “precisely the sort of

highly localized, specialized, judgmental, and perhaps partisan analysis that brings this case squarely within” *Burford* abstention. *Wilson*, 8 F.3d at 315. The court’s continuing oversight of the HCP process will involve it directly in weighing the interests of local stakeholders. R.7855. Moreover, by subjecting TCEQ’s permitting process to the court’s prior approval, the court inserted itself into decision-making governed by complex state rules and entirely dependent on local geographic, economic, political, industrial, recreational, and agricultural concerns. *See, e.g.*, Tex. Water Code §§ 11.121-11.155 (statutory provisions governing permits to use state water). The court’s injunction requires it to “delv[e] into highly local issues of fact,” and enmeshes it into “a skein of state law that must be untangled before the federal case can proceed” to completion, factors that weigh heavily in favor of abstention. *Wilson*, 8 F.3d at 314; *San Antonio*, 112 F.3d at 795.

Similarly, to hold that the State Defendants violated the ESA, the district court believed it necessary to resolve whether TCEQ possessed—but failed to exercise—state-law authority to alter existing water rights to protect the cranes. R.7766-76, 7846, 7856. The district court’s extensive analysis of TAP’s “claim that a state agency has misapplied its lawful authority” is a textbook violation of the *Burford* doctrine. *NOPSI*, 491 U.S. at 362; *see also Coal. for Health Concern v. LWD, Inc.*, 60 F.3d 1188, 1195 (6th Cir. 1995) (abstaining when federal environmental claim could not “be decided without interfering with Kentucky’s poli-

cies governing the issuances of hazardous waste incineration permits” and where “plaintiffs’ allegations are based on assertions that the Secretary has failed to apply or misapplied his lawful authority under Kentucky law”).

**B. Abstention does not deprive TAP of a forum for its federal claims because Texas’s administrative program provides timely and adequate state-court review.**

The district court’s injunctive relief is “disruptive of state efforts to establish a coherent policy with respect to a matter of substantial public concern.” *NOPSI*, 491 U.S. at 361 (quotation omitted). In such circumstances, *Burford* abstention is warranted if “timely and adequate state-court review” is available. *Id.* That requirement is met here.

As a preliminary matter, Texas’s water regulatory scheme provides TAP with ample administrative avenues to press its ESA claim or to otherwise object to TCEQ’s water-management practices. Any “affected person” may challenge TCEQ’s issuance or amendment of a water permit. 30 Tex. Admin. Code §§ 55.250-55.256. *See also* Tex. Water Code § 5.115. “Any person” may also petition TCEQ for adoption of a proposed rule, and TCEQ must initiate rulemaking or issue a reasoned denial within 60 days. 30 Tex. Admin. Code § 20.15.

Contrary to the district court’s conclusion that the Texas regulatory process provides “no enforcement mechanism,” R.7765, 7776, state administrative law provides for judicial review in a specialized state forum. Any “person affected by

a ruling, order, decision, or other act” of TCEQ “may file a petition to review, set aside, modify, or suspend” TCEQ’s action in Travis County district court and, if necessary, appeal to an appellate court and the Texas Supreme Court. Tex. Water Code §§ 5.351, 5.354, 5.355. Any federal issue may ultimately be presented to the U.S. Supreme Court. 28 U.S.C. § 1257(a). Texas’s framework for judicial review of water allocation mirrors the judicial-review scheme for oil-and-gas decisions that the Supreme Court found “expeditious and adequate” in *Burford*. See 319 U.S. at 325, 334. Thus, as in *Burford*, Texas state courts provide a fully competent forum for the adjudication of TAP’s federal claims. The district court should have abstained to allow Texas’s carefully crafted water-management processes to follow their ordinary course.

**C. The district court legally erred when it held that it need not abstain absent a showing that the state agency would fully vindicate the plaintiff’s interests.**

The district court refused to abstain because Texas’s administrative program allegedly does not guarantee that the whooping cranes’ water needs will be satisfied.<sup>6</sup> Despite TCEQ’s many tools to establish adequate environmental flows, the district court noted that TCEQ cannot issue new *permits* that specifically retain wa-

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<sup>6</sup> See R. 7761 (S.B. 3 “makes no attempt to *ensure* that such recommended amounts [of freshwater flows] remain” instream); *id.* (S.B. 3 “does not address, concern, protect, or assist the endangered whooping cranes, and therefore, provides no grounds for abstention”); R. 7764 (S.B. 3 “does not assist the whooping cranes”); R. 7765 (rejecting the suggestion that S.B. 3 will “protect the whooping cranes”).

ter instream for environmental purposes. *See* R.7764, 7776. The court further emphasized that the environmental-flows rules require only new and amended permits, not already-existing permits, to comply with flow standards. *Id.* And most fundamentally, the district court explained, the state regulatory process requires TCEQ to accommodate competing water needs.<sup>7</sup>

The district court's reasoning is irreconcilable with *Burford*, which does not require abstention only if the state agency is sure to vindicate the plaintiff's interests. In fact, the *Burford* framework necessarily contemplates state *agencies* being unable to redress a plaintiff's concerns, requiring instead timely and adequate *judicial* review in which federal claims can be asserted.

In *Burford*, moreover, the Court recognized Texas's need for coherent regulatory policy precisely *because* of the many "diverse interests" competing for oil and gas in the state. 319 U.S. at 320. The district court's rationale here turns *Burford* abstention on its head: it *refused* to abstain because TCEQ must consider competing water needs.

This Court's precedents also make clear that *Burford* abstention does not

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<sup>7</sup> *See* R. 7762-63 ("[T]here is no steadfast commitment to the bays and estuaries" because TCEQ must consider other water demands and may suspend environmental flows in emergencies such as drought); R. 7776 (S.B.3 will not "address the concerns of the Whooping Cranes because . . . it is riddled with carve-outs and exceptions that relegate the ecological needs of the Whooping Cranes to a secondary status"). *See also* R. 4096-97 ("With these various competing interests, there is no assurance that the interests of endangered species will be considered [by TCEQ], let alone prevail"); R. 4097 ("the interests of municipalities, counties, and private entities concerned about having sufficient water to maintain growth may outweigh any objection from those seeking to protect endangered species").

depend on whether the state agency will provide the relief that the plaintiff seeks or that the federal court believes is appropriate. In *San Antonio*, just as here, the district court declined to abstain because it disagreed with the state regulator's refusal to enact emergency measures to protect endangered fountain darters. 112 F.3d at 796; *cf.* R.7856 (faulting TCEQ for failing to “exercise emergency powers available to protect the endangered whooping cranes”). This Court reversed, emphasizing that a district court's abstention decision may not be based on whether “the state authority agrees with it.” *Id.*

The district court's reasoning—turning entirely on whether TAP will “win” in the Texas administrative process—has no place in abstention analysis. Rather, *Burford* abstention is required because Texas has a strong need for coherent state water policy, federal intervention disrupts the state's regulatory efforts, and judicial review is available in specialized state courts competent to adjudicate TAP's federal claim.

**II. The district court erred by concluding that 23 whooping cranes died in Winter 2008-09 and that the issuance of permits to divert water from rivers proximately caused the alleged deaths.**

On the merits, TAP fell far short of proving that the State Defendants violated the ESA by issuing water-withdrawal permits that proximately caused takes of whooping cranes. First, TAP produced no competent evidence to support its claim that 23 cranes died in Winter 2008-09. Its only evidence of alleged takes

was Stehn's unreliable testimony that contradicted his own contemporaneous observations in 2008-09 and was based on his aerial-survey methodology that FWS has repudiated. Second, even if an unusual number of cranes died that winter, TAP's attenuated, seven-step chain of causation does not come close to meeting the ESA's proximate-cause requirement. Each link in the chain is plagued by analytical gaps, leaps of logic, and failure to exclude alternative causes. The district court uncritically papered these over by substituting correlation for causation and accepting anecdotes in place of evidence. The court's "findings"—lifted wholesale from TAP's briefing—are clearly erroneous, and the judgment is based upon insufficient evidence of causation.

**A. Stehn's mortality data are central to TAP's case, but they are unreliable.**

TAP can lose for many reasons, but it cannot win without Stehn's mortality testimony. TAP's theory of a "take" depends upon the cranes' alleged deaths, which in turn depend solely on Stehn's data, as TAP's counsel and the district court both acknowledged. 3 Tr. 127; 2 Tr. 252-53. Because Stehn's mortality data are unreliable as a matter of law, Intervenors begin the discussion of causation with what otherwise would be the final link in the chain. If the Court agrees that TAP did not carry its burden to prove the cranes' deaths, it need not consider the additional causation problems addressed in Part II.B.

Expert testimony is inadmissible and constitutes no evidence unless the tes-

timony “employs . . . the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.” *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 152 (1999). It was TAP’s burden to show that Stehn’s methodology and data were “based on the scientific method, and, therefore, . . . reliable.” *Moore v. Ashland Chem., Inc.*, 151 F.3d 269, 276 (5th Cir. 1988).

Stehn’s mortality counts and underlying aerial-survey methodology fail this standard and the *Daubert* guideposts. Stehn’s mortality methodology depended on tracking individual cranes, and he declared a death when he did *not* see a particular bird on two successive flights—his “missing=dead” formula. 2 Tr. 326-28, 333; 8 Tr. 92. If he saw an adult pair but no juvenile, he assumed the juvenile had died; if he saw one adult and a juvenile, he assumed that one adult had died. 2 Tr. 324; 8 Tr. 92. But that is not a “technique” that has been “tested,” or even “peer-reviewed.” *Daubert v. Merrell Dow Chem. Co.*, 509 U.S. 579, 593 (1993). Stehn’s method has no “known or potential rate of error,” *id.* at 594, not because it is error-free but because it lacks statistical rigor. Finally, using aerial surveys to measure individual mortality is not “‘general[ly] accept[ed]’” within the scientific community, and FWS has repudiated it. *Id.* Aerial surveys may help estimate trends in endangered-species populations, but only Stehn has purported to use them to declare the deaths of individuals.

1. *Stehn's 2008-09 mortality methodology bore little resemblance to the early years of his work—and the differences prevented reliable mortality data.*

Nothing in the record suggests that aerial surveys have ever reliably measured the mortality of *any* endangered species; no party has identified an ESA case with a “take” shown by such a survey. Winter 2008-09, upon which TAP exclusively focuses, was especially unsuited to reliable individualized mortality findings, and Stehn himself contemporaneously acknowledged many objective threats to the validity of that year’s data. Compared to when Stehn began his work, the flock and its territory both had grown far larger, but the percentage of cranes marked with color bands (which permit identification of individual cranes) had fallen precipitously by 2008. And while Stehn’s methodology depended on weekly flights, in 2008-09 he had only eleven (less than every two weeks on average)—and Stehn considered only six to be reliable. Moreover, to Stehn’s frustration, the flock in 2008-09 was unusually mobile.

	<b>Stehn's first decades</b>	<b>By 2008-09</b>
Flock size	Small—138 cranes in 1988, for instance. DX 168 at 3.	Doubled—270 in Stehn's 2008-09 estimate. DX 6 at 4.
Geographic range	Relatively small. DX 123 at 146.	Far larger. DX 123 at 146; 2 Tr. 22, 293.
Color banding	Majority (all chicks banded from 1977-88). 1 Tr. 143; DX 157 at 95.	Only 6.5%, down from 59% of all cranes banded in 1988, 1 Tr. 148, DX 6 at 33.
Stehn's field-work	"[A] lot more time in the field." 2 Tr. 303.	Now "a desk jockey" with limited field time. 2 Tr. 303
Flight frequency	Weekly winter flights (26 expected). 1 Tr. 148-49; 2 Tr. 290, 304.	11 flights (only 6 reliable, according to Stehn). 2 Tr. 247, 317; DX 6 at 22; 1 Tr. 156-57; DX 127-36, 142.
Time per flight	8 hours—4 hours on either side of lunch. DX 123 at 146.	6 hours per flight (all required for full coverage). 3 Tr. 45-46.
Flight altitude	Low passes of 20 to 50 feet to individually mark color bands. 2 Tr. 291-92.	200 feet (few color bands to mark). 2 Tr. 292-93.
Flight speed	Relatively slow. 2 Tr. 292-93.	"[R]eally not safe to slow down the [new] plane." 2 Tr. 293.
Crane movement	Comparatively minor relative to "unusual" 2008-09. DX 6 at 22; 2 Tr. 331.	Constant "chaotic" movement making it an "unusual year." DX 6 at 22; 2 Tr. 331.
Cranes seen on flights	"Nearly all whooping cranes were located on every census flight; usually only a few were overlooked." DX 123 at 147.	<i>No</i> flight accounted for all cranes, and often missed dozens of cranes that Stehn believed to be present. DX 385.

In each methodological attribute listed in the chart above, the 2008-09 practice is objectively less reliable even than the methods earlier employed by Stehn.<sup>8</sup>

**a. Less color banding means less identification accuracy.**

From 1977 to 1988, every whooping-crane juvenile received unique color bands on its legs, permitting individual identification wherever the crane went, and helping to prevent double counts, false sightings, or errant declarations of death. 1 Tr. 143; 2 Tr. 291; 3 Tr. 107-08. After the color-band program ended, Stehn wrote an article in 1992 calling for its restoration to “greatly enhance the accuracy of population censuses and aid in . . . documentation of mortality.” DX157 at 100. Stehn warned that “resumption of the banding program may be required,” as “[i]ncreased observation of the flock may be *needed to determine the causes of recent increases in mortality.*” *Id.* (emphasis added). Shortly before Winter 2008-09, Stehn acknowledged: “As flock size increases and the number of color-banded birds decreases, the accuracy of the census is expected to decrease.” DX123 at 151.

If anything, these predictions *understated* the Winter 2008-09 problems, by which time barely 6.5% of the 270 cranes had color bands. 1 Tr. 154; DX6 at 33. Tellingly, *none* of the cranes that allegedly died in 2008-09 were color banded.

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<sup>8</sup> Chavez-Ramirez vouched for Stehn’s reliability, 2 Tr. 59-60, but had no experience with Stehn’s 2008-09 methods—he has not been on a flight since 1994, 2 Tr. 134, when conditions were markedly different.

1 Tr. 154, 164 (Archibald). Previously, Stehn's errors could be corrected precisely because of color banding. 3 Tr. 109-10; DX137 at 7; DX138 at 8 (recounting Stehn's declarations of death being disproven because cranes reappearing in later years were color banded). But without color bands, such correction of the 2008-09 declarations of death is impossible. After that winter, Stehn again called for tools like color bands because it was "imperative that more be learned about causes of mortality." DX38 at 17. Indeed, FWS has decided to reinstitute both banding and radio tracking. *See* 1 Tr. 148-49, 159-60, 258.

**b. Chaotic flock movements to and from the cranes' territories precluded accurate conclusions about the fates of individual cranes.**

Shortly before Winter 2008-09, Stehn wrote that, even in ordinary years, "much to [his] frustration," cranes always can be overlooked, because they "are mobile during census flights," which "can lead to uncertainty" in counting. DX123 at 149.<sup>9</sup> But 2008-09 was no ordinary year. In January, Stehn recognized that his "flock estimate is very chaotic this year. *I have no faith in its accuracy.*" DX130 at TS000140 (emphasis added); 3 Tr. 58. If it was "difficult to pin down the exact number of whooping cranes present" in general, DX128 at 1; 3 Tr. 51-52, 98, then tracking *individuals* necessarily was compromised.

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<sup>9</sup> Stehn observed in his 2008 article that "[a] few whooping cranes occasionally leave the census area for portions of the winter and may go unreported." DX123 at 147. Neither Stehn nor TAP explained why this could not at least partly account for Stehn's Winter 2008-09 difficulty in finding cranes.

Stehn further acknowledged that “[c]rane presence on uplands also makes it very difficult to identify specific territorial cranes since they are not in their marsh territories.” DX 128 at 1; 3 Tr. 51-53. The “movements make it possible to double-count cranes as well as completely miss cranes as they move to and from the marshes.” DX 128 at 1. The situation never improved. “Movements . . . continue[] to make it very difficult to find and count every crane,” Stehn reported in late January. DX 132 at 1. Cranes were still “staying off their territories,” making it “very difficult to determine the identity of pairs and family groups and lead[ing] to much uncertainty.” DX 132 at 2; 3 Tr. 69-70.

Stehn memorialized his concerns about this “chaotic winter for census work” in the 2008-09 annual report. DX 6 at 21-22. Despite Stehn’s own repeated warning about his results that winter, TAP’s case depends on there being no “uncertainty,” DX 132 at 2, about individual identification. But TAP is left with a bundle of *contemporaneous* uncertainty packaged uncomfortably with Stehn’s insistence *years later*, at trial, that he *knows* that he is right. *See, e.g.*, 3 Tr. 149. An *ipse dixit* at odds with the facts of the record, even from the most credentialed expert, is not admissible evidence. *See Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997).

**c. Lesser frequency and shorter duration of flights.**

Stehn repeatedly emphasized the importance of “weekly” flights to monitor

and survey the flock. 2 Tr. 304, 316, 322; 3 Tr. 61; DX 123 at 150. But in 2008-09, there were only eleven, averaging 15.8 days between flights. 2 Tr. 247; 3 Tr. 122. Stehn credited only *six* as reliable. See DX 6 at 22 (listing flights). Worse, when Stehn *did* make it into the air, he was rushed. He “need[ed]” “seven hours or seven-and-a-half hours” just to cover the range, 2 Tr. 309, but only had *six* hours per flight. 3 Tr. 46. His prior standard was eight flight-hour days, for a smaller territory and flock. DX 123 at 146.

Stehn admitted that not doing weekly flights “reduces the accuracy” of the results. 2 Tr. 317. When he had more air time and smaller territory, he included detours and repeated passes to search for cranes he initially missed. 2 Tr. 5-11, 308, 311-12. But in Winter 2008-09, “time limitations caused us to fly at greater speeds,” making it even easier for cranes to be “overlooked.” DX 134 at 1. Stehn had long acknowledged that “I am always speculating on what cranes I may have overlooked based on crane distribution on previous flights.” DX 173 at 13. The 2008-09 methodology greatly enhanced the need for speculation.

2. *Aerial surveying is not an accepted methodology to determine mortality.*

Beyond the specific 2008-09 problems, Stehn’s method is anomalous. Conroy, the only expert qualified to assess aerial-survey methodology, explained that aerial surveys are not accepted for determining mortality. 8 Tr. 96. The district court dismissed Conroy as a “research scientist” from Georgia with “expertise . . .

in applying statistical methods and mathematical modeling to analyze data from populations surveys.” R.7809. That is true, but Conroy also worked for FWS—the agency that employed Stehn and supervises the Refuge—and the U.S. Geological Survey for 30 years. He designed and evaluated *aerial surveys* for charting the abundance of wintering birds, and co-wrote the “standard reference” book on applied population modeling. 8 Tr. 75-79, 82; DX368.

Furthermore, FWS specifically retained Conroy to critique various aerial surveys, and, even after this litigation began, asked him *to evaluate Stehn’s survey design and methodology*. 8 Tr. 82-83. FWS ultimately concluded that Stehn’s methods employed in 2008-09 should be discontinued—a crucial development that the district court dismissed. *See infra* Part II.A.5..

Conroy explained that the standard, accepted way to determine the mortality of individuals is to use marking (like color bands) or radio telemetry. 8 Tr. 93-95. This is consistent with Stehn’s own desire for such devices. But their absence in 2008-09 prevented verification of Stehn’s speculation about deaths.

3. *Stehn’s own 2009-10 numbers make sense only if Stehn was wrong in 2008-09.*

Stehn’s 2008-09 mortality data cannot account for the cranes’ subsequently successful migrations—to Canada and back. Because far more cranes appeared in late 2009 than Stehn anticipated, the 2009-10 numbers *only* make sense if Stehn was wrong about 2008-09.

The three variables for predicting the flock's 2009-10 population were:

- the size of the flock leaving Texas in early 2009, which Stehn concluded was 247 based on 23 alleged mortalities, *see* DX 6 at 23, plus
- the number of chicks that hatched in Canada, which Stehn received each summer, *see* 3 Tr. 112, DX 7 at 7-9, minus
- deaths among the 247 cranes after leaving Texas, which in a typical year is 8%, 1 Tr. 162, 3 Tr. 114, and which would logically be higher in a bad year.

Only the last variable was subject to change—how “typical” was that year?

Stehn believed, and TAP's theory requires, that 2008-09 was *not* a typical year, but a disaster—food-stressed cranes were undernourished to the point of death. Cranes use the winter to build reserves for migration and reproduction. 1 Tr. 297-99. Thus, Stehn anticipated that the 5,000 miles of the to-and-from migrations would be brutal. 3 Tr. 86-87. He nonetheless optimistically used the “typical” 8% in calculating the expected flock size. 3 Tr. 114, 117. If 247 cranes left Texas, then about 20 should not return. The surviving 92% and any new chicks born in Canada would constitute the returning flock. Based on the encouraging number of chicks reported from Canada, Stehn projected “a break-even year, with a flock total around 247 expected,” DX 161, 3 Tr. 112-14.

Stehn adhered to his expectation of 247 cranes even as the Texas-bound migration neared completion in December 2009. DX 139; 3 Tr. 144. But once the flock was all present, Stehn found a “surprisingly high” 264 cranes—*17 more than*

*anticipated*. DX17 at 2; 1 Tr. 164; 3 Tr. 147-48. Stehn’s “surpris[e]” was justified. Assuming 23 deaths in 2008-09, just breaking even would have been a win. Thus, Stehn reported the “discovery” of unexpected cranes as “really good news.” DX17 at 2. All 17 unexpected cranes were white-feathered, which is the color of a “subadult” returning for a second winter, as opposed to juveniles who transition from brown to white during their first winter. 1 Tr. 164, 2 Tr. 99, 325. Thus, those 17 had been alive during the 2008-09 winter—perfectly matching the 17 juveniles (of the 23 total) that Stehn had declared dead in Winter 2008-09. DX6 at 23.

This “good news” did pose a problem, however, even beyond explaining how 17 chicks had died and then 17 unexpected cranes had returned. If 23 cranes died in 2008-09, then only *five* cranes died during the to-and-from migration and the summer—2% mortality, not the typical 8%. *See* 3 Tr. 119. Stehn (and TAP) had to conclude that the cranes thrived, with one of the lowest mortality rates recorded, 2 Tr. 205; DX7 at 26—although nothing in logic or science suggests that this could be possible if the flock actually had been malnourished during Winter 2008-09. The faulty link is the assumption that *only 247 cranes left Texas*. Without a scientific explanation for why mortality would have been so much lighter following an awful year than following the average year, the district court erred by disregarding this “analytical gap”—indeed, chasm—in Stehn’s reasoning. *See Joiner*, 522 U.S. at 146.

4. *The lack of statistical indicia of reliability shows that the mortality data cannot constitute probative evidence.*

Finally, Stehn's mortality-count methodology and data fail *Daubert* standards because there is no basis on which to determine error rates. *See* 509 U.S. at 594. Stehn dismissed the matter: "I don't know what you mean by 'apply an error rate,'" 3 Tr. 140, which was "a statistical term that is beyond me," 3 Tr. 137-38. If Stehn could not provide a *general* error rate, he certainly could not explain how the error rate was adjusted to account for the particular disabilities of Winter 2008-09. Absent statistically meaningful error rates, his gut-instinct self-determination of reliability, which the district court credited, R.7833, provides no assurance of methodological reliability.

The district court was not unaware that Stehn's methods lacked reliability. It simply did not care. The ends justified the means: "I know that the whooping cranes are an endangered species.... [E]very effort should be made to save them.... [Stehn] is the only human on earth that has been counting these annually in our area. So my reaction is to go with his count." 3 Tr. 119. Later that day, the district court asked Stehn to vouch for his own reliability, which he unsurprisingly agreed to, 3 Tr. 149—and in turn relied upon that in its opinion. R. 7808. But experts do not determine their own reliability. The district court erred by relying upon Stehn's mortality data, which lacked the necessary indicia of reliability.

5. *The district court erred by refusing to acknowledge that the FWS Report discredited Stehn's methodology.*

After Stehn's retirement, his employer—FWS, which supervised the Refuge—evaluated whether his methodology was sufficiently reliable even to use for internal purposes. On September 24, 2012, following trial but before judgment, FWS issued a report entitled “Aransas-Wood Buffalo Crane Abundance Survey (2011–2012)” (Report), which severely criticized Stehn's aerial-survey methodology.<sup>10</sup> If the government agency responsible for protecting endangered species has recognized a need for greater statistical rigor, that should sound alarm bells to any court asked to rely on the discarded method. The district court, however, doubled-down on Stehn and, without a hearing, denied the motion to reopen the record to admit the Report. R. 7822-7823.

The district court abused its discretion by sidelining the Report. That decision “worked an injustice and therefore must be reversed.” *Garcia v. Women's Hosp. of Tex.*, 97 F.3d 810, 814 (5th Cir. 1996). All three factors favored granting the motion to reopen: (1) “the importance and probative value of the evidence,” (2) “the reason for the moving party's failure to introduce the evidence earlier,” and (3) “the possibility of prejudice to the non-moving party.” *Chieftain Int'l (U.S.), Inc. v. Se. Offshore, Inc.*, 553 F.3d 817, 820 (5th Cir. 2008) (internal quotation

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<sup>10</sup> The Report, a government document, is in the record at R. 7386-7411, and is available online at [http://www.fws.gov/uploadedFiles/FY12\\_ANWR\\_WWCAS\\_Review\\_01OCT12-508.pdf](http://www.fws.gov/uploadedFiles/FY12_ANWR_WWCAS_Review_01OCT12-508.pdf).

marks omitted).

The district court analyzed only the first factor and concluded that the Report lacked probative value.<sup>11</sup> R. 7822-33. The district court incorrectly found that the Report was “not a criticism, nor even an evaluation of Stehn’s mortality counts, nor does it develop any new methodology for determining winter AWB crane mortality.” R. 7823. In fact, the Report was highly critical of Stehn’s aerial-survey methods altogether, and specifically noted that his method “was also used to assume mortality of individuals.” R. 7388. It listed several “major concerns” about the method’s unscientific nature and unreliable results. R. 7390-91. “All evidence suggests that, in recent years, observers on aerial surveys were unlikely to detect all whooping cranes within the surveyed area,” it observed. R. 7396. Crucially, the Report rejected Stehn’s belief that “a bird that was presumed to be absent from its territory during multiple surveys was assumed to have died,” an assumption FWS found “unnecessary and untenable given recent data.” R. 7391. The Report destroyed the foundation of TAP’s claim that 23 whooping cranes died in 2008-09 and confirmed Intervenors’ position that Stehn’s mortality testimony should have been excluded.

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<sup>11</sup> The remaining factors favor reopening. Intervenors could not have presented the Report at trial because it was not released until months thereafter. *See, e.g., Garcia*, 97 F.3d at 814; *Niagara Mohawk Power Corp. v. Chevron U.S.A., Inc.*, 596 F.3d 112, 123 (2d Cir. 2010). Nor would undue prejudice result where no judgment had been entered and where the case was tried to the bench, not a jury. *See Capital Marine Supply, Inc. v. M/V Roland Thomas, II*, 719 F.2d 104, 106-07 (5th Cir. 1983).

The district court mischaracterized the Report as inconsistent with both parties' agreement at trial that cranes are territorial and that Stehn's peak population counts were "reasonably accurate." R.7824-28. But all parties also agree that cranes regularly fly to the uplands and on occasion move to other territories in the salt marshes. DX157 at 98; 2 Tr.245 (Chavez-Ramirez). These movements are precisely why the Report cautions against unscientific reliance on aerial surveys to draw conclusions on issues such as individual mortality, which is exactly how TAP and the district court used Stehn's data. When evidence coming after trial concerns key and complex issues, as here, reopening is required. *See Kona Tech. Corp. v. So. Pac. Transp. Co.*, 225 F.3d 595, 609 (5th Cir. 2000).

The district court further reasoned that the Report is "preliminary," and thus unreliable. R.7828-31. But its refutation of Stehn's methodology is conclusive. The Report is "preliminary" only in that FWS had not finalized the replacement method for Stehn's aerial-survey approach. *See* R.7392. And it was certainly no more "preliminary" than any of Stehn's reports, and was indeed far more formal and contained more extensive analysis. Moreover, agency reports are presumed to be probative, reliable, and admissible, unless "other circumstances indicate lack of trustworthiness." Fed. R. Evid. 803(8)(B); *see Beech Aircraft Corp. v. Rainey*, 488 U.S. 153, 169 (1988); *Moss v. Ole S. Real Estate, Inc.*, 933 F.2d 1300, 1305 (5th Cir. 1991). The "preliminary" nature of the Report does not render it untrust-

worthy. The district court cited readily distinguishable cases, involving letters or reports far less complete than the Report here. *See Anderson v. Westinghouse Savannah River Co.*, 406 F.3d 248, 264 (4th Cir. 2005); *Plemer v. Parsons-Gilbane*, 713 F.2d 1127, 1140 (5th Cir. 1983); *Smith v. Isuzu Motors Ltd.*, 137 F.3d 859, 861-63 (5th Cir. 1998).

Finally, the district court found that the distance-sampling method proposed by the Report featured an “unacceptable” error rate. R.7831-33. Given Stehn’s unfamiliarity even with the error-rate concept, the district court’s approach is ironic; it preferred Stehn’s faux precision, R.7833, over the Report’s recognition that such precision is unattainable. But it also misses the point. The Report shows that Stehn’s methodology lacked scientific rigor; it was not introduced to propose a replacement methodology. What matters is that the federal agency charged with protecting endangered species has rejected Stehn’s methodology, and the district court erred by disregarding those views.<sup>12</sup>

**B. No probative evidence supports TAP’s attenuated theory of causation.**

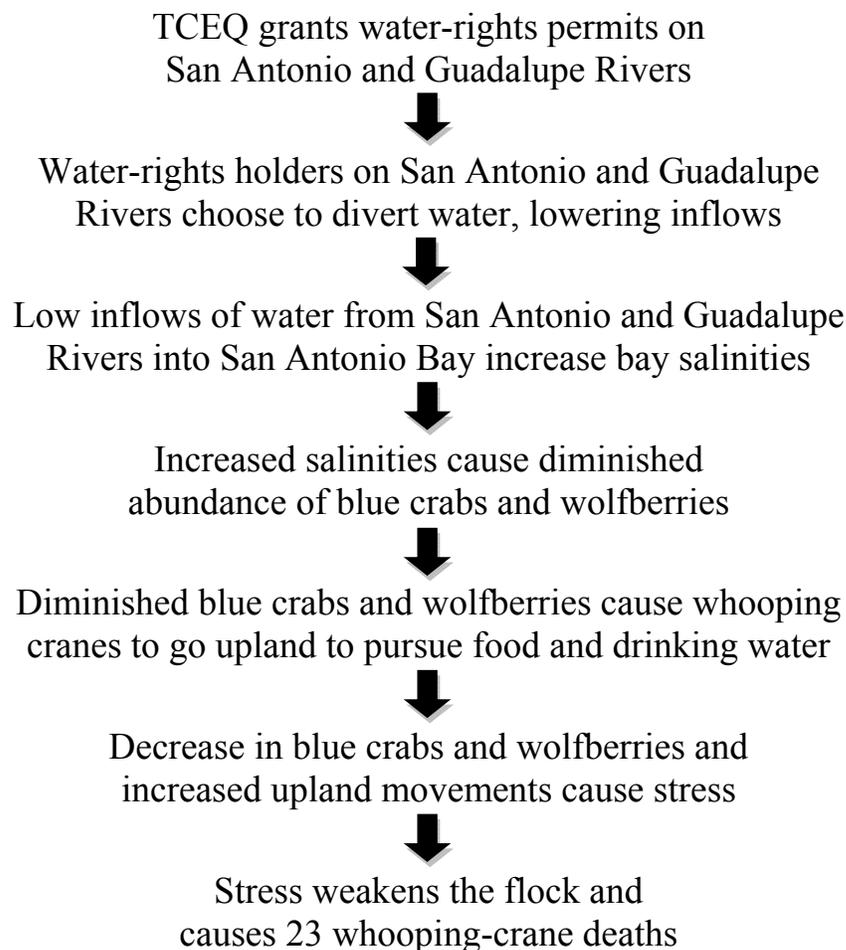
TAP had the burden to demonstrate that any crane deaths were proximately caused by TCEQ’s issuance of permits for diversions from the San Antonio and Guadalupe Rivers. The State Defendants correctly explain that a state’s issuance

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<sup>12</sup> The proper use of the Report is to buttress the points made above regarding the unreliability of Stehn’s mortality data. But should this Court choose to remand, the district court’s express refusal to credit the Report, R. 7822-23, means that any such remand should go to a different judge.

of permits *cannot* proximately cause a take as a matter of law. But even if that were an available legal theory, the evidence does not support a finding that permitting water diversions caused takes of whooping cranes. The district court nonetheless adopted TAP’s findings on causation *verbatim*. R.7843. This Court reviews such recycled findings with “caution” and may be more “confident” in concluding that the district court “overlooked or inadequately considered” important evidence. *Matter of Complaint of Luhr Bros., Inc.*, 157 F.3d 333, 338 (5th Cir. 1998).

The following represents the chain of causation adopted by the district court:



*See* R. 7778-7820.

All parties agree that plaintiffs alleging a “take” are subject to “ordinary requirements of proximate causation.” *Babbitt v. Sweet Home Chapter*, 515 U.S. 687, 700 n.13 (1995). “Proximate cause” requires “some direct relation between the injury asserted and the injurious conduct alleged. A link that is ‘too remote,’ ‘purely contingent,’ or ‘indirec[t]’ is insufficient.” *Hemi Group, LLC v. City of N.Y.*, 130 S.Ct. 983, 989 (2010) (citation omitted). TAP’s seven-step causation theory is paradigmatically remote, indirect, and contingent. At the very least, each link of such an attenuated chain must be exceedingly strong for TAP to prove by a preponderance of the evidence that permitting diversions proximately caused takes. Instead, at each step, the district court followed TAP’s lead in the “attenuated piling of inference on inference.” *United States v. Pettigrew*, 77 F.3d 1500, 1521 (5th Cir. 1996). But “[s]ome suspicion linked to other suspicion produces only more suspicion, which is not the same as some evidence.” *Davis-Lynch, Inc. v. Moreno*, 667 F.3d 539, 553 (5th Cir. 2012).

Despite this Court’s admonitions against relying on correlation to imply causation, *see, e.g., United States v. Valencia*, 600 F.3d 389, 425 (5th Cir. 2010); *Huss v. Gayden*, 571 F.3d 442, 460 (5th Cir. 2009), the district court adopted TAP’s attenuated theory that “low inflows and high mortality are ‘causally correlated.’” R. 7797. “[E]ven a strong correlation,” however, “is often spurious and misleading

when masqueraded as causal evidence, because it does not adequately account for other contributory variables.” *Valencia*, 600 F.3d at 425. Drought, tides, temperature, commercial crabbing, supplemental feeding, and other natural and manmade conditions—all addressed below—indisputably contribute to potential reasons for whooping-crane deaths. Yet the district court largely ignored them. This was clear error.

1. *The district court clearly erred in concluding that low inflows caused food stress and that food stress caused whooping-crane mortality.*

TAP’s claims that low inflows caused reductions in blue crabs and wolfberries, and that food stress caused whooping-crane mortality, are critical links in its theory of causation. But no reliable scientific data shows that blue crabs and wolfberries were unusually scarce in 2008-09. Further, overwhelming evidence shows that the whooping cranes were not dependent on these food sources. Finally, even assuming that the district court reasonably found that crabs and wolfberries were scarce, and that this scarcity led to some cranes’ deaths, there is no proof that either the scarcity or the deaths were caused by consumptive use of water in the Guadalupe and San Antonio Rivers rather than by natural conditions.

- a. **No reliable scientific data showed that wolfberries and blue crabs were scarcer than usual in 2008-09.**

**Wolfberries.** Evidence showed that wolfberries are only available to cranes from October to December each year. 2 Tr.156 (Chavez-Ramirez); PX17 at 137

(study by Chavez-Ramirez et al.). The district court's only finding regarding wolfberry abundance in 2008-09 is based on a statement from Stehn that production was "notably less than average." FOF 394; R. 7796.<sup>13</sup> But Stehn readily admitted that he "never really tried to document how many there were" in prior years because they were plentiful. 3 Tr. 28 (Stehn).

**Blue Crabs.** The district court's findings on blue-crab abundance during 2008-09 were similarly flawed. R. 7815; FOF 395, 401. Evidence showed that blue-crab counts always decline from November to March because of low tides and winds. DX377; 2 Tr. 162-63. Chavez-Ramirez nevertheless attempted to compare blue-crab numbers he compiled during five days in February 2009 with his studies of entire winters between 1992 and 1994. DX124 at TAP006359. Stehn counted significant blue crabs in November, missed his one-hour counts in January and March, and reported none in February or April. 2 Tr. 170 (Chavez-Ramirez). These counts, to the extent they are meaningful at all, simply confirm that blue-crab abundance declines from November to February, as in every typical year. DX377, 3 Tr. 29, 74, 90.

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<sup>13</sup> For convenience, Findings of Fact are enumerated when cited. The district court adopted TAP's findings of fact *in toto*. R. 7843 TAP's findings of fact are at R. 7086-145.

**b. The district court wrongly found that TAP met its burden to show that lack of wolfberries or blue crabs caused whooping-crane mortality.**

Even assuming that blue crabs and wolfberries were scarcer during Winter 2008-09, TAP failed to show that a lack of these two foods caused whooping-crane deaths.

**Opportunistic omnivores.** The overwhelming evidence showed that whooping cranes were “opportunistic omnivores,” “top-level predators” with an ever-changing diet. 2 Tr. 93 (Chavez-Ramirez); PX 17 at 137; 6 Tr. 118-19 (Slack); DX378 at 1151 (study by Slack et al.). The Whooping Crane Recovery Plan confirms that whooping cranes eat not merely crabs and wolfberries, but dozens of other things, including fish, snails, frogs, insects, and razor clams. DX102 at 8; *accord* 2 Tr. 71; DX381; PX 17 at 137, PX42. Whooping cranes do not eat blue crabs or wolfberries when migrating 2,500 miles to and from Aransas or while spending summers in Canada. 1 Tr. 112 (Archibald). Chavez-Ramirez’s own dissertation showed that blue crabs and wolfberries made up only 44% of whooping-crane diets in Winter 1993-94, with clams amounting to nearly 50%. 2 Tr. 164.

Chavez-Ramirez also testified that whooping cranes are not dependent on any particular food for the entire winter because their diet changes not only from year-to-year but month-to-month. 2 Tr. 166-67. He admitted that “the cranes’ diet change[s] throughout the winter to exploit shift in patterns of food availability with

various months dominated by different foods.” 2 Tr. 157; 2 Tr. 93; PX 17 at 137. A lack of any specific food in any particular month therefore says little about cranes’ ability to shift to other available food items.

**Food stress.** The district court adopted Stehn’s “opinion that whooping cranes really struggle when they don’t have their primary abundant food sources of wolfberry and blue crab.” Tr. 30 7-16 (Dec. 7) (Stehn).” FOF 390. Yet, Stehn never conducted any energetics analysis, and his impressionistic opinion contradicts his own studies, which have shown whooping cranes to thrive when wolfberries and blue crabs were scarce, as in 2009-10. *See, e.g.*, DX 7 at 65. Indeed, Chavez-Ramirez conducted a study on the relationship between blue-crab abundance and whooping-crane mortality from 1978-98 and found no statistically significant correlation. 2 Tr. 182; DX 121 at GBRA007181.

The only expert on energetics, Warren Porter, specifically testified that a range of hypothetical diets, including some made up of items other than blue crabs and wolfberries, *would* be sufficient for the whooping cranes’ predicted energy expenditures to look for water and eventually migrate north. 7 Tr. 70; DX 212 (comparing energy attributes of various food sources).<sup>14</sup> Similarly, Chavez-Ramirez

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<sup>14</sup> The district court sought to discredit Porter—a former chair of the zoology department at the University of Wisconsin and Guggenheim fellow with 107 peer-reviewed articles relating to the analysis of food and energy in animals, *see* 7 Tr. 18,19,43—because Porter relied on the Hunt-Slack study (DX 378), which GBRA’s counsel provided after Porter’s deposition, and a study by Danielle Greer. *See* R. 7123 at FOF 482; 7 Tr. 80. But nothing is improper about presenting additional data to an expert witness for rebuttal, and Chavez-Ramirez acknowledged that the Hunt-

previously concluded that “[r]azor clam and blue crab are similar in their nutritional make up in that they both contain low energy and high protein (Nelson et al. 1996). It seems plausible cranes can decrease blue crab consumption if clam consumption is high.” PX 17 at 137.

Alternatively, the district court suggested that whooping cranes expend more energy (again, allegedly resulting in death) searching for freshwater upland when the bay is more saline. FOFs 381, 418, 428; 2 Tr. 116. But the 1994 Recovery Plan noted that “whooping cranes use upland sites frequently *in most years*” as part of normal foraging behavior. DX 155 at 13 (emphasis added); 2 Tr. 245; 3 Tr. 41-42. “It’s a natural part of their biology to sometimes go to upland areas.” 1 Tr. 141-42. Indeed, in 2009-10, there was an increased use of the uplands, yet Stehn reported only *one* mortality. 2 Tr. 255-56; DX 7 at 66. Porter concluded that cranes’ upland trips, which average 0.3 miles in distance, caused no undue energetic stress. 7 Tr. 76.

For proof that higher saline water caused whooping cranes to go upland in 2008-09, TAP relied on Stehn’s testimony that he observed cranes leaving for freshwater when salt-marsh salinities reached 18 ppt. 3 Tr. 39. Even Stehn acknowledged that his opinion is “[u]npublished, unpeer-reviewed. It’s just observa-

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Slack study was one of the most comprehensive crane-diet studies. 2 Tr. 158. Regardless, Porter used various sources of diet data to conduct his energetics analysis.

tions.” 3 Tr. 39-40. He also noted that very few cranes were observed at freshwater resources even when salinities ranged from 29 ppt to 39 ppt. 3 Tr. 87, 92. As TAP’s witnesses admitted, no study confirms a need for cranes to fly upland at certain salinity thresholds. 2 Tr. 243-44.

Cranes fly upland, regardless of salinity, for many reasons, and the district court erred by ignoring them. Drought and low-tide conditions encourage cranes to go upland to forage for food. 3 Tr. 66. Further, in 2008-09, FWS performed a record number of prescribed burns, which Slack analogized to “putting up an ‘open’ sign in a restaurant” to attract whooping cranes upland to eat “roasted burned acorns” and other items. 3 Tr. 66 (Stehn); 6 Tr. 102 (Slack); DX 132 at TS000182. Likewise, Stehn himself—without FWS authorization—placed thirteen corn feeders upland to attract whooping cranes, 3 Tr. 25, 66, even though such feeders had long been prohibited because of concern about disease and predators. DX 7 at 74; DX 194 at 350; 1 Tr. 139-40 (Archibald). Stehn estimated that 20% of the flock used feeders during the winter of 2008-09. 3 Tr. 27.

**Known causes of death.** While the district court relied on a speculative theory explaining the deaths of cranes, TAP’s own experts, and the Recovery Team itself, acknowledged only one method of establishing cause of death: a necropsy of a whooping-crane carcass. 1 Tr. 103 (Archibald); 2 Tr. 145 (Chavez-Ramirez); *see also* DX 102 at 5 (the 2007 International Recovery Plan). FWS has

stated that when whooping-crane carcasses are not found, the cause of death is “unknown.” 1 Tr. 105 (Archibald); DX 126 at 24.

The National Wildlife Health Center performed two necropsies in the 2008-09 winter. Neither suggests that food shortages caused by high salinity (or anything else) was a cause of death. 6 Tr. 22 (Stroud). Indeed, because the first carcass was found December 1, 2008, shortly after its migration to Texas, Stehn recognized that it likely was injured during migration. DX 6 at 27; 6 Tr. 22 (Stroud). The first necropsy listed “subacute laceration” as the primary cause of death. DX 118 at 6. The second necropsy listed, “in order of importance,” (1) predation; (2) “severe emaciation”; and (3) “virus isolated from bursa; IBDV-like.” DX 119 at 5. The only necropsy expert specializing in veterinary pathology at trial was Stroud, the top medical examiner for FWS for 19 years.<sup>15</sup> Stroud reviewed the necropsies and testified that it is not reasonable to associate the cause of death with a food shortage. 6 Tr. 51.

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<sup>15</sup> The district court castigated Stroud’s credibility as a veterinary pathologist because of his “mental note” associating greenish necrotic materials with gangrene (or something “fairly significant” “going on”)—something that the district judge concluded was not sound because of her Internet searches. R. 7778; 6 Tr. 32-33, 40, 47-49. But that remark was not significant to Stroud’s point, and using it to marginalize Stroud—the only expert on veterinary pathology issues, who actually has performed whooping-crane necropsies and over 10,000 necropsies in total—was an abuse of discretion. DX 371 (CV); 6 Tr. 14. See *Matter of Complaint of Luhr Bros., Inc.*, 157 F.3d at 338 (“caution[ing] against permitting a trial judge to insulate findings from review simply by denominating them credibility determinations”) (citation omitted).

**c. The district court erred by finding that the consumptive use of water caused wolfberry or blue-crab scarcity.**

Finally, even assuming food scarcity, the district court erred by linking it to consumptive uses of water in the Guadalupe and San Antonio Rivers without considering other likely causal factors, including drought, low water levels, and commercial crabbing. *See Anthony v. Chevron USA, Inc.*, 284 F.3d 578, 587 (5th Cir. 2002) (causation evidence insufficient when plaintiff “failed to address the possibility that other sources caused” the injury); *Cold Mountain v. Garber*, 375 F.3d 884 (9th Cir. 2004) (finding insufficient evidence that herding of bison resulted in take of bald eagles where many other factors could have contributed to eagles’ reproductive failure).

**Long-Term Decline of Blue Crabs.** TAP’s expert, Montagna, testified that there has been “a near linear decline in blue crabs over the last 20 to 30 years” across the Gulf Coast. 3 Tr.208. He also admitted that other factors, including temperature, low tides, and dissolved oxygen had a greater effect on blue crab than inflows. 3 Tr.239; DX246-247. Stehn’s 2008-09 whooping-crane report contained a section on the “Long-Term Decline of Blue Crab Populations,” which documented factors causing a “Gulf-wide” decline in blue-crab presence. DX6 at 68 (citing Montagna study). *See also* DX238 at 1.8 (noting nationwide blue-crab decline).

**Drought.** TAP has not disputed that local drought conditions reduced flows in the San Antonio and Guadalupe Rivers and water levels in the San Antonio Bay during Winter 2008-09. *See, e.g.*, 3 Tr.289 (Trungale); PX20. The Corpus Christi area suffered from “exceptional” drought conditions from January 1 to April 7, 2009. DX136 at TS000243.

Montagna testified that rainfall (or its absence) is the most important factor affecting salinity in San Antonio Bay. 3 Tr.238-39. Ward and Davis both explained the importance to the bay of local “pulses” of “direct rainfall,” which help flush out saline ponds. 7 Tr. 118; 8 Tr. 44.

Unsurprisingly, testimony also showed that “[r]ainfall is very important” to wolfberry production. 8 Tr.51-52 (Davis). Stehn himself observed that “[f]ood sources for the whooping cranes continue to be very low this winter [2008-09], *primarily due to the summer drought.*” 3 Tr.68-69, 84 (emphasis added); DX134 at TS000216. Drought has been an intervening cause in alleged takes before. “Takes that result from acts of nature do not fall within the prohibition of § 9 and cannot be blamed on the Corps.... The court cannot hold the Corps responsible for the absence of rain.” *Ala. v. U.S. Army Corps of Eng’rs*, 441 F. Supp. 2d 1123, 1134 (N.D. Ala. 2006).

**Low Water Levels.** Experts highlighted the adverse effects from the “extremely low water levels” at the Refuge during 2008-09 caused by tides and wind.

2 Tr. 175; DX 124 at TAP006358; PX 20. Chavez-Ramirez noted in February 2009 that normally flooded marshland was dry with cracks as deep as four to five inches. 2 Tr. 175-76, 278. Stehn personally observed “extremely low” tides in January. 3 Tr. 68; DX 132 at TS000182. Ward testified that levels were “unusually low” due to a combination of natural sources. 7 Tr. 146.

Chavez-Ramirez’s research noted “[t]he extremely low abundance of blue crabs during the 1993-94 winter was due to mortality associated with an extremely low tide.” 2 Tr. 174; PX 13 at 37. Davis testified that the low water levels in 2008-09 came “on the heels of a period of four winters of below-average water level in this system.” 8 Tr. 44.

**Commercial Crabbing.** It is undisputed that commercial crab trapping influences the blue-crab population in San Antonio Bay. 2 Tr. 186 (Chavez-Ramirez); 3 Tr. 212 (Montagna); 3 Tr. 135-36 (Stehn). As Chavez-Ramirez summarized: “one of the major factors impacting the availability of blue crabs for the cranes was commercial crab trapping.” 2 Tr. 186. Indeed, the San Antonio Bay has the highest volume of commercial crabbing in Texas. 7 Tr. 251 (Miller); DX 261.

Despite the recognized impacts from commercial crabbing on blue-crab populations, Stehn admitted that FWS did not “start enforcing the law” by posting “no crabbing” signs on the refuge until late February 2009. 3 Tr. 135; DX 38 at 6.

Before that, Stehn and FWS were admittedly “looking the other way” and permitting illegal crab trapping on the refuge. DX36 at 2; 3 Tr. 135.

**Failure to Exclude Alternative Causes.** In light of the alternative contributing factors related to food availability, the district court’s adoption of TAP’s theory that water diversions were the primary cause of food scarcity is implausible. Montagna testified that a “10 parts per thousand” increase in “average salinity” across the bay would affect blue-crab abundance by approximately 5 percent. 3 Tr. 229-30, 240. Yet Ward testified that allowing all freshwater inflows from consumptive uses to pass to the bay would at most impact average salinities across the bay by 1 ppt. 7 Tr. 135; DX424.

Even if one accepts TAP’s assertion that salinity in the bay increased in 2008-09, the undisputed evidence at trial showed that blue crabs and wolfberry plants thrive in salt-marsh environments with a wide range of salinities. GBRA expert Miller, a specialist in blue-crab ecology, and TAP estuary expert Montagna, both testified that blue crabs live in salinities ranging from freshwater to *full-strength sea water* (approximately 35 ppt). 7 Tr. 235; 3 Tr. 205, 207-08; *accord* 3 Tr. 36 (Stehn). Even Montagna agreed that their “preferred” range of salinity extends to 25 ppt. 3 Tr. 207. Miller also testified that blue crabs have no physiological need for low salinity conditions. 7 Tr. 230.

SARA expert Davis, an expert on salt-marsh ecology with a particular ex-

pertise on the wolfberry plant, also established that wolfberry plants exist *only* in saline environments and that tidal connectivity and frequency of inundation, *not salinity*, drives blue-crab and wolfberry abundance at the Refuge. 8 Tr. 50, 53-55, 57.

Significantly, Chavez-Ramirez previously conducted statistical analyses for a twenty-year period, 1978-1998, and did not find correlations between blue-crab abundance and either salinity or crane mortality. 2 Tr. 182; DX 121 at GBRA007181. In fact, he testified that he did not even *try* to show a link between inflows and whooping-crane mortality in that study because there was no “biologically meaningful and direct” relationship between these variables. 2 Tr. 182, 186; DX 121 at GBRA007178. The district court never explained how TAP’s correlations bridged this gap.

2. *The district court clearly erred in concluding that water diversions caused higher salinities.*

Another critical link in TAP’s theory of causation is that water diversions were the primary cause of higher 2008-09 bay salinities. Yet, as with food scarcity, TAP never met its burden to show that consumptive uses affect salinity, and never even attempted to account for local drought, “extremely low” water levels, and other factors that even TAP’s experts agreed had a more significant impact on salinity than water diversions.

**a. TAP overestimated diversions.**

The district court concluded that the testimony of Trungale, TAP’s salinity expert, that “the salinities across the San Antonio bay/Guadalupe estuary would have been lower but for the TCEQ’s authorized water diversions, stands un-rebutted.” R. 7791. That was error. Trungale’s testimony was conclusively rebutted, and insufficient even when considered on its own.

Most importantly, Trungale conceded that his models did not distinguish between diversions from *reservoirs* with water stored in prior years—which should not be counted as water available in 2008-09—and diversions from the natural flow of the river. 4 Tr. 33, 39-40. As Trungale acknowledged, this analytical gap “potentially affects ... what the flows would have been if diversions had been passed.” *Id.* This is devastating to TAP’s diversion argument.

Trungale also admitted that his models over-estimated the impact of water diversions by failing to account for “return flows” (*e.g.*, treated effluent). 4 Tr. 37-40 (Trungale). Ward, whose expertise was unchallenged, criticized the failure to consider return flows as a serious methodological fault.<sup>16</sup> 7 Tr. 163-64. Because

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<sup>16</sup> The State’s data for just one of those users, INVISTA, indicates it diverted 16,560 acre-feet of water in 2009. DX 304 at TCEQ00000429. INVISTA’s Certificate of Adjudication #18-3861 *requires* that at least 45 percent of that amount must be returned to the Guadalupe River. DX 270. Thus, INVISTA was required to return at least 7,452 acre-feet of water, but Trungale erroneously counted that amount as a diversion, resulting in an additional 4 percent error in his calculated freshwater inflows to the estuary based upon *only one of the hundreds* of users in the system.

both Trungale and the district court found that “relatively small amounts of fresh-water inflows can make a significant difference to the bay salinities,” R.7781 (citing 4 Tr.14-15), Trungale’s errors fundamentally undermine his conclusions that water diversions are the most important factor in determining salinity.

Even assuming Trungale’s inputs were correct, Ward testified that letting all water pass through (*i.e.*, barring all consumptive uses) would only result in an insignificant 1 ppt decrease in salinity across the bay on average—something TAP did not dispute. 7 Tr.135-36; DX424. The district court faulted Ward for failing to explain why the use of average salinity “is a better, or even relevant, measure.” R.7785. But like Trungale’s use of a percentage to estimate the amount of bay covered by particular isohalines, PX106, the average indicates the overall health of the bay. Indeed, Trungale used average salinities to portray monthly conditions, PX87, and Montagna’s models based on “average salinities” appear in the adopted FOFs. *See* FOFs 356-59 (citing PX249-50); *see also* 3 Tr.228-29. Averages are a well-recognized method for comparing data sets. *See, e.g., Veneziano v. Dep’t of Energy*, 189 F.3d 1363, 1366-67 (Fed. Cir. 1999).

**b. The district court wrongly found that water diversions, not drought or tides, caused increased salinity.**

As with the district court’s food-scarcity conclusions, TAP’s experts testified that at least three other factors—temperature, year, and dissolved oxygen—have a greater impact on salinity than inflows. 3 Tr.238-39 (Montagna); PX246,

247. And at least five additional factors—tidal exchange, evaporation, rainfall, humidity, and wind—significantly affect salinity. 4 Tr. 27-28 (Trungale); 3 Tr. 239 (Montagna). The district court’s finding that TCEQ-permitted diversions were the proximate cause of higher salinities in the bay is clear error for the same reasons discussed above regarding food scarcity; it implies causation from correlation and fails to account for other factors contributing to salinity.

**C. The district court erred by holding that TCEQ caused “takes” by failing to exercise nonexistent authority to curtail existing water rights to protect the cranes.**

The district court reasoned that TCEQ possessed—but failed to exercise—“authority to modify or amend existing water rights . . . to ensure that the necessary freshwater inflows reach the Aransas Refuge and the AWB cranes.” R. 7772-73. This conclusion regarding TCEQ’s authority was the lynchpin of the district court’s finding that the “TCEQ, its Chairman, and its Executive Director have violated section 9 of the ESA . . . through their water management practices which include the decision to not . . . exercise emergency powers available to protect the endangered whooping cranes.” R. 7856; R. 7766-76 (extensively analyzing TCEQ authority). The State Defendants correctly explain why liability would be improper *even if* TCEQ possessed the state-law powers attributed to them by the district court. But the district court’s flawed theory that TCEQ caused “takes” fails even on its own terms, because TCEQ lacks authority under Texas law to alter ex-

isting water rights to protect the cranes.

Texas water rights are governed by an appropriation system based on seniority. “[T]he first in time is the first in right.” Tex. Water Code § 11.027. Under Texas law, “a matured appropriation right to water is a vested right” if beneficial and non-wasteful. *See Tex. Water Rights Comm’n v. Wright*, 464 S.W.2d 642, 647 (Tex. 1971).

The law in 2008-09 made clear that TCEQ could not impose inflow conditions on *existing* water permits to protect the environment. Under S.B. 3’s environmental-flows requirements, new or amended withdrawal permits “must include a provision allowing the commission to adjust the conditions included in the permit or amended water right to provide for protection of instream flows or freshwater inflows.” Tex. Water Code § 11.147(e-1); *see* Tex. Water Code §§ 11.0235-.0237, 11.147-.1471.<sup>17</sup> However, S.B. 3 expressly dictates that this environmental-flows provision *cannot* be added to existing water rights that vested prior to September 1, 2007. Tex. Water Code § 11.147(e-1) (“This subsection does not affect an appropriation of or an authorization to store, take, or divert water under a permit or amendment to a water right issued before September 1, 2007.”). When the Legislature wished to give TCEQ authority to require environment-protecting inflows, it

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<sup>17</sup> New or amended permits issued in the Guadalupe or San Antonio River Basins since September 2007 have included adjustment conditions. Since August 2012, the effective date of the environmental-flow standards for these basins, such permits have included the applicable standards. *See* Tex. Admin. Code §§ 298.350 -.390.

did so. But it intentionally declined to extend TCEQ's authority to reach existing permits. This expression of legislative intent forecloses the district court's conclusion that TCEQ had "implied powers" to impose flow restrictions on existing permit holders to protect the cranes. *See* R. 7850-51 (COL 39-48).<sup>18</sup>

The district court heavily relied on TAP to determine the scope of TCEQ's authority, finding that "TAP's witnesses *established* that the TCEQ has the authority to modify or amend existing water rights . . . and take any other action necessary in times of emergencies, including drought, to ensure that the necessary freshwater inflows reach the Aransas Refuge and the AWB cranes." R. 7772-7773 (emphasis added). Needless to say, expert testimony cannot "establish" agency authority that the relevant statutes preclude.

"[W]here an agency has no ability to prevent a certain effect due to its limited statutory authority over the relevant actions, the agency cannot be considered a legally relevant 'cause' of the effect." *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 770 (2004). Because TCEQ lacked authority to alter existing water rights to protect the cranes, the district court's causation rationale fails as a matter of law.

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<sup>18</sup> In 2011, the Legislature granted TCEQ certain emergency powers to curtail existing water rights during a drought. *See* Tex. Water Code § 11.053. But even this later-enacted, express grant of power does not give TCEQ authority to suspend vested rights to protect *environmental* inflows.

**III. The prospective injunction must be reversed because TAP did not prove a likelihood of imminent harm to the cranes.**

A plaintiff seeking prospective injunctive relief must demonstrate that it is likely to suffer imminent harm. That showing is essential to establishing Article III standing to pursue prospective injunctive relief. *Los Angeles v. Lyons*, 461 U.S. 95, 102, 105-07 (1983) (holding past harm insufficient to demonstrate standing for prospective injunction and holding that plaintiff must show “real and immediate” threat of future harm). And it is equally essential to satisfying the irreparable-harm requirement for injunctive relief. *Winter v. Natural Res. Def. Council, Inc.*, 555 U.S. 7, 22 (2008) (“Our frequently reiterated standard requires plaintiffs ... to demonstrate that irreparable injury is *likely* in the absence of an injunction”). “Likelihood”—not “possibility”—of future harm is the relevant test. *Id.*<sup>19</sup> “Allegations of possible future injury do not satisfy the requirements of Article III,” for “[a] threatened injury must be ‘certainly impending’ to constitute injury in fact.” *Whitmore v. Ark.*, 495 U.S. 149, 158 (1990).

Thus, even if TAP showed that defendants’ actions caused takes in the drought of 2008-09, to obtain injunctive relief it must show that the cranes were

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<sup>19</sup> The district court observed that courts apply a “relaxed standard” in granting injunctions under the ESA, but actually only the balance-of-equities requirement is “relaxed.” R.7835. ESA plaintiffs seeking a prospective injunction must still show a likelihood of irreparable harm, *e.g.*, *Amoco Prod. Co. v. Vill. of Gambell*, 480 U.S. 531, 545 (1987); *Nat’l Wildlife Fed’n v. Burlington N. R.R., Inc.*, 23 F.3d 1508, 1510-11 (9th Cir. 1994), which in any event is also a core Article III standing requirement.

imminently likely to suffer *future* harm. In stark contrast to the district court's voluminous cut-and-pasted findings regarding alleged past harm to cranes, there are no findings of fact to support the district court's one-sentence assertion that "there is a reasonably certain threat of imminent harm to the Whooping Crane." R.7846. That assertion is contrary to the evidence and therefore warrants no deference.

The evidence demonstrates that Winter 2008-09 was an extremely unusual year based on the severe drought experienced all across Texas. TAP's own experts described 2008-09 as "unprecedented," the "worst year on record" and the "worst conditions ... ever observed." 2 Tr.328; 3 Tr.24; DX76 at 50. The cranes have prospered since then, despite recurring drought conditions. TAP's experts noted that the survival rate of cranes between Spring and Fall 2009 was "excellent." DX17. The flock had a "record level" population in 2010, DX150 at 2, another "record-breaking" year in 2011 with 283 whooping cranes, and 300 expected at the time of trial. DX226, 159; 1 Tr.175. TAP members agreed that they have no reasonable expectation that the crane population will soon decrease. 4 Tr.131; *see also* 3 Tr.167-70. TAP has not even alleged that any take has occurred since 2008-09. Future harm—much less imminent harm—is speculative at best.

Beyond ignoring uncontroverted evidence that the cranes faced no imminent harm between Winter 2008-09 and the trial, the district court did not consider the effect of Texas's ongoing efforts to protect environmental inflows for the benefit

of San Antonio Bay. *See supra* pp. 17-19. S.B. 3's environmental-flows requirements were being developed during Winter 2008-09. As of August 2012, TCEQ must consider whether new or amended permits would impair the inflow regime for San Antonio Bay as set out in TCEQ's rules. The implementation of these requirements makes it improper to assume that harm allegedly resulting from low inflows in 2008-09 will recur in the future.

Moreover, TAP's "theory of injury" fails to satisfy the likelihood requirement because it "is predicated upon the occurrence of a string of future hypotheticals." *See Cent. & Sw. Servs., Inc. v. EPA*, 220 F.3d 683, 701 (5th Cir. 2000) (holding that Sierra Club lacked standing to sue where its member did not establish any likelihood that prior events necessary to the contamination of his water supply would occur). The district court's conclusory assertion of imminent harm apparently posits that the same seven-step chain of causation that allegedly happened in the winter of 2008-09 will happen again in the near future, despite no evidence to support that conclusion. TAP's conjecture about the future does not come close to establishing that an illegal take will imminently recur. *See Friends of the Earth, Inc. v. Laidlaw Envtl. Servs., Inc.*, 528 U.S. 167, 184 (2000) (mere "subjective apprehensions" that "a recurrence [of unlawful conduct] would even take place" are not sufficient).

On analogous facts, the Ninth Circuit held that "past violations of the ESA

did not support prospective equitable relief’ because the plaintiff failed to establish a likelihood of future recurrences. *Nat’l Wildlife Fed’n v. Burlington N. R.R.*, 23 F.3d 1508, 1510 (9th Cir. 1994). There, plaintiff sued a railroad company for modifying grizzly bear feeding behavior through accidental corn spills along the tracks, after which the company’s trains struck seven grizzly bears. *Id.* at 1509. The court reasoned that even though a take had occurred in the past, *id.*, injunctive relief was unavailable because there was not “enough likelihood of irreparable future injury.” *Id.* at 1511-12. “[N]o bears [had] been hit by trains in the area of the corn spills in more than three years,” and defendant’s efforts to clean up spills and prevent future derailments had minimized the risk of future injuries. *Id.*<sup>20</sup>

The record here likewise demonstrates that the crane population is thriving and that Texas has implemented concrete steps to safeguard inflows to the cranes’ habitat. The district court exceeded its Article III authority and abused its discretion by issuing prospective injunctive relief without requiring TAP to prove likely future harm.

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<sup>20</sup> See also *Winter*, 555 U.S. at 23 (doubting finding of likely future harm to protected species where the lower court “did not reconsider the likelihood of irreparable harm in light of the four restrictions [on allegedly harmful behavior] not challenged by the Navy”).

**CONCLUSION**

Intervenors respectfully request that the district court's judgment be reversed for the reasons articulated by the State Defendants or by the Intervenors, or remanded for a new trial before a different district judge.

Respectfully submitted,

/s/ Aaron M. Streett

Aaron M. Streett  
Michelle S. Stratton  
BAKER BOTTS L.L.P.  
910 Louisiana Street  
Houston, Texas 77002-4995  
(713) 229-1234  
(713) 229-1522 (Fax)

Kenneth R. Ramirez  
LAW OFFICES OF KEN RAMIREZ  
111 Congress Avenue, Suite 400  
Austin, Texas 78759  
(512) 681-4455  
(512) 279-7810 (Fax)

Amy Leila Saberian  
ENOCH KEVER PLLC  
600 Congress Avenue, Suite 2800  
Austin, Texas 78701  
(512) 615-1200  
(512) 615-1198 (Fax)

*Counsel for Intervenor Defendant-  
Appellant Texas Chemical Council*

Molly Cagle  
Evan A. Young  
Carlos R. Romo  
BAKER BOTTS L.L.P.  
98 San Jacinto Boulevard  
Austin, Texas 78701-4078  
(512) 322-2500  
(512) 322-2501 (Fax)

Edmond Robert McCarthy, Jr.  
JACKSON, SJOBERG, MCCARTHY &  
TOWNSEND, L.L.P.  
711 W. 7th Street  
Austin, Texas 78701  
(512) 225-5606  
(512) 225-5565 (Fax)

Edward F. Fernandes  
HUNTON & WILLIAMS LLP  
111 Congress Ave., Suite 510  
Austin, Texas 78701  
(512) 542-5010  
(512) 542-5075 (Fax)

David W. Ross  
General Counsel  
San Antonio River Authority  
LAW OFFICES OF DAVID ROSS, PC  
115 E. Travis St., Suite 1630  
San Antonio, Texas 78205  
(210) 354-4659  
(210) 568-4245 (Fax)

Kathy Robb  
HUNTON & WILLIAMS LLP  
200 Park Avenue  
New York, New York 10166  
(212) 309-1128  
(212) 309-1100 (Fax)

*Counsel for Intervenor Defendant-  
Appellant Guadalupe-Blanco River  
Authority*

*Counsel for Intervenor Defendant-  
Appellant San Antonio River Authority*

May 2, 2013

**CERTIFICATE OF SERVICE**

This will certify that a true and correct copy of the above document was served on this the 2nd day of May, 2013, via the Court's CM/ECF system on all counsel of record, as follows.

James B. Blackburn  
Charles William Irvine  
Mary B. Conner  
BLACKBURN CARTER PC  
4709 Austin Street  
Houston, Texas 77004

Jonathan F. Mitchell  
James Patrick Sullivan  
Evan S. Greene  
OFFICE OF THE ATTORNEY GEN-  
ERAL OF THE STATE OF TEXAS  
209 W. 14th Street  
Austin, Texas 78701

Charles Patrick Waites  
JOHNSON DELUCA KURISKY & GOULD,  
P.C.  
1221 Lamar Street, Suite 1000  
4 Houston Center  
Houston, Texas 77010-3050

David Alfred Kahne  
John Jeffery Mundy  
THE MUNDY FIRM PLLC  
8911 N. Capital of Texas Highway  
Suite 2105  
Austin, Texas 78759-7200

/s/ Aaron M. Streett  
Aaron M. Streett  
*Counsel for Intervenor Defendant-  
Appellant Guadalupe-Blanco River  
Authority*

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/s/ Aaron M. Streett  
Aaron M. Streett  
*Counsel for Intervenor Defendant-  
Appellant Guadalupe-Blanco River  
Authority*