VERMONT LAW REVIEW

VOLUME 49 NUMBER 2 WINTER 2024

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UPDATING THE ENVIRONMENTAL LAW TOOLKIT FOR A COMPLEX FUTURE

Introduction to the Second Emerging Environmental Law Curriculum Conference for Environmental Law Faculty on the Future of Environmental Legal Education at Vermont Law and Graduate School, June 2024

Christophe Courchesne,[*] Mia Montoya Hammersley,[**] Mark James[†]

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INTRODUCTION

The field of environmental law continues to evolve beyond its roots in the major federal environmental statutes, and so too is the project of environmental legal education. In recent years, the federal judiciary has complicated and constrained federal authority to reduce greenhouse gas emissions, protect water quality, and limit dangerous air pollution—upending the legal frameworks that have dominated understandings of the administrative state for decades.[1] Against this deregulatory pressure, Congress has greatly expanded the use of complex tax expenditures to drive deployment of clean energy and promote environmental justice through the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act (IRA).[2] In this context and with ongoing advancement of technology, the clean

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1. *See, e.g.*, Ohio v. EPA, 144 S. Ct. 2040 (2024) (granting stay of EPA rules limiting interstate ozone pollution); Sackett v. EPA, 598 U.S. 651 (2023) (limiting waters subject to federal Clean Water Act); West Virginia v. EPA, 597 U.S. 697 (2022) (invalidating EPA regulation of power-plant greenhouse gas emissions under "major questions" doctrine).

2. Infrastructure Investment and Jobs Act, Pub. L. 117–58 (2021); Inflation Reduction Act, Pub. L. 117–69 (2022).

energy transition's momentum only builds, making energy and public utilities law more important than ever. "Environmental law" also increasingly requires engagement with the intersectional interests of marginalized communities and with principles and skills more commonly addressed by courses in torts, securities law, business law, the tax code, federal courts, international law, and Indigenous and civil rights. And now, the courts continue to consider fundamental challenges to the scope and reach of our major environmental laws and the second Trump administration promises a whiplash of deregulation, threatening more pollution and complete rollbacks of environmental justice efforts.[3] Environmental law teachers face the task of adapting environmental law curriculum to these new realities—updating the environmental law toolkit.

So, we are innovating what we teach and how we teach it, recognizing that environmental law now encompasses disparate but interlocking doctrinal areas and practice settings. Amid the climate crisis, the imperative of redressing environmental injustices, and the deepening uncertainty about the efficacy and durability of legal pathways to address these and other environmental problems, setting students on the path to becoming capable and resilient environmental law practitioners has never been more challenging, vital, and exciting.

In a series of convenings organized by Vermont Law and Graduate School's Environmental Law Center beginning in 2019, environmental law teachers from around the country and the world have come together to explore the emerging environmental law curriculum and grapple with the gaps that persist between the teaching and practice of environmental law.[4] In the original 2019 conference and the series' virtual roundtables, held in 2021, the trends discussed above were already coming into focus,[5] and the evolution of environmental law since has only accelerated them. The 2024 conference, held in person in South Royalton, Vermont, provided a timely opportunity for environmental law teachers to gather and identify new pedagogical directions and best practices.

This issue of the *Vermont Law Review* captures the key learnings from the 2024 conference through selected transcripts of the conference sessions. Conferees attended a keynote address by then-Associate Administrator for Policy at the United States Environmental Protection Agency (EPA),

3. *See, e.g.*, Michael Gerrard*, Environmental Law in Trump's Second Term*, N.Y. L.J (Nov. 12, 2024), https://www.law.com/newyorklawjournal/2024/11/12/environmental-law-in-trumps-second-term/.

4. Jennifer Rushlow et al., *2019 Roundtable Series*, 46 VT. L. REV. 543 (2019).

5. *See generally* Jonathan Rosenbloom & Jennifer Rushlow, *Same Song, Different Chorus*: *Modernizing Environmental Law Curriculum*, 46 VT. L. REV. 543 (2019).

Vicki Arroyo, a series of panels, small group discussions, and a policy debate.

I. A NEW ERA FOR FEDERAL ENVIRONMENTAL LAW

Associate Administrator Arroyo's keynote address, entitled *Teaching and Practicing Environmental Law and Policy in Challenging Times*, underscored the challenges and opportunities for environmental law education from the vantage of a senior government leader with many years of experience as an environmental law professor.[6] Associate Administrator Arroyo, who has since returned to her academic role at Georgetown University Law Center, detailed U.S. EPA's policy achievements during the first three and a half years of the Biden Administration, across the Agency's many program areas. She described both the massive investments in environmental and climate progress under the BIL and IRA, and the Agency's record of regulatory progress under the nation's "tried and true" environmental laws. As an example of how these efforts can be complementary, she highlighted EPA's successful use of its National Environmental Policy Act review authority to spur the U.S. Postal Service to increase its procurement of battery electric vehicles for its fleet, facilitated by IRA funding—a powerful example of interagency advocacy that will slash air pollution and save money for years to come.

Associate Administrator Arroyo's progress report provided cause for optimism amid the uncertainty of impending Supreme Court decisions and the challenges of environmental injustice and climate disruption, leading to her invocation of three important cross-cutting themes that should inform environmental law teaching: risk management, resilience, and purpose. She called on the conferees to consider these themes in designing curricula and in guiding our students into government and other careers where they will make a difference.

The first panel, *Environmental Law Professors Who Answered the Call of Government: What They Learned*, built on the themes from Associate Administrator Arroyo's keynote.[7] The panelists, all academic colleagues who answered the call to join the Biden Administration in senior leadership roles in agencies across the Executive Branch, discussed lessons learned from their government service that should inform environmental law curriculum and our teaching. Along with Associate Administrator Arroyo,

6. *See infra* Vicki A. Arroyo, *Keynote Address: Teaching and Practicing Environmental Law and Policy in Challenging Times*, 49 VT. L. REV. 155 (2024).

7. This first panel was not recorded or transcribed.

the panel featured Maxine Burkett of the White House Office of Science and Technology Policy,[8] Sarah Krakoff, of the U.S. Department of Interior,[9] and Clifford Villa, of the EPA.[10]

The panelists described the growing value of interdisciplinary thinking in confronting the risks of climate change, emerging contaminants like per- and polyfluoroalkyl substances (PFAS), and the social disruptions of national disasters. The panelists agreed that mastery of the shifting landscape of administrative law had never been more critical to durable federal actions, encouraging conferees to emphasize with students, for example, the often-overlooked role of executive orders and Office of Management and Budget review in the rulemaking process. In diverse domestic and international contexts, the panelists shared perspectives on the importance of teaching the levers of effective advocacy, including engaging at the right time and with the right tactics, and addressing the potential for unintended consequences.

Reflecting on their own experiences in federal leadership, panelists underscored how environmental law teaching should be reaching topics as diverse as the strategies for international negotiations, human rights, anti-discrimination law, and appropriation and procurement statutes. Panelists also emphasized that community engagement and environmental justice have become increasingly central to the Administration's approach to environmental problems, requiring new professionals to grow their skills and competencies in these areas.

II. IMPORTANCE OF QUANTITATIVE LITERACY

In the second panel *Teaching Numerical and Statistical Literacy in Law School*, panelists discussed how to integrate scientific, economic, and statistical analyses into law school classrooms.[11] Achieving environmental law's aspirations for a healthier and cleaner environment requires working with scientific and economic analysis. The purposes of major environmental law are framed with terms like "fishable and swimmable" and "promote the public health and welfare," or require that actions will serve the "public

8. Maxine Burkett, Assistant Director for Climate, Ocean, and Equity, White House Office of Science and Technology Policy, and Professor of Law, University of Hawai'i William S. Richardson School of Law.

9. Sarah Krakoff, Deputy Solicitor, Parks and Wildlife, U.S. Department of Interior, and Moses Lasky Professor of Law, University of Colorado Law School.

10. Clifford Villa, Deputy Assistant Administrator, Office of Land and Emergency Management, U.S. Environmental Protection Agency, and Professor of Law, University of New Mexico School of Law.

11. *See infra* Mark James et al., *Teaching Numerical and Statistical Literacy in Law School*, 49 VT. L. REV. 173 (2024).

convenience and necessity."[12] These terms capture the challenge of environmental law while providing a shared set of values that everyone can agree to. But turning those terms into numbers and analyses that can determine whether adequate actions, protections, and precautions are being taken requires integrating science, math, and economic disciplines into the practice and teaching of law.

The panelists, Professors Ed Richards,[13] Steph Tai,[14] and Lisa Heinzerling,[15] leveraged their combined decades of teaching experience to provide examples of how they build fundamental knowledge and skills in their students. The discussion covered how to convince students of the value and usefulness of this knowledge in the practice of law, how to select course materials and case studies, and how to assess student competence. Each panelist showed how turning a critical eye onto a specific area of science and economics—from climate modeling, to peer-reviewed studies, to discount rates and cost-benefit analyses—can better prepare future environmental lawyers.

The future of environmental law requires familiarity and comfort with scientific and economic analyses and the process for creating those analyses. Implementing state water quality standards under the Clean Water Act to "protect the public health or welfare," and "enhance the quality of the water" requires an understanding of aquatic biology, organic chemistry, and toxicology.[16] Actions to mitigate and adapt to climate change can have temporally disparate costs and benefits that regulators and courts reconcile using discount rates and cost-benefit analyses. An environmental lawyer must be able to understand both the findings of a peer-reviewed study and the methodology under which the study was conducted. Law schools can start building those skills, but only if law professors teach familiarity with different disciplines and the fundamentals to interpret and question how the conclusions produced by those disciplines are used to support or oppose efforts to promote a healthier and cleaner environment.

12. Clean Water Act, 33 USC § 1251(a)(2); Clean Air Act, 42 U.S.C. § 7401(b); Natural Gas Act, 15 U.S.C. § 717f(c)(1)(A).

13. Professor Emeritus and Senior Fellow in Climate Change Law and Policy Project at Louisiana State University's Paul M. Hebert Law School.

14. Professor of Law at the University of Wisconsin-Madison School of Law, and the Associate Dean for Education and Faculty Affairs at the Nelson Institute for Environmental Studies.

15. Justice William J. Brennan, Jr., Professor of Law at Georgetown University Law Center.

16. 33 U.S.C. § 1313(c)(2)(A).

III. IMPORTANCE OF NATIVE AMERICAN LEGAL PERSPECTIVES

In the third panel, *Teaching at the Intersection of Federal Indian Law and Environmental Law*, panelists discussed the pressing need to train the next generation of environmental lawyers with an understanding of Federal Indian Law.[17] The seminal cases of Federal Indian Law provided a legal justification for the removal of Native Americans from their ancestral territories, thus clearing the way for concepts such as "wilderness,"[18] the establishment of federal public lands, and the birth of the American tradition of natural resources management.[19] Following periods of federally mandated forced removal[20] and the implementation of the Dawes Act,[21] Tribal Nations[22] were dispossessed of two-thirds of their remaining lands.[23] This equates to the loss of 80 to 85% of the overall economic value of Tribal lands.[24] Today, there are 574 federally recognized Tribes in the United States, with their reservations making up 56 million acres.[25] Between the sovereignty exercised to govern the lands and waters of their reservations and the regulatory interests in larger swaths of ancestral territory, Tribal Nations are key players in environmental law, policy regulatory frameworks, and decision-making processes in the United States.[26] Even so, Federal Indian Law has only recently begun to be more widely recognized as a key course in environmental law curricula.

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17. *See infra* Mia Montoya Hammersley et al., *Teaching at the Intersection of Federal Indian Law and Environmental Law Courses*, 49 VT. L. REV. 202 (2024).

18. Michael-Shawn Fletcher et al., *Indigenous Knowledge and the Shackles of Wilderness*, PNAS, Sept. 27, 2021, at 3; Victoria Tauli-Corpuz (Special Rapporteur of the Human Rights Council), *Rep. on the Rights of Indigenous Peoples*, ¶ 34, U.N. Doc. A/71/229 (July 29, 2016); *see* Indigenous Peoples L. & Pol'y Univ. of Ariz. James E Rogers Coll. of L., *Conservation's Dark Secret*, PRESERVATION PAUSE http://www.preservationpause.org (last visited Dec. 19, 2024).

19. *See* DORCETA TAYLOR, THE RISE OF THE AMERICAN CONSERVATION MOVEMENT: POWER, PRIVILEGE, AND ENVIRONMENTAL PROTECTION 25–26, 352–53 (2016).

20. W. Tanner Allread, *The Specter of Indian Removal: The Persistence of State Supremacy Arguments in Federal Indian Law*, 123 COLUM. L. REV. 1533, 1552 (2023).

21. *See* Judith V. Royster, *The Legacy of Allotment*, 27 ARIZ. ST. L. J. 1, 9 (1995).

22. *See generally* Angelique EagleWoman, *The Capitalization of "Tribal Nations" and the Decolonization of Citation, Nomenclature, and Terminology in the United States*, 49 MITCHELL HAMLINE L. REV. 623 (2023) (discussing the importance of the intentional capitalization of titles referencing Native peoples and the impacts of using colonial nomenclature).

23. DAVID H. GETCHES ET AL., CASES AND MATERIALS ON FEDERAL INDIAN LAW 171 (6th ed. 2011).

24. *Id.* at 172.

25. MAINON A. SCHWARTZ, CONG. RSCH. SERV., R47414, THE 574 FEDERALLY RECOGNIZED INDIAN TRIBES IN THE UNITED STATES 1 (2024); *What Is a Federal Indian Reservation?*, BUREAU OF INDIAN AFFAIRS (Aug. 19, 2017), https://www.bia.gov/faqs/what-federal-indian-reservation.

26. SCHWARTZ, *supra* note 23.

The panelists, Professors Vanessa Racehorse,[27] Heather Tanana,[28] Nadine Padilla,[29] and Gerald Torres,[30] provided a compelling picture of the overlapping nature of Federal Indian Law and environmental law. They focused on key areas of intersection such as water or environmental justice law, and key Supreme Court decisions with far-reaching implications for both disciplines. As legal scholars dedicated to Tribal sovereignty, the panelists demonstrated their passion for both subjects, practicing and teaching for years, and even decades, at this important intersection. They are leading the way for others to finally follow suit.

IV. TEACHING INTEGRITY OF CLIMATE SOLUTIONS

Even when we can agree on the need for climate action, we often find ourselves at loggerheads over what the solution or solutions should be. If all the good solutions to climate change disappeared in the inaction of the 1980s and 1990s, that leaves us with a set of less-than-optimal solutions that all have significant weaknesses.[31] We have been debating solutions to climate change since before the Kyoto Agreement,[32] and we will continue to debate how to make the journey to net-zero or zero emissions.[33]

In a group sharing session, attendees shared their experiences teaching climate change in a variety of ways, settings, and methods. One strand of agreement is that every area of the law has a climate angle whether it is the regulation of securities disclosures, flood insurance policies, social science and policy development, or carbon sequestration.[34] The topics for inclusion in law school curricula are not limited, nor are the opportunities for developing novel teaching methods. Attendees shared how they engaged students in clinical work with clients impacted by climate change, used policy simulators to discuss how different actions might create synergistic

27. Visiting Associate Professor of Law, University of Colorado Law School.

28. Visiting Professor, University of California, Irvine School of Law.

29. Assistant Professor, University of New Mexico School of Law.

30. Professor of Environmental Justice, Yale School of the Environment and Yale Law School.

31. Jeffrey Pierre & Scott Neuman, *How Decades of Disinformation About Fossil Fuels Halted U.S. Climate Policy*, NPR (Oct. 27, 2021), https://www.npr.org/2021/10/27/1047583610/once-again-the-u-s-has-failed-to-take-sweeping-climate-action-heres-why.

32. Lindsay Maizland, *Global Climate Agreements: Successes and Failures*, COUNCIL ON FOREIGN RELATIONS (Dec. 5, 2023), https://www.cfr.org/backgrounder/paris-global-climate-change-agreements.

33. *Id.*

34. Indeed, United States Special Presidential Envoy for Climate John Kerry famously observed to the American Bar Association in a 2021 speech: "You are all climate lawyers now." Karen Sloan, *'You Are All Climate Lawyers Now,' John Kerry Tells ABA*, REUTERS (Aug. 5, 2021), https://reuters.com/legal/litigation/you-are-all-climate-lawyers-now-john-kerry-tells-aba-2021-08-05/.

benefits,[35] simulated global climate change negotiations, and created climate-specific modules for traditional law classes. In every situation, the value of being open to discussion and debate was emphasized as a key learning tool.

The use of debate as a teaching tool was highlighted in a debate over the use of geoengineering to bring CO_2 emissions back to 350 ppm. Professors Pat Parenteau[36] and Wil Burns[37] debated whether the United States should oppose geoengineering of the Earth's climate systems to mitigate the impacts of climate change.[38] The debate highlighted the value of teaching science, social sciences, and advocacy to lawyers. The journey to net-zero has no singular solution, but many pathways that should be explored, dissected, and discussed.

V. TEACHING THE FULL ENVIRONMENTAL LAW TOOLKIT

Throughout the conference, the recurring theme was the evolution of the environmental lawyer's toolkit. In the 50 years since many of the seminal environmental statutes were passed, environmental legal curricula are turning towards teaching more diverse doctrines and skillsets to train the next generation of advocates, from quantitative literacy to intersectional legal frameworks—such as Federal Indian Law. In the face of the acceleration of climate change and environmental degradation, the rapid shifting of the environmental legal landscape, and the intersectional nature of environmental legal issues, the speakers, panelists, and conferees emphasized that environmental law educators must rise to the challenge of implementing a dynamic, holistic, resilient, and forward-thinking approach to environmental legal education.

35. *The En-Roads Climate Solutions Simulator*, CLIMATE INTERACTIVE, https://www.climateinteractive.org/en-roads/ (last visited Dec. 19, 2024).

36. Professor Emeritus, Senior Fellow for Climate Policy, Vermont Law and Graduate School.

37. Co-director of the Institute for Carbon Removal Law and Policy at American University; Visiting Professor of Environmental Policy and Culture, Northwestern University.

38. *See infra* Jennifer Rushlow et al., *Hacking the Planet: Is Geo-Engineering a Salvation or a Curse?*, 49 VT. L. REV. 230 (2024).

KEYNOTE ADDRESS: TEACHING AND PRACTICING ENVIRONMENTAL LAW AND POLICY IN CHALLENGING TIMES

The Second Emerging Environmental Law Curriculum Conference for Environmental Law Faculty on the Future of Environmental Legal Education at Vermont Law and Graduate School, June 2024

Vicki A. Arroyo[*]

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INTRODUCTION

Dean Jenny Rushlow:

Welcome to the Second Emerging Environmental Law Curriculum Conference. I'm Jenny Rushlow. I'm the Dean of the Maverick Lloyd School for the Environment and Faculty Director of the Environmental Law Center here at Vermont Law and Graduate School. This is the second time we're having this conference; the first one was five years ago. I know a number of you were here for that. This conference's purpose is to be a unique opportunity for peer-to-peer professional development as environmental law teachers; specifically focusing on providing future environmental leaders with cutting edge legal education and our role as educators. We're here to learn from each other.

Where is environmental law going? How do we convey that to our students? What methods are people using that the rest of us can learn from?

Our keynote speaker is Vicki Arroyo. We are just totally tickled to have her here. Vicki is currently serving as the Associate Administrator for Policy at the U.S. Environmental Protection Agency (EPA), where she oversees a diverse portfolio that includes regulatory policy and management, climate adaptation, environmental economics, community revitalization, the National Environmental Policy Act, and more. Prior to this role, she served

[*] Professor from Practice, Georgetown University Law Center; former Associate Administrator for Policy, U.S. Environmental Protection Agency. *Associate Administrator Arroyo's remarks are hers alone and do not reflect the views or positions of the Agency, the federal government, or the Administration.*

as Executive Director at the Georgetown Climate Center. Previously, Associate Administrator Arroyo directed the Pew Center on Global Climate Change's Domestic Policy Program. Before that, she served in the Office of Air and Radiation and the Office of Research and Development at the EPA, and she created and directed the Louisiana Department of Environmental Quality's Policy Office. Her keynote address today is titled, *Teaching and Practicing Environmental Law and Policy in Challenging Times*, and Vicki will also be on the first panel. Please help me welcome Vicki Arroyo.

I. KEYNOTE

Associate Administrator Vicki Arroyo:

Thank you, Jenny. Thanks so much for the invitation and to all who organized and all who came to this really beautiful, but somewhat remote—let's face it—part of the world. I am especially delighted to see my friends, who I could see in Washington, but I don't, like Maxine Burkett and Lisa Heinzerling. So, thank you for bringing us together.

It is always wonderful to be here at Vermont Law School and now Graduate School (I have to practice saying that) with so many terrific professors and scholars. It's especially nice to have the chance to reflect on approaches to teaching environmental law in a dynamic and challenging environment and at a time with new opportunities. Some of these opportunities were unforeseen when I joined the EPA on Inauguration Day from the Georgetown Climate Center and Georgetown Law.

On January 20th, 2021, we were facing so many challenges; we had to onboard from our houses, put our computers together, and load software during a pandemic before the vaccines were available. Additionally, we were working to boost—as you can remember—a really demoralized and depleted staff. They were getting back on track on efforts to tackle climate change, build economic resilience in a pandemic, and promote environmental justice.

I was returning to the EPA after many years. I had started at the EPA right out of graduate school back in the Reagan era. I worked at the EPA in the 1990s, as well, while I was a student at Georgetown Law. I was shocked to find that our staffing and budget on an inflation-adjusted basis had not changed materially, really at all, since my earlier tours of duty in the 1980s and the 1990s.

Of course, we have much more on our plate now with climate change, with per- and polyfluoroalkyl substances (PFAS) and other chemicals that we learned about in the interim, with environmental justice issues at the forefront and more.

It was really sobering and, given our resource challenges and gridlock, it would have been really easy, as it often is in Washington, to fall into cynicism. But as Helen Keller said: "No pessimist ever discovered the secrets of the stars, or sailed to an uncharted land, or opened a new heaven to the human spirit."[1] (I'm not prone to using these kinds of cliché inspirational quotes, but, since it's graduation season, I thought I'd hit you with a good Helen Keller quote.)

What I would like to do with our time together is to share the real progress we're making, some themes that I believe are relevant to both the practice and teaching of environmental law, and ideas about how to foster hope and optimism by providing students with the tools they need to make a difference in a challenging environment.

A. Investing in America

I want to begin with some accomplishments of the Administration, and I want to start with Investing in America, which, of course, was not on our radar when we first were sworn in.

We have seen the enactment of new laws that are making a real difference in curbing pollution and supporting a transition to clean energy, after many years of "infrastructure week," which became the punchline of course. We finally have a comprehensive investment to rebuild the Nation's infrastructure through the Bipartisan Infrastructure Law (BIL).[2] BIL is allowing us to make huge investments in the cleanup of our lands and water, such as the deployment of $3.5 billion in BIL funding for Superfund work. This includes expedited cleanup activities at 100 Superfund sites[3] and the start of cleanup activities at an additional 22 Superfund sites.[4] Thank you, Cliff Villa and your team from the Office of Land and Emergency Management (OLEM).[5]

Eighty percent of these investments are in communities with environmental justice concerns exceeding the target under President Biden's Justice40 initiative to ensure at least 40% will go directly to underserved

1. HELEN KELLER, OPTIMISM: AN ESSAY 56 (1903).

2. *See generally* Infrastructure Investment and Jobs Act, Pub. L. No. 117–58, 135 Stat. 429 (2021).

3. *EPA Announces New Bipartisan Infrastructure Law (BIL) Superfund Cleanup Projects in Pennsylvania*, EPA: NEWS RELEASES, (Feb. 10, 2023), https://www.epa.gov/newsreleases/epa-announces-new-bipartisan-infrastructure-law-bil-superfund-cleanup-projects.

4. *Id.*

5. EPA Deputy Assistant Administrator Cliff Villa was an attendee and co-panelist with Associate Administrator Arroyo during the conference.

communities.[6] More than $50 billion—with a 'b'—in BIL funding supports upgrades to the Nation's drinking water and wastewater infrastructure, and much of this is going to lead pipe replacement.[7] It has been a very long time coming.

We have, of course, long known about the dangers of lead. It was something that I worked on in my early stint at the EPA, in the air program with colleagues across the Agency, working to abate lead in water. Yet, it's taken this long to replace pipes and service lines. It is really shameful how long it has taken, but it's happening now. I am very proud of the leadership that our Administrator Michael Regan, but also the President and Vice President, are showing in finding sources of lead and getting the lead out.

For those of us who have been working on climate legislation for years: Who here remembers the early days of four-pollutant legislation, or early-action legislation, or several rounds of cap-and-trade legislation that never passed? Yet, we worked on them anyway. But we now have the Inflation Reduction Act (IRA),[8] which at its core is helping us tackle climate change by stimulating economic investment.

In fact, more than $115 billion in manufacturing investments have been announced to build a clean energy economy since President Biden took office.[9] Through the IRA alone, the EPA received $41 billion to support these investments in the clean energy economy.[10] Together, BIL and IRA have taken the EPA from about a $10 billion-a-year agency to one that has received $100 billion in funding to support communities, providing a once-in-a-generation opportunity for investing in solutions to address and to prepare for climate change.[11]

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6. *Biden-Harris Administration Announces Over $1 Billion to Start New Cleanup Projects and Continue Work at 100 Superfund Sites Across the Country*, EPA: NEWS RELEASES (Feb. 27, 2024), https://www.epa.gov/newsreleases/biden-harris-administration-announces-over-1-billion-start-new-cleanup-projects-and.

7. *Bipartisan Infrastructure Law: A Historic Investment in Water*, EPA, https://www.epa.gov/system/files/documents/2021-11/e-ow-bid-fact-sheet-final.508.pdf (last visited Dec. 19, 2024).

8. Inflation Reduction Act, Pub. L. 117–69 (2022).

9. *Fact Sheet: How the Inflation Reduction Act's Tax Incentives Are Ensuring All Americans Benefit from the Growth of the Clean Energy Economy*, U.S. DEP'T OF THE TREASURY (Oct. 20, 2023), https://home.treasury.gov/news/press-releases/jy1830.

10. *EPA Marks One Year of Progress Under President Biden's Inflation Reduction Act*, EPA: NEWS RELEASES (Aug. 16, 2023), https://www.epa.gov/newsreleases/epa-marks-one-year-progress-under-president-bidens-inflation-reduction-act.

11. *Bipartisan Infrastructure Law Funding Opportunities*, EPA (Dec. 2023), https://www.epa.gov/system/files/documents/2023-12/epa-bil-ira-program-overview-flyer.pdf; *EPA's Budget and Spending*, EPA (July 22, 2024), https://www.epa.gov/planandbudget/budget.

One IRA-funded program, the Greenhouse Gas Reduction Fund (GGRF), is providing $27 billion to help state and local governments develop strategies to reduce greenhouse gas emissions and other pollutants; delivering the benefits of these projects to American communities and mobilize financing—private capital, for example—to stimulate additional deployment of projects.[12] We recently announced grant selections for $20 billion in GGRF dollars under the National Clean Investment Fund and the Clean Communities Investment Accelerator to create a national financing network for clean energy and climate solutions across sectors to ensure communities have access to capital to participate in, and benefit from, a cleaner and more sustainable economy. [13]

You might have also seen that President Biden himself on Earth Day announced our Solar for All competition winners: $7 billion in grants to states, territories, tribes, municipalities, and nonprofits.[14] This expands the number of low-income and disadvantaged communities primed for residential solar investment, enabling close to a million low-income households to access affordable, resilient, and clean solar energy.[15] This funding is helping us to support federal, tribal, state, and local partners who are taking action to protect their communities from climate change, to be prepared in the event that power goes out, and to stimulate local economies.

As some of you know, in my roles prior to the EPA, I've worked with Jenny Rushlow on these issues and certainly with Lisa Heinzerling who launched our Georgetown State-Federal Climate Resource Center, now the Georgetown Climate Center, and served as our first faculty director.

Many states, including those we had worked with in the Regional Greenhouse Gas Initiative and Transportation and Climate Initiative, including Vermont, have been leaders on climate and clean energy. Now, the EPA's Climate Pollution Reduction Grants program, funded by IRA, is helping states and communities across the country to develop and implement

12. *EPA Releases Framework for the Implementation of the Greenhouse Gas Reduction Fund as Part of President Biden's Investing in America Agenda*, EPA: NEWS RELEASES (Apr. 19, 2023), https://www.epa.gov/newsreleases/epa-releases-framework-implementation-greenhouse-gas-reduction-fund-part-president.

13. *Biden-Harris Administration Announces $20 Billion in Grants to Mobilize Private Capital and Deliver Clean Energy and Climate Solutions to Communities Across America*, EPA: NEWS RELEASES (Apr. 4, 2024), https://www.epa.gov/newsreleases/biden-harris-administration-announces-20-billion-grants-mobilize-private-capital-and.

14. *Biden-Harris Administration Announces $7 Billion Solar for All Grants to Deliver Residential Solar, Saving Low-Income Americans $350 Million Annually and Advancing Environmental Justice Across America*, EPA (Apr. 22, 2024), https://www.epa.gov/newsreleases/biden-harris-administration-announces-7-billion-solar-all-grants-deliver-residential.

15. *Id.*

ambitious plans for reducing greenhouse gas emissions and other harmful air pollution in ways that work best for their communities.

The first phase is for climate action planning, where states have developed cross cutting measures across economic sectors including the power sector, transportation, commercial and residential buildings, industry, agriculture, waste and materials management. These plans also help prepare states and metropolitan areas to access a broader set of funding opportunities across the whole federal government's Investing in America agenda. The benefits of engaging with these states and communities is really clear and the program is really popular. Over 96% of the U.S. population is now covered by a plan.[16] For the second phase, we already have $30 billion in grant requests, and it's only a $4.3 billion dollar program.[17] This demonstrates how much interest there is—we're oversubscribed. We are hoping that those communities that might not get this particular award will be eligible for other awards and benefit from local and state philanthropy and that national philanthropy will step in as well.

People really want this investment for many purposes, not only for climate considerations, but also for local air quality benefits, improved walkability, economic development, community cohesion, resilience to events like storms, floods, heat, and more. We've experienced some of these impacts just this week, including here in Vermont, which has been suffering from heat waves and intense storms.

Our Office of Environmental Justice and External Civil Rights received a $3 billion grant from IRA to support investment in communities, including our Community Change Grants.[18] Totaling approximately $2 billion, these can be used to bolster climate resilience in overburdened and underserved communities that are being hit first and worst by climate change.[19]

I'm very happy to announce we've been able to launch a new Office of Climate Adaptation and Sustainability in our Office of Policy where we are staffing up with permanent career leadership, including a new senior

16. *See, e.g.*, *About CPRG Planning Grant Information*, EPA, https://www.epa.gov/inflation-reduction-act/about-cprg-planning-grant-information (last updated Nov. 8, 2024) (providing a map of states and other regions with plans).

17. *Biden-Harris Administration Announces $4.3 Billion in Grants for Community-Driven Solutions to Cut Climate Pollution Across America*, EPA: NEWS RELEASES (July 22, 2024), https://www.epa.gov/newsreleases/biden-harris-administration-announces-43-billion-grants-community-driven-solutions-cut.

18. *Biden-Harris Administration Announces $2 Billion to Fund Environmental and Climate Justice Community Change Grants as Part of Investing in America Agenda*, EPA: NEWS RELEASES (Nov. 21, 2023), https://www.epa.gov/newsreleases/biden-harris-administration-announces-2-billion-fund-environmental-and-climate-justice.

19. *Id.*

Executive Service Director and other managers to integrate climate resilience considerations in all we do for consistency with statutory language, grants, our programs, and our roles. The EPA just published our updated adaptation plan yesterday alongside 20 other federal agencies, so you might want to check that out.[20] Collectively, the Administration is delivering more than $50 billion to help communities build resilience to the impacts of climate change.[21]

In fact, there's so much going on in the grant-making front, largely thanks to BIL and IRA, that it's easy to forget that the EPA is first and foremost a regulatory agency. But as you may have seen, we have also been very busy on the regulatory front, implementing an ambitious regulatory agenda in keeping with our statutory authority.

The American Innovation and Manufacturing Act was passed in December 2020 and directed the EPA to take decisive action to reduce emissions from the most potent greenhouse gases. This gave us new authorities to phase down the production and consumption of hydrofluorocarbons (HFCs).[22] HFCs can be hundreds to thousands of times more potent as greenhouse gases than carbon dioxide (CO_2).[23] In October 2023, we issued a final rule to accelerate the ongoing transition to more efficient climate-safe technologies and new refrigeration, heating, cooling systems, and other products.[24] The rule will result in an estimated greenhouse gas reduction of up to 800 million metric tons of CO_2-equivalent and the monetized climate benefits are roughly $50 billion.[25] On the global stage, the U.S. ratified the Kigali Amendment to the Montreal Protocol in October 2022, an international agreement to phase down the production and

20. *See generally Fact Sheet: Biden-Harris Administration Releases Agency Climate Adaptation Plans, Demonstrates Leadership in Building Climate Resilience*, THE WHITE HOUSE: BRIEFING ROOM (June 20, 2024), https://www.whitehouse.gov/briefing-room/statements-releases/2024/06/20/fact-sheet-biden-harris-administration-releases-agency-climate-adaptation-plans-demonstrates-leadership-in-building-climate-resilience/; *see also* U.S. ENV'T PROT. AGENCY, 2024–2027 CLIMATE ADAPTATION PLAN (2024).

21. THE WHITE HOUSE, *supra* note 20.

22. 42 U.S.C. § 7675(e).

23. *Fact Sheet: Final Rule – Phasedown of Hydrofluorocarbons: Establishing the Allowance Allocation and Trading Program Under the American Innovation and Manufacturing (AIM) Act*, EPA (Jan. 2024), https://www.epa.gov/system/files/documents/2021-09/hfc-allocation-rule-nprm-fact-sheet-finalrule.pdf.

24. 40 C.F.R. pt. 84 (2024).

25. EPA, *supra* note 23.

consumption of HFCs.[26] Taken together, these actions will help avoid nearly one-half degree Celsius of warming when fully implemented.[27]

We are also using our regulatory authorities under tried-and-true statutes like the Clean Air Act; Safe Drinking Water Act; Resource Conservation and Recovery Act; Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); Toxics Substances Control Act; National Environmental Policy Act (NEPA); and more to reduce exposures to harmful pollution, in keeping with our statutory authorities.

To highlight a few examples, in February 2024, we took an important step protecting the health of families, workers, and communities by finalizing a significantly stronger air quality standard for fine particulate matter, or $PM_{2.5}$. The EPA estimates that this new standard will help avoid 4,500 premature deaths, 290,000 lost workdays, and 2,000 emergency department visits; yielding up to $46 billion in net health benefits in 2032.[28]

We have taken several actions on PFAS "forever chemicals," including the first-ever nationwide, legally enforceable, drinking water standards for PFAS to protect communities.[29] This will help protect nearly 100 million[30] people from PFAS exposure, prevent thousands of deaths, and reduce tens of thousands of serious illnesses. Cliff Villa and OLEM finalized a CERCLA rule for PFAS as well.[31]

In March, we announced a final rule[32] to prohibit the ongoing uses of the only known form of asbestos still currently used and exported to the U.S. Exposure to asbestos, of course, is known to cause many cancers, including

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26. *U.S. Ratification of the Kigali Amendment*, U.S. DEP'T OF STATE (Sept. 21, 2022), https://www.state.gov/u-s-ratification-of-the-kigali-amendment/.

27. *Frequent Questions on the Phasedown of Hydrofluorocarbons*, EPA (last updated Dec. 13, 2024), https://www.epa.gov/climate-hfcs-reduction/frequent-questions-phasedown-hydrofluorocarbons.

28. Reconsideration of the National Ambient Air Quality Standards for Particulate Matter, 89 Fed. Reg. 16202 (Mar. 6, 2024) (to be codified at 40 C.F.R pts. 50, 53, 58); *EPA Finalizes Stronger Standards for Harmful Soot Pollution, Significantly Increasing Health and Clean Air Protections for Families, Workers, and Communities*, EPA: NEWS RELEASES (Feb. 7, 2024), https://www.epa.gov/newsreleases/epa-finalizes-stronger-standards-harmful-soot-pollution-significantly-increasing.

29. 40 C.F.R. pts. 140–42 (2024).

30. *Per- and Polyfluoroalkyl Substances (PFAS) Final PFAS National Primary Drinking Water Regulation*, EPA, https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas#Summary (last updated Dec. 2, 2024).

31. Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, 89 Fed. Reg. 39124, 39124 (May 8, 2024) (to be codified at 40 C.F.R. pt. 302).

32. Asbestos Part 1; Chrysotile Asbestos; Regulation of Certain Conditions of Use Under the Toxic Substances Control Act (TSCA), 89 Fed. Reg. 21970, 21970 (Mar. 28, 2024) (to be codified at 40 C.F.R. pt. 751).

lung cancer, mesothelioma, and ovarian cancer.[33] It is linked to more than 40,000 deaths in the U.S. each year.[34]

In April 2024, we finalized final rules for the synthetic organic chemical manufacturing and polymers and resins industries, also known as the HON rule—which is the acronym within an acronym—the Hazardous Organic NESHAP, or *National Emission Standards for Hazardous Air Pollutants.*[35] This rule is near and dear to my heart. I grew up in Louisiana and came to work on environmental issues because of the chemical corridor known as Cancer Alley. I worked there and in the Kanawha Valley of West Virginia, where people are really closely co-located to these facilities. The HON rule will dramatically reduce the number of people with air toxics-related risks in these communities that live near chemical plants that emit ethylene oxide, chloroprene, and other hazardous pollutants that cause cancer, miscarriages, and other devastating health effects.[36] The rule slashes more than 6,200 tons of toxic air pollution each year, dramatically reducing the number of people with elevated cancer risk by 96% in communities with plants that emit ethylene oxide and chloroprene.[37]

In April 2024, the EPA launched a suite of four final rules issued under separate statutory authorities to reduce pollution from fossil fuel-fired power plants to protect all communities from pollution and improve public health without disrupting the delivery of reliable electricity. The first rule, issued under the Clean Air Act, is the final carbon pollution standard for existing coal-fired and new natural gas-fired power plants, which will limit the CO_2 emissions from covered sources. The regulatory impact analysis projects reductions of 1.38 billion metric tons of CO_2 pollution[38] overall through

33. *Id.*; *Biden-Harris Administration Finalizes Ban on Ongoing Uses of Asbestos to Protect People from Cancer*, EPA: NEWS RELEASES, (Mar. 18, 2024), https://www.epa.gov/newsreleases/biden-harris-administration-finalizes-ban-ongoing-uses-asbestos-protect-people-cancer.

34. *See* EPA, *supra* note 33.

35. 40 C.F.R. §§ 60–63 (2024).

36. *Biden-Harris Administration Finalizes Stronger Clean Air Standards for Chemical Plants, Lowering Cancer Risk and Advancing Environmental Justice*, EPA: NEWS RELEASES, (Apr. 9, 2024), https://www.epa.gov/newsreleases/biden-harris-administration-finalizes-stronger-clean-air-standards-chemical-plants.

37. *Id.*

38. U.S. EPA, REGULATORY IMPACT ANALYSIS FOR THE NEW SOURCE PERFORMANCE STANDARDS FOR GREENHOUSE GAS EMISSIONS FROM NEW, MODIFIED, AND RECONSTRUCTED FOSSIL FUEL-FIRED ELECTRIC GENERATING UNITS; EMISSION GUIDELINES FOR GREENHOUSE GAS EMISSIONS FROM EXISTING FOSSIL FUEL-FIRED ELECTRIC GENERATING UNITS; AND REPEAL OF THE AFFORDABLE CLEAN ENERGY RULE D.4 (2024).

2047, with projected climate and public health net benefits of up to $370 billion[39] over the next two decades.[40]

The EPA projects that the final rule strengthening mercury and air toxics standards for coal-fired power plants, issued under the Clean Air Act, will reduce emissions of mercury and other hazardous air pollutants, such as nickel, arsenic, and lead.[41] Controlling these emissions from power plants improves public health for all Americans by reducing the risk of fatal heart attacks, cancer, developmental delays in children, and adverse environmental impacts. Under the Clean Water Act, the EPA strengthened wastewater discharge standards that apply to coal-fired power plants to reduce discharges of toxic metals and other pollutants into lakes, streams, and other waterbodies. When implemented, this action will prevent more than 660 million pounds of pollution per year[42] from being discharged in our Nation's waters and protect freshwater resources that provide sources of drinking water for communities, support economic development, enhance outdoor recreation, and sustain vibrant ecosystems. Finally, under the Resource Conservation and Recovery Act, we finalized a rule to require the safe management of coal ash at inactive surface impoundments, at inactive power plants, and historical coal ash disposal areas.[43] The rule expands protections for the communities and ecosystems near active and inactive coal burning power plants, ensuring that groundwater contamination, surface water contamination, fugitive dust, floods, impoundment overflows, and threats to wildlife are all addressed.

In December 2023, for the first time, we finalized a rule controlling methane from oil and gas operations and included new values for estimating the social cost of greenhouse gas emissions as part of our analysis and our announcement.[44] This powerful metric better reflects the science and our lived experience, showing the profound true cost of unabated climate change. It is an important update for the metric—it's used to account for the damages society faces from carbon and other greenhouse gas pollution. This metric

39. *Id.* at ES-3.

40. *Id.* at Table 4-30.

41. National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units Review of the Residual Risk and Technology Review, 89 Fed. Reg. 38580 (May 7, 2024) (to be codified at 40 C.F.R. pt. 63).

42. 40 C.F.R. § 423.10.

43. Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Legacy CCR Surface Impoundments, 89 Fed. Reg. 38950 (May 8, 2024) (to be codified at 40 C.F.R. pts. 9, 257).

44. Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review, 89 Fed. Reg. 16820, 16820, 16835 (Mar. 8, 2024) (to be codified at 40 C.F.R. pt. 60).

looks at the true cost of climate change in our regulatory analysis, our environmental reviews, permitting, procurement, and more. I'm very proud of our Office of Policy team and our National Center for Environmental Economics that do this work for the federal government and the EPA. Our new report incorporates recommendations made by the National Academy of Sciences through a rigorous process, including public comment and peer review.[45] It provides new and higher estimates of the social cost of carbon, N_2O, and methane. The central estimate of the social cost of CO_2 increased four times to $190 in benefits per ton of CO_2 emissions avoided.[46] These estimates were used in the regulatory impact analysis for our oil and gas rule. Applying those updated estimates projects climate benefits of $110 billion. We are also using these metrics and other rules within the EPA, our NEPA reviews, and more.

Since the beginning of this year, you might have noticed that we have finalized dozens of priority rules that will significantly deliver public health and environmental impacts and benefits, including curbing greenhouse gas emissions that drive climate change. In critical sectors like transportation, our recent vehicle standards, the strongest in history, are encouraging a broader adoption of electric vehicles (EVs) and hybrids nationwide. With historic investments from BIL and IRA, we and other federal agencies are working with communities to invest in EV charging infrastructure. There's a huge amount of money flowing to that from other agencies as well, like the U.S. Department of Energy and the Department of Transportation.

In March 2024, we finalized standards for passenger cars, light trucks, and medium-duty vehicles that will avoid 7 billion tons of CO_2 emissions.[47] The standards will provide nearly $100 billion of annual net benefits to society, including $13 billion in public health due to improved air quality, and $62 billion in reduced annual fuel costs, maintenance, and repair costs for drivers—thanks to the affordability of EV maintenance.[48] We project an increase in manufacturing employment in response to these standards. Companies have announced more than $16 billion in investments in clean

45. EPA ET AL., REPORT ON THE SOCIAL COST OF GREENHOUSE GASES: ESTIMATES INCORPORATING RECENT SCIENTIFIC ADVANCES 11, 106 (2023).

46. *Id.* at 4 (Table ES-1).

47. Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles, 89 Fed. Reg. 27842, 27842 (Apr. 18, 2024) (to be codified at 40 C.F.R. pts. 85, 86, 600, 1036, 1037, 1066, 1068); *Biden-Harris Administration Finalizes Strongest-Ever Pollution Standards for Cars that Position U.S. Companies and Workers to Lead the Clean Vehicle Future, Protect Public Health, Address the Climate Crisis, Save Drivers Money*, EPA: NEWS RELEASES, (Mar. 20, 2024), https://www.epa.gov/newsreleases/biden-harris-administration-finalizes-strongest-ever-pollution-standards-cars-position.

48. EPA: NEWS RELEASES, *supra* note 47.

vehicle manufacturing.[49] In fact, the U.S. auto sector has already added more than 100,000 jobs since President Biden took office.[50]

Shortly after the light-duty standards, we finalized the standards for heavy-duty vehicles.[51] These will avoid one billion tons of greenhouse gas emissions and provide $13 billion in annualized benefits.[52] These standards will reduce dangerous air pollution, especially for the 72 million people who live near truck freight routes, as they bear the burden of higher levels of pollution.[53] These are often low-income communities and communities of color. These standards will provide greater certainty for industry, while catalyzing private investment and supporting manufacturing jobs.

As the EPA's lead NEPA official, I've been directing our NEPA reviewers to really lean in on climate considerations, both adaptation and mitigation, and environmental justice (EJ). We've used our NEPA and our Clean Air Act Section 309 review authority[54] to push the U.S. Postal Service to revisit their initial order of only 10% battery electric vehicles.[55] My February 2022 letter[56] pointed out several key deficiencies that were contrary to NEPA's requirements, including: the contract for the proposal has been awarded prior to the NEPA process, critical features of the contract were not disclosed in the Environmental Impact Statement (EIS), important data and economic assumptions were missing or flawed, and the EIS failed to consider a single feasible alternative to proposed action. Specifically, the U.S. Postal Service's final EIS did not disclose the central information supporting the total cost of ownership analysis. They underestimated greenhouse gas emissions. The U.S. Postal Service failed to consider more environmentally protective, feasible alternatives, and they inadequately looked at communities impacted by EJ issues. Among other things, the U.S. Postal Service assumed an unreasonably low gas price of $2.19,[57] an unreasonably

49. *Id.*

50. *Id.*

51. Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles, 89 Fed. Reg. 29440 (Apr. 22, 2024) (to be codified at 40 C.F.R. pts. 86, 1036, 1037, 1054, 1065).

52. *Biden-Harris Administration Finalizes Strongest Ever Greenhouse Gas Standards for Heavy-Duty Vehicles to Protect Public Health and Address the Climate Crisis While Keeping the American Economy Moving*, EPA: NEWS RELEASES, (Mar. 29, 2024), https://www.epa.gov/newsreleases/biden-harris-administration-finalizes-strongest-ever-greenhouse-gas-standards-heavy.

53. *Id.*

54. 42 U.S.C. § 7609.

55. Next Generation Delivery Vehicle Acquisitions, 87 Fed. Reg. 14588 (Mar. 15, 2022).

56. EPA, Vicki Arroyo, Comment Letter on USPS NGDV FEIS (Feb. 2, 2022), https://federalnewsnetwork.com/wp-content/uploads/2022/02/USPS-NGDV-FEIS-comment-letter-2-2-2022.pdf.

57. *See* Next Generation Delivery Vehicle Acquisitions, *supra* note 55.

high cost of batteries in electric vehicles, and failed to acknowledge EVs' lower operating and repair costs. Their original vehicle would have avoided EPA's light-duty vehicle regulations by being designed to be exactly one pound heavier than the vehicles covered.

Fortunately, a combination of our efforts with the Council on Environmental Quality, and other parts of the White House, external pressure from litigation, from Congress, and support from the IRA, helped the U.S. Postal Service get to a much better place.[58] They are now transitioning to over 62% EVs, including upping their order of some of the commercial off-the-shelf vehicles that their competitors use.[59] The U.S. Postal Service is also greening their facilities. The reason I took the time to unpack the EIS a bit is because I think it could be an example for our students. This is a good example of how you can use a statute from 1970 to make a real difference today, especially if you look at the broader ecosystem of players that helped to influence these decisions.

Something else you might want to take a look at: The EPA has been very involved in working to secure and inform reforms to the regulatory review process. I know there are a lot of scholars, including Lisa Heinzerling, who write a lot about this. Hopefully, you have checked out some of the work under the Modernizing Regulatory Review presidential memorandum[60] and subsequent analysis, including revisiting and lowering discount rates under the revised Office of Management Budget Circular A-4[61] and more. I really want to give a shout-out to, of course, Ricky Revesz, our current Office of Information and Regulatory Affairs (OIRA) Administrator, Sharon Block, and K. Sabeel Rahman—also law professors—who had leading roles at OIRA on an acting basis before Ricky got there.

And those "modernizing" regulatory review updates, in part, will be related to the tradeoffs between risks and benefits. That is one of the three broader things that I want to discuss relevant to environmental law and policy making, and in life—risk, resilience, and purpose. It is difficult to put together teaching materials in this shifting landscape, where I know some

58. *Biden-Harris Administration Announces Historic Investment to Electrify U.S. Postal Service Fleet*, THE WHITE HOUSE, (Dec. 20, 2022) https://www.whitehouse.gov/briefing-room/statements-releases/2022/12/20/biden-%E2%81%A0harris-administration-announces-historic-investment-to-electrify-u-s-postal-service-fleet/.

59. *See* Vicki Arroyo, *supra* note 56.

60. *Modernizing Regulatory Review*, THE WHITE HOUSE, (Jan. 20, 2021) https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/modernizing-regulatory-review/.

61. *See generally* OFF. OF MGMT. AND BUDGET, CIRCULAR NO. A-4, (Nov. 9, 2023), https://www.whitehouse.gov/wp-content/uploads/2023/11/CircularA-4.pdf.

people are probably watching their phones for what happens today in the Supreme Court.[62]

B. Risk, Resilience, and Purpose

I was thinking that the themes of risk, resilience, and purpose are helpful to consider both because they directly relate to our field of environmental law, but also because these are themes and considerations that can help train and raise a new generation of lawyers.

On risk management, our environmental law statutes have different formulations, but most are, in one way or another, managing risk with some ability to consider tradeoffs. What are the risks versus the benefits? Almost everything we do in our roles as attorneys or policy analysts has some link to risk management. How willing are we, or clients, to take some risk to achieve a certain result? How much do we focus on avoiding the risk of litigation or an adverse result? Sometimes, I feel like the lawyerly focus on averting risk might just detract from our focus on affirmatively articulating the *benefits* of our actions or the competing cost of inaction.

I think risk is a valuable subject to consider in the context of our teaching and specific environmental statutes that consider, balance, and address risk or allow for those considerations to be made by agencies like the EPA and others. What kind of risk shall we tolerate? Who decides, and on what basis? The production, transport, and use of large volumes of chemicals that we all benefit from as part of our daily lives can have real impacts on communities and individuals, such as in Cancer Alley or in East Palestine, Ohio. How do we capture the true cost for those who are disproportionately burdened? How do we encourage firms to internalize the cost of abating their operational risk and to incorporate that into their cost of doing business? This includes planning for accidental releases of toxic chemicals, releases that will become more frequent in an era of climate change.

These considerations are something that I'm very proud to say the EPA is now taking into account in our risk management program rules[63] and our clean water hazards waste rules.[64] Thanks to the hard work, once again of Cliff's team and the Office of Land and Emergency Management, and my

62. The conference occurred shortly before the Supreme Court decided a series of important administrative law decisions at the end of its 2023–24 term, including Loper Bright Enter. v. Raimondo, 144 S. Ct. 2244, 2273 (2024), which overruled Chevron v. Nat'l Res. Def. Council, 467 U.S. 837 (1984), the seminal case on judicial deference to reasonable statutory interpretations of administrative agencies.

63. *See generally* 40 C.F.R. Subpart G—Risk Management Plan.

64. Clean Water Act Hazardous Substance Facility Response Plans, 89 Fed. Reg. 21924, (May 28, 2024) (codified at 40 C.F.R. §§ 11840, 300 (2024)).

team in the Office of Policy that helped with analysis, with support from the highest agency leadership, including Janet McCabe, our Deputy Administrator, and Administrator Regan.

How do we implement regulations and policies that can withstand headwinds from Congress, their use of the Congressional Review Act (CRA) review, or the courts? How do we train new attorneys to be able to take a serious look, identify such risks, and take action to avoid risk where possible; yet also lean in on shoring up our preferred approach: bolstering resilience to these threats?

These questions bring me to my second theme: resilience. Resilience can include homeostasis in our bodies; ecosystems' ability to tolerate a range of conditions such as variation in temperature and precipitation; and trees' ability to drop their leaves to withstand drought all illustrate the benefits of systems' adaptability to changes in the environment—but also the perils of being pushed beyond the safe zone. Understanding these coping mechanisms and their limitations is an important part of our field when setting environmental standards and limits, say for conventional pollution, in discharges to water or to air. We must first ask, applying the best available science and statutory criteria; what are the tolerable risks, and how resilient are the environment, people, and animals to these risks?

Resilience is similarly important for our own lives and careers. It's essential to be resilient to setbacks in our personal and professional lives. Learning how to bend without breaking, adapt and grow with each challenge, and become stronger. But this assumes we have the support we need internally and externally and resources to draw upon. Strong roots, community stories, including not just the successes, but importantly—even more so maybe—setbacks, are fundamental for building our individual resilience.

Our stories, including our families' stories of challenges that they went through as immigrants, or as survivors of hurricanes and floods, for example, can help shore up our children and our students. Psychologists have found that having family meals together is a key indicator of resilience.[65] It turns out that sharing stories around the family dinner table is responsible for shoring up resilience in young people because they can hear about people's good and bad days, including stories from before of parents and grandparents who've gone through adversity. And when we go through our own challenges, we can draw from these stories.

65. *Benefits of Family Dinners*, THE FAMILY DINNER PROJECT, https://thefamilydinnerproject.org/about-us/benefits-of-family-dinners/ (last visited Dec. 19, 2024).

I saw this in my own life when my basement in Arlington, Virginia, flooded during Hurricane Isabel. I remember thinking of the stories that I grew up with of my grandparents losing their homes in Hurricane Betsy, and that my grandmother's sheet music was lost. I always thought that's a weird thing to talk about; if you lost your whole house, why are we talking about your sheet music? But lo and behold all these years later, I was looking at my wet sheet music thinking: "My grandmother went through this, right?" And she survived, she moved on, and then my whole family pretty much lost their homes in Katrina. Hearing about my family's experiences and knowing that they came out on the other side gives us hope and resilience to these changes we are facing. When I used to talk about these issues or experiences like Katrina, I would often be the only person who both worked in the field and had personal experience, having my family move in with me who lost their homes. But now, given what's happened here in Vermont and so many places—the fires and floods—I'm sure many of you probably have experiences like that in your own life and in your own families.

And of course, young people have been through so much. Resilience is really important to their mental health and their well-being. It is equally important for those of us who taught during the pandemic and went into lockdown just before final papers and projects were being graded. I was teaching a practicum at the time, and our final presentations had shifted to online, but some students had already earned their A's. Georgetown and many other universities made choices to forego grading that year. In that moment, this seemed both very—and not—important, given so many people dying in the pandemic. I felt bad for my students who worked so hard to earn their grades, but they accepted the situation with grace and maturity. I think it's served as an important life lesson regarding support for the community versus individuals.

Community is so important to resilience. Being part of a community in which we have each other's back not only makes life better, but it also saves lives. Community social cohesion saves lives in an era of climate change. The Chicago heat wave in 1995 claimed over 500 lives,[66] and many people who died were elderly shut-ins without people to check in on them. They were found after it was too late. This happens less when neighbors know each other and reach out to check in and help. Now there is a heat wave in Chicago happening again this week. Chicago and other cities like D.C. and Philadelphia have intentionally set up an ambassador program to act as buddy systems, where people go out and check on their elderly neighbors. Having

66. *Historic July 12–15, 1995 Heat Wave*, NAT'L WEATHER SERV., https://www.weather.gov/lot/1995_heatwave_anniversary (last visited Dec. 19, 2024).

people check on each other helped during the pandemic shutdown and lockdowns. In teaching a practicum on climate change and facilitating focus groups, we learned that people would not be inclined to leave their homes for a cooling shelter. They'd be more willing to do so if the shelter was already a trusted and familiar space that they went to, a community center or a local church, for example.

Using resilience hubs as safe places for people to stay cool and safe during extreme weather events was something that we worked on at Georgetown Climate Center. This is something that the EPA supports as part of our equitable adaptation work, and it's one of the available uses of funding under Inflation Reduction Act's (IRA) Community Change Grant Program.

We live and work in a very challenging environment that makes it difficult to rely on norms and precedents, whether in natural systems or infrastructure we rely on, or even in our democratic institutions and our courts. The old paradigms and precedents don't really hold—we know it, and so do our students who are often ahead of us. Yet, as professors, we need to put together a syllabus and do our best to have one that reflects the history of environmental laws and the current implementation and interpretations. As we are waiting for the results of important court decisions and elections, we need to be resilient, too. I think of that saying about putting on your oxygen mask before you help others on the plane.

Having a sense of purpose can help us and serve as an emotional buffer during the dramatic swings we're all experiencing. That's my third and final theme. Students and young people are rightly depressed about climate change and other challenges of our time. It's easy to feel hopeless given the scale of this challenge and others, but part of why I gave you that long list of billions of dollars for this, and billions for that, is to show what we've been able to accomplish in just three-and-a-half years! It gives me a sense of optimism and hope, and there's certainly room for others to join us and help protect people and the planet.

As I start to think about what reentry into academia might look like, I think about these three attributes: risk management, resilience, and purpose. I also think these skills will be essential in this dynamic environment, not only if our students choose to serve in government, but also in other roles that can also make a difference. I get excited thinking about helping students issue spot opportunities to make a difference, teaching policy-relevant skills such as legislative and regulatory drafting, actor mapping, policy campaigning, oral and written advocacy, implementation strategies, and working to develop simulations or expose them to real-world clients who need their help.

Armed with these skills and tools to learn in the classroom, students can be part of the solution and feel pride, a sense of purpose, and, yes, optimism that flows from that. I have seen firsthand in practicum teaching that students benefit personally and professionally from working towards solutions in their communities needing assistance. Solutions like resilience hubs can provide win-win-wins: a trusted space with information about emergencies can be shared amid other activities like job training programs and other community-building, as well as a shelter offering emergency power, water, and safety during or after an extreme weather event. Doing worthwhile work through skills that can be deployed to effectuate change in areas we feel passionately about. Skills like legal and policy analysis, negotiation, and alliance building can make a huge difference in self-confidence, competence, and a sense of purpose and optimism.

At the EPA, we have been working full tilt to review grant applications and award grants this year before deadlines. We are also working to ensure as many of our priority rules as possible are finalized within the presumed CRA window to avoid a congressional veto. Yet morale has been high. It's very high. In fact, new ratings showed that the EPA is one of the top five federal midsize agencies according to our career employee survey.[67] This is despite coming through a rough patch when we started and despite a very heavy workload, which was really unprecedented. And I believe it's because we have a truly amazing and dedicated cadre of career staff who are really dedicated to our mission of protecting human health and our environment—because it's work with a purpose.

CONCLUSION

So, I'm going to lay another Helen Keller quote on you as I close: "Optimism is the faith that leads to achievement; nothing can be done without hope . . . ."[68] And I hope that what I share here helps in some small way to provide a sense of optimism and some ideas to inspire hope and confidence in our classrooms and our communities.

Thank you.

67. P'ship For Pub. Serv., *2023 Best Places to Work in the Federal Government Rankings*, BEST PLACES TO WORK IN THE FEDERAL GOVERNMENT, https://bestplacestowork.org/rankings/ (last visited Dec. 19, 2024).

68. KELLER, *supra* note 1, at 67.

PANEL TWO: TEACHING NUMERICAL AND STATISTICAL LITERACY IN LAW SCHOOL

Mark James,[*] Lisa Heinzerling,[**] Ed Richards,[†] and Steph Tai[‡]

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INTRODUCTION

Mark James:

Welcome everyone. I'm Mark James. I'm the Interim Director for the Institute for Energy and the Environment, an Associate Professor of Law at Vermont Law and Graduate School, and an Assistant Professor at the Maverick Lloyd School for the Environment. I'm very happy to moderate this panel today.

One thing I enjoyed about law school is being a student and just getting to learn. The panel is an opportunity for all of us to be students and to learn how to make our classes better. As professors, we need to change and evolve how and what we teach to ensure that our students are ready for the challenges that they will face. Our students need to be able to converse in a wide range of disciplines, including STEM: Science, Technology, Engineering, and Math. Many of the students I have taught have told me that they didn't come to law school to learn about numbers. But they are not going to be able to avoid them. Our panel will talk about how to prepare the students for the questions they will see in practice by teaching numerical and scientific literacy in our classrooms. The panel will be covering how to build skills and

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build comfort with interacting with different disciplines so that our future lawyers are able to engage with and hear their clients on topics like market design, scientific methodologies, economic analysis, and modeling. These are areas that students will encounter as practicing environmental attorneys. We have three wonderful panelists who will guide us through how they integrate numerical and statistical analysis into their classrooms.

We have Ed Richards, who is Professor Emeritus and Senior Fellow at the Climate Change Law and Policy Project at Louisiana State University. We have Steph Tai, a Professor of Law at the University of Wisconsin-Madison School of Law and the Associate Dean for Education and Faculty Affairs at the Nelson Institute for Environmental Studies. Lastly, we are joined by Lisa Heinzerling who is the Justice William J. Brennan, Jr. Professor of Law at Georgetown University Law Center. Lisa will be sharing how she integrates economic analysis, discount rates, and cost-benefit analysis into the classroom.

A couple of the questions that I asked the panelists to answer were: (1) how do you go about picking the issues that you want to talk about; (2) how do you select the materials that you will use in the classroom; and (3) how do you assess student comprehension of concepts?

With that, I am very excited to explore different pedagogical approaches with the panel and with the audience.

Ed Richards:

Well, I started working on these materials, and I was invited and that really caused me to try to think about what it is I've been doing since I've been teaching science in the classroom a long time to a lot of different kinds of audiences.

Most of my work is around science and law. I had about six hours' worth of material which I am condensing into 15 minutes. This may be a little more philosophical, but I will put practical examples into the persistent materials that will come out of this. I'm a kid growing up in the 50s and 60s, born in the 50s, watching Mr. Wizard, Jacques Cousteau movies, and Bell Telephone Science Series movies. (Meteoro in *The Unchained Goddess* (1958) talked about the risks of climate change). I was reading nature books, including *The Sea Around Us*, which Rachel Carson wrote before *Silent Spring*. The other thread is remembering that science has always been controversial: Scopes Trial, Galileo, whatever our latest controversies are. I've never had the notion that there was a "good-old-days" for science.

Now, in my experience with law students, I don't get very many with physical science backgrounds or much math, but more critically, physical science. The other problem I have is, of course, the rest of the law school

curriculum—where we drill into people that you have to think like a lawyer. There is no truth, only ambiguity to exploit for your client. And as a mentor to the few science students I find that I spend time trying to remind them that you have got to forget about the truth or you're just going to be screwed in law school. The codes of professional practice encouraged this. I was joking at dinner last night that the only thing you really learn as far as ambiguity is that if somebody's going to jail, make sure it's the client. Experts are seen as hired guns. There is a pejorative term lawyers use for experts hired to tell a predetermined story. I've written on lawyers' duty when hiring an expert. It is to get someone that tells a story to support your client without openly suborning perjury. The duty is not to find the truth. There is an expert witness industry that supports this, and environmental lawyers are as enamored with junk science as much as anyone else when it supports their story. Those of you who know me from the Environmental Law Profs list know I raise this issue occasionally. The best advocates, to use a colloquial phrase, "are high on their own supply." Not only do they make the advocacy arguments, but they also believe them with the clear eye of a zealot in front of the juries. Sociopaths do this better than anyone. Some of you may have run into them in your working careers.

I. HELPING STUDENTS UNDERSTAND "TRUTH"

In trying to make sense of what I do in the classroom, I think I want the students to understand the notion of objective truth as represented by science, and that it is critical for them to appreciate it in the context of climate change. It would be a little different if we were talking about physics or other areas where there is an accepted objective truth. Climate science is evolving, so while we have truth, it is not an immutable truth. That's important for dealing with climate uncertainty. I talk about the real-world scientific process. This is distinct from the scientific method about hypothesis generating, testing hypotheses, and survey design. We talk about the critiques of climate science, and they're not all wrong. There are gaps in knowledge because science is expensive, and you must find someone to pay for it, and the funders call the tune. The funders may not dictate your results, but if you don't find results that are consistent with what they want to fund—they won't continue to fund you. We see this a lot in work on sea level rise and coastal restoration, where the research money is aimed at perpetuating the myth that you can restore the coast in the face of sea level rise. Scientists are people subject to bias, greed, and ego. I've written a bit on human experimentation law over the years. Some of the worst abuses have been driven by ego rather than greed.

Peer review is critical, but it is also imperfect. Reviewers are people. They're biased. Reviewers have their own agendas. Being published in a peer-reviewed journal isn't proof of truth, but it is the starting point. I want the students to understand that when a new paper on climate change is published, that's only the starting point. Can it be replicated? Will other results build on it logically? Will the findings persist through time? When you read a study, you must have some fundamental knowledge of the subject so you can read it in context.

You must be critical in your reading and skeptical. I was skeptical of climate science until I dug into it deeply and could begin to separate the wheat from the chaff. I talk about the progression from facts to theory. I start with what I call non-probabilistic facts, which are physical facts that are not controversial, such as the freezing point of water, its specific heat, that it is the major greenhouse gas (GHG), and that water is nearly unique in becoming less dense as it freezes. I talk about how these combine to make water the magic that makes life on Earth possible. Water drives the climate. That's why we're not just an ice ball in space. To show how these facts build the climate, I go through an exercise in class where I start out with a rock far out in an empty space. I ask, what the temperature of the rock would be on the dark side? What about the temperature on the sunny side? It will be cold that far out in space, so we put in a sun. Now we've got a hot rock on one side and a cold rock on the other. We start adding atmosphere. We build ourselves a planet using these facts and some other basic facts to get a sense about how this is stuff we know there's no question about. This is how these systems work—things like GHGs, their products, and their physical products of absorbing and reradiating radiation. Give the students a sense that there is a lot of hard, factual evidence that takes you a long way. We also spend time talking about astronomy—the Milankovitch cycles,[1] and the other things that affect the warming of the Earth. Then we look at geology, which is how we know about climate cycles. And we do geology within the context that you have a lot of physical facts like where the rocks are, what the rocks are made of, and how the rocks are layered.

II. MODELS

Fundamentally, our understanding of geology and climate is based on models. What can we learn from those models? We have useful things from those models, like finding oil. The Lower Mississippi Delta is probably the

1. David S. Spiegel et al., *Generalized Milankovitch Cycles and Long-Term Climatic Habitability*, 721 ASTROPHYSICAL J. 1308, 1317 (2010).

most geologically characterized chunk of the Earth because understanding Delta geology lets you find oil there.[2] But we've learned a lot. We learned about climate cycles that are reflected in the river and flooding cycles. We learned that there are models that have real-world results. These models help us understand the past. Yet even in an area with established, useful models with a lot of data, such as geology, the models can change profoundly. When I was an undergrad student and took geology, probably in 1970, there was a raging controversy over continental drift and continental plates. John McPhee wrote a series of books on the transition of geologic theory in the 60s–70s.[3] The continental drift models fundamentally changed our notion of geology, showing how established models are refined and change over time. We then look at what the geologic data and models show about how sea levels rise and fall as the Earth has warmed and cooled in the past. The students see that as sea levels rise, it inexorably drowns deltas and the wetlands; beaches migrate inland if permitted by the topology of the coast. This reverses with the next Ice Age, the sea levels fall as much as 400 feet[4], and the coast migrates out to the edge of the Continental Shelf.[5] I taught about what this did to the Mississippi Delta and the Gulf of Mexico, but the same story can be told about any coast. If I were teaching in Maryland, I would talk about the transition from the Chesapeake Canyon to the Chesapeake Bay as sea levels rose after the last glacial maximum 20,000 years ago.[6]

Then we get to the hard part, where we have uncertain data and are using it to try to predict the future. We talk about weather forecasting as an example using the first-rate short videos on YouTube generated by science educators and the British Broadcasting Corporation.[7] They are assigned the videos to watch as at-home assignments before we discuss them in class. They learn that weather is a highly nonlinear system, meaning little changes in the inputs for the models make big differences in the predicted weather. This has been called the butterfly effect—a butterfly flaps its wings in China, and the

2. John W. Day et al., *Life Cycle of Oil and Gas Fields in the Mississippi River Delta: A Review*, 12 WATER, May 2020, at 22.

3. JOHN MCPHEE, ANNALS OF THE FORMER WORLD (1998).

4. Water Science School, *The Coastline of the Eastern U.S. Changes . . . Slowly*, USGS https://www.usgs.gov/media/images/coastline-eastern-us-changesslowly (last visited Dec. 19, 2024).

5. Anders E. Carlson, *Ice Sheets and Sea Level in Earth's Past*, THENATUREEDUC.: KNOWLEDGE PROJECT, https://www.nature.com/scitable/knowledge/library/ice-sheets-and-sea-level-in-earth-24148940/ (last visited Dec. 19, 2024).

6. *Sea Rise and Storms of the Chesapeake Bay*, NATIONAL GEOGRAPHIC, https://education.nationalgeographic.org/resource/sea-rise-and-storms-chesapeake-bay/7th-grade/ (last visited Dec. 19, 2024).

7. Edward P. Richards, *Introduction to Weather*, LSU L. CTR: CLIMATE CHANGE L. AND POL'Y PROJECT (Jan. 24, 2021), https://sites.law.lsu.edu/coast/2021/01/introduction-to-weather/.

weather changes in Detroit. The biggest difference in weather forecasting models is increased computing power and reduced computational costs, allowing ever more complex models to run fast enough to give forecasts in a useful amount of time. Weather models get better as we can do more computation on more points and weather data. This means predictions further out into the future, from a couple of days to nearly a week. We talk about how much more accurate predictions of hurricane paths have gotten over the past 20 years. At the same time, the forecasts are still uncertain—today's forecast will predict a certain percentage chance of rain—not a certain time and amount for rainfall. It doesn't say at 2:00 o'clock it's going to rain buckets. It says there's a 60% chance, and maybe that chance will include buckets of rain and hail.

III. FROM WEATHER MODELS TO CLIMATE MODELS

Weather is the best model we have of a big, complex, nonlinear system, and that takes us to talking about climate models. I have two focuses in the course. One is having them understand why people don't believe in the climate or climate change. The first thing we read in class is a paper on cultural cognition, tribal affiliations, scientific belief, and scientific information.[8] I want to get it out on the table because some of my students don't believe in climate change. This leads to the discussion of building up the climate from known or physical facts. When we finish with that, we discuss that the easiest way to know the Earth is warming is that sea levels rise, except for major changes in the deformation of the ocean floor, which happened a few billion years ago.[9] In modern times, sea levels only rise because of the ocean's thermal expansion and ice melt on land caused by warming.[10] Sea level is like a thermometer. We then work through all the things that affect the temperature of the Earth. That's where we get into the planetary cycles and solar cycles, and those aren't changing consistently with the planet's warming. We know greenhouse gases (GHGs) are increasing, and we know from physics that they will warm the atmosphere.[11] I show how it's a process of elimination to decide that anthropogenic GHSs are what's

8. Dan M. Kahan, *Climate-Science Communication and the Measurement Problem*, 36 ADVANCES IN POL. PSYCH., 1, 1 (2015).

9. Jingchuan Wang et al., *Mesozoic Intraoceanic Subduction Shaped the Lower Mantle Beneath the East Pacific Rise*, 10 SCI. ADVANCES 1, 1 (2024).

10. Anny Cazenave & William Llovel, *Contemporary Sea Level Rise*, 2 ANN. REV. MARINE SCI. 145, 167–68 (2010).

11. NIVETA JAIN ET AL., *Greenhouse Gas Emissions and Global Warming*, INTRODUCTION TO ENV'T SCIS. 379, 379–80 (2015).

warming the atmosphere. That the Earth is warming because of GHGs is the easy part. The hard part, and where the uncertainty lies, is figuring out how much the temperature increases for each GHG increment. It may take us decades to find the true amount of warming per unit of GHG.

Then, we see how uncertainty compounds. If we do not know exactly how much warming to expect and when, we don't know how much and how fast sea level will rise. We know that with the current warming, we're probably going to see two or more meters of sea level rise. But it's a lot of difference—whether that is by 2050, 2100, or 2150. If you're a planner in Florida, working under Governor DeSantis, you're going to look at the lowest side of that uncertainty. This is the approach the Intergovernmental Panel on Climate Change (IPCC) takes because it is a consensus model. The only number all the delegates can agree on is the lowest projection.[12] We read IPCC documents so the students understand the bias. We then talk about attribution science and how it can assign probabilities that an event is made worse by climate change. For example, Houston and Baton Rouge have had a series of catastrophic rains in the last decade.[13] Climate change made those more certain to happen, but we can only say a certain attributional increase. While we are setting new heat records each year, many are only now breaking records set in the in the mid-30s for both drought and heat in many parts of the country.[14] We're going to continue breaking them, but if you're a climate denier, this is ammunition in the argument that we do not know if these trends are really something different. As lawyers, we know that any uncertainty can be used be very effectively in undermining beliefs. By the time I'm done, I want them to be able to talk to someone who doesn't believe in climate change and explain to them why they think the climate is changing.

IV. COUNSELING CLIENTS ABOUT THE IMPACTS OF CLIMATE CHANGE

Now, the other part. The second objective of the class is to prepare students to counsel clients about climate change, even if the client does not believe in climate change. We study the form policy for flood insurance and look at how you manage insurance risks for catastrophic wind events. We

12. *Structure of the IPCC*, IPCC, https://www.ipcc.ch/about/structure/ (last visited Dec. 19, 2024).

13. S-Y Simon Wang et al., *Quantitative Attribution of Climate Effects on Hurricane Harvey's Extreme Rainfall in Texas*, 13 ENV'T RSCH. LETTERS 1, 1 (2018); Karin van der Wiel et al., *Rapid Attribution of the August 2016 Flood-Inducing Extreme Precipitation in South Louisiana to Climate Change*, 21 HYDROLOGY &EARTH SYS. SCIS. 897, 898 (2017).

14. Andrew D. King, *Attributing Changing Rates of Temperature Record Breaking to Anthropogenic Influences*, 5 EARTH'S FUTURE 1156, 1157 (2017).

read insurance cases about catastrophic flooding and wind damage because that's the problem they're going to face. I want them to be able to sit down with clients and address these needs with specific information about available insurance coverage, the limits of the coverage, and the likelihood of successfully prosecuting a claim in court. On exams, I usually give an exercise where they would write a climate adaptation plan, say, for a law firm's plan on doing business in New Orleans, based on what we have learned about the risk of flooding by studying Hurricane Katrina.

We have a class devoted to discussing what students need to think about if they want to live in New Orleans. What should your plan be? How do you think about it? Do you buy real estate? What kind of insurance do you need? What's in your go bag? What do you need to know about your firm? If the city floods, will it still be in business? These questions really make it real to them because some of them or their parents have lived through hurricane flooding, including Katrina. It's the real, lived experience that makes the biggest impression. I think that makes the class more effective for them, especially when they can learn from our class and use it in their practice.

Steph Tai:

I won't focus on just climate change, but I think Ed laid out the groundwork well for my part of the talk, which will deepen some of the more structural kind of things that I think we can teach about science in environmental law classes. So, this will be talking about lots of different kinds of areas, for example, toxics, water, and hydrology. But the main thing I think that many students who don't come from STEM backgrounds don't totally get is the methodology of science—right? They think that science is magic. You come up with an answer laying out how there is a lot of uncertainty involved, and I try to lay out structurally what kinds of uncertainties are involved.

One of the things that I mention is that there are limitations to scientific research. There's the budgeting issue that was talked about just now. You can't study things infinitely without an infinite budget. Sometimes students will be like: "Well, why don't we know the full health effects of XYZ?" Well, one, that takes money to study. Two, a lot of environmental effects are very long-term effects. Climate change has a long-term kind of effect, but so do many types of toxic exposures,[15] so do many types of, say, groundwater

15. *Health and Environmental Effects of Hazardous Air Pollutants*, EPA, https://www.epa.gov/haps/health-and-environmental-effects-hazardous-air-pollutants (last updated Mar. 6, 2024).

movement.[16] Because of the timing of these effects, a very long kind of longitudinal study would be required to fully flesh out how we understand them. And so, I tried to emphasize that—the timing of these studies makes it difficult to "magic it out." The longer the study, the more expensive it will be.

The other thing is the nature of the human subject. Now, humans are hard to study for several reasons. One reason is that it's unethical to experiment on us. We've done that, and it was not good. And so we created this whole system of institutional research boards to try to contain any desire to expose people to toxic substances, to have a test group and a control group. We can't do that. So, what do we do instead? A lot of times, what public health people must do is rely upon natural experiments, like looking at a population of people who have been accidentally exposed to a bunch of stuff versus a population of people who haven't. Now, what's the tricky part in that? Well, when these are long-term effects, going backward to identify who's been exposed to that stuff at a certain point in time is difficult, right? So, you must do a sort of forward-looking kind of thing and track forward. Again, that takes time and makes things more expensive. Moreover, not everybody reacts the same way to exposures.

There are things called confounds. What this means is that if you have other types of health effects, it might make the exposure to certain kinds of toxins much worse.[17] If you have some kind of reproductive capacity, you might have different kinds of effects, and sometimes just natural genetic variation can lead to different effects. This is why any large population study can only result in these sorts of percentage-wise things, making things difficult for many toxic tort cases and class action suits. All of this leads to some difficulties in just finding the science that might render the causality certain.

What does that mean for understanding environmental law? I try to get students to understand this in the context of comparison with private tort law, where the standards for causation are quite high. In contrast, with the regulatory state, you can also use risk assessments rather than direct causality demonstrations to create a regulation to address that risk. The other thing that I try to get students to be aware of is that there are many different types of studies. There are longitudinal studies[18] that study long-term exposures to

16. *Natural Processes of Ground-Water and Surface-Water Interaction*, USGS, https://pubs.usgs.gov/circ/circ1139/htdocs/natural_processes_of_ground.htm (last visited Dec. 19, 2024).

17. Theodore H. Tulchinsky et al., *Measuring, Monitoring, and Evaluating the Health of a Population*, *in* THE NEW PUBLIC HEALTH 91, 91 (3d ed. 2014).

18. *Chapter 7. Longitudinal Studies*, THEBMJ, https://www.bmj.com/about-bmj/resources-readers/publications/epidemiology-uninitiated/7-longitudinal-studies (last visited Dec. 19, 2024).

things, but each of those studies might look at different populations in different areas. There are meta studies,[19] which most law students have never heard of, that try to accumulate those studies and come up with a synthesis of them. Those meta studies have some limitations because there are lot of judgment calls in determining which studies to count. But I try to make them aware of the different types of studies out there so that they can sort of weigh this in their heads when they are trying to understand the data for themselves.

The other thing I try to emphasize is that science isn't homogeneous. Each individual scientific discipline has different norms for peer review. Ed mentioned peer review, but different disciplines will have very different approaches to, sort of, what they consider okay in terms of peer review and what they don't. For example, in the past, I've worked with representing climate scientists, hydrologists, and wetland scientists as amici. Climate scientists are much more cautious, at least in their scientific publications, about what they try to state. This is probably because they've been attacked so much, and they bring this out in peer review, but for hydrologists, it's very different. I think students don't necessarily understand that each discipline has its own variety of practice, you know, different types of legal practitioners have their own sort of standard practices. And the only way to understand that is to really do a deep dive into these practices.

V. UNDERSTANDING SCIENTIFIC DIVERSITY AND MODELING

First, let me get into modeling. Ed mentioned modeling a lot and I think a lot of times students don't necessarily understand how modeling works. I worked with general circulation models,[20] but I also worked with ab initio quantum models[21] and the way that these models work is that they tend to get refined, as Ed said. And how does that work? Well, you test it against reality. The less it reflects reality, the more you say, "okay, we need to reconsider these relationships." This develops over time, and a lot of times these models don't just rely upon testing against reality, but they also rely upon other individualized, smaller studies. There's a whole scaffolding effect to building models that I think students should be aware of, and they draw from a lot of different disciplines. I bring up different kinds of ways in which

19. *See, e.g.*, F.O. Adeola, *Global Impact of Chemicals and Toxic Substances on Human Health and the Environment*, 1 HANDBOOK GLOB. HEALTH (2021).

20. *See, e.g.*, Nathan R. Rossman & Vitaly A. Zlotnik, *Review: Regional Groundwater Flow Modeling in Heavily Irrigated Basins of Selected States in the Western United States*, 21 HYDROGEOLOGY J. 1173, 1177–78 (2013).

21. *See, e.g.*, T. Gebel, *Confounding Variables in the Environmental Toxicology of Arsenic*, 144 TOXICOLOGY 155, 159 (2000).

oceanographers and air circulation scientists have worked together to contribute to these general circulation models. The same thing happens with wetlands models for habitat restoration. There are examples of various disciplines contributing to that model. To the extent that the model works or doesn't depend on a lot of these underlying studies and the ways in which the people creating the models accurately incorporate these studies.

That is the ideal purpose of peer review. Say someone creates a new model or extends a model. The idea behind peer review and the idealized idea of peer review is that their peers can critique the sort of potential models, and they might be able to suggest: "Hey, look, you're missing this thing, you forgot about this study, blah blah blah. It's my study." That is always the joke for peer review is that people try to do self-citations out of it. But aside from that joke, you know, putting in these functional studies that might have been missed, might be a way to make a particular model more robust.

The ultimate part is to emphasize that science, at least, is ideally constructed and supposed to be a team business. It works as a team with scientists critiquing things and bringing in different disciplines to build a better understanding of the world, if not a perfect understanding of the world. That said, there are a lot of meta-issues around it. So, scientific funding can mean that certain areas of science get explored or not explored.

For example, (I've seen this outside of the environmental context), there was an early commitment to a certain mode of development of Alzheimer's that is being questioned now.[22] The peer reviewers have cancelled it out for a while because they're like, "no, that's kind of an outlier." This can happen, and students should be aware of that as well. But what the important thing is to look for, is the types of critiques that are out there and to evaluate them.

The other thing I wanted to mention is that I think it's important to juxtapose these issues against dismal science or economics. Because so many times these issues will, for example, be put together in some kind of proposed regulation where the scientists got the scientific background behind it. They've got the economic justification, or lack thereof, behind it. What's interesting is that (at least in most scientific, or STEM disciplines that I have been familiar with) uncertainties are widely reported, which is why science seems so uncertain to the layperson. And if you can characterize that uncertainty, you must try to do that—and if you don't—you get knocked off through peer review. This is not so much the case with economics, it's not as much the norm. What it looks like to a layperson is: "Ooh, these economics are crystal clear." You just pumped everything into a calculator, but that's

22. *See, e.g.*, Edward Joseph Caruana et al., *Longitudinal Studies* 7 J. THORACIC DISEASE E537, E539 (2015).

not how they do it. They just don't evaluate the uncertainties. There's a different way that a lot of times economic models try to capture uncertainty. The way they do this is by running models with different assumptions and then they show the range of those assumptions. So, it's a different way of thinking about it, but I try to characterize that for students so that they don't think: "Okay, well economics is crystal clear." Rather, they have a norm for presenting this variability in which they run a bunch of models with different underlying assumptions, like, for example, that the cost of gas is going to rise at rate A versus rate B versus rate C; and they have ABC, which they model to project the cost of some proposed regulation. This is very different from the way that scientific models—STEM science—work. Basically, in economic models there is less (and again, I might be biased here because I'm a former STEM scientist) of an attempt to match up models with the actual outcome of events. Although there is more of an attempt now, for example, classical economic models have often been criticized for capturing how real-world actors behave.[23] Behavioral economics has arisen in response to urge that economic models should reflect actual behavior.[24] Thus, there has been a movement to change things, but I think that at least compared to the physical sciences, it's much more mixed. Again, I'm biased on this. So, you should take what I say with a grain of salt, but I think it's helpful for students to understand the norms of these different disciplines. That's the two main things I wanted to bring up with respect to the background context for economic and STEM research.

The other thing that I think is helpful for students to understand is that there are resources out there for attorneys. I surveyed a bunch of friends who work at law firms and asked how they get experts, and I talked to friends in government. There are a lot of different ways you can find those experts because students are going to be like, "well, I don't know how to find those experts." If you're at a big nonprofit, you're probably going to have those experts to work with. The main challenge for you is to sort of translate your legal questions into answers, like: "The standard under the Clean Air Act is X." You need to be able know what the relevant science is and be able to convey that to your experts so they can give you valuable information.

If you are working for a small firm and you're trying to represent some kind of company that needs to comply with some kind of permit, how do you

23. *See, e.g.*, MICHAEL BORENSTEIN ET AL., INTRODUCTION TO META-ANALYSIS 9 (Wiley 2d ed. 2021).

24. *See* National Oceanic and Atmospheric Administration, *Climate Models*, GEOPHYSICAL FLUID DYNAMICS LAB'Y, https://www.gfdl.noaa.gov/climate-modeling/ (last visited Dec. 19, 2024) ("A global climate model (GCM) is a complex mathematical representation of the major climate system components (atmosphere, land surface, ocean, and sea ice), and their interactions.").

find an expert? Well, one easy way is consulting companies. Other ways can be via LinkedIn—and I know a lot of folks who use LinkedIn and are recommended experts from similarly situated attorneys. These are examples of resources that are out there. There are also resources for just generally looking at things. For example, the Federal Judicial Center has a bunch of resources for the federal judiciary, including this handbook for science that gets updated about every ten years.[25] This can be also a resource if you are just a general legal practitioner who wants to dig into an issue. The National Academies of Science is often consulted to do the foundational work for rules development and you can look at their reports which are available for free in PDF format.[26] You can look at those reports to get a list of experts qualified under the Federal Advisory Committee Act who have a consolidated understanding of that area. When I tell students about these resources I want them to be aware that they don't have to go at it alone when they start practicing.

The last thing that I think, and then I'll stop after that is that—to the extent that you are at a place where you can get cross enrollment from STEM students or other environmental studies students—I highly recommend doing so. I've been teaching environmental and natural resources law at the University of Wisconsin since 2006. We usually get graduate students from our environmental studies program and law students and environmental studies students will talk to each other. I have a lot of exercises designed where they're forced to talk to each other. The lawyers will be like: "Oh, so that's how you find out how thisSuperfund site is leaching into there, you're doing this and this and this. I didn't know about it." Then, the students will be like, "oh, that's why you hire a consulting company." The grad students learn that lawyers want this information not just for niceties' sake, but to make sure that their clients are complying with the law. The students learn a lot from each other, and I think that it forms a better appreciation of both science on the part of the law and STEM students. I would highly recommend that if ever possible.

Thank you very much. Looking forward to the Q&A session.

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25. *See, e.g.*, Richard A Friesner, *Ab Initio Quantum Chemistry: Methodology and Applications*, 102 PROCS. NAT'L ACADS. SCIS. 6648 (2005) ("The underlying core technology is computational solution of the electronic Schrodinger equation; given the positions of a collection of atomic nuclei, and the total number of electrons in the system, calculate the electronic energy, electron density, and other properties by means of a well-defined, automated approximation (a 'model chemistry').").

26. *See* Peter Reuell, *A New Understanding of Alzheimer's*, HARVARD GAZETTE (Feb. 25, 2015), https://news.harvard.edu/gazette/story/2015/02/a-new-understanding-of-alzheimers/.

Lisa Heinzerling:

Hello everybody. I'm going to talk about a specific form of economic analysis: cost-benefit analysis, and at least how I teach it, which is just one way. I wanted to start by asking why you would include this analysis in an environmental law class? The class syllabi are already crowded with so many statutes and so many concepts. Why would you include it? I'm going to give you several reasons.

The first is executive orders. We heard about E.O. 12866 this morning, which is an executive order requiring agencies to conduct cost-benefit analyses for the most important rules and send them to the White House for approval.[27] Those executive orders have existed since at least the Reagan Administration, maybe even Nixon's, and require cost-benefit analyses of important rules. Most administrations have been pretty strict about this.[28] It's a United States political system mystery that presidents—Democratic and Republican—have adhered to this system of White House review of agency rules according to the cost-benefit analysis criterion. This spans across political and regulatory philosophies, even when the assumptions of cost-benefit analysis are at cross purposes with their policy aims.

It's a bit of a mystery why President Biden stuck to it this time around. In the last couple of administrations, with Democratic presidents, we had a moment when we thought maybe they both would loosen the grip of the White House on rules. If you teach administrative law, this is a really important piece of the process to teach, along with loosening the grip of cost-benefit analysis. But, that didn't completely happen—although I'll talk about a couple of adjustments.

Second, courts have gone from a place where they tended to think that environmental statutes didn't allow consideration of costs, or certainly didn't require it, to now requiring it. The most famous example of this is *Michigan v. EPA* on an air toxics rule relating to power plants some time ago.[29] So you'll see this—even outside of executive orders.

Third, I think cost-benefit analyses raise fundamental questions about environmental protection. The first question asks to what extent do we want to protect humans? Can we say; "We are quite sure that 1,000 people will die if we don't enact U.S. regulation, but, you know what? It's not worth it." Why is it that we conduct that analysis and sometimes say: "No, it's not worth it"—and we don't see the moral quandary that's present in that choice? This

27. *See, e.g.*, Robert E. Ellickson, *Bringing Culture and Human Frailty to Rational Actors: A Critique of Classical Law and Economics*, 65 CHI.-KENT L. REV. 23 (1989).

28. *See, e.g.*, Steven R. Hursh, *Behavioral Economics*, 42 J. EXPERIMENTAL ANALYSIS OF BEHAV. 435, 451 (1984).

29. FED. JUD. CTR., REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 638 (3d ed. 2011).

is an interesting question: How do we conduct an analysis in the face of what we think is going to happen? We've heard, even today, that there is a paramount commitment to protecting public health. Secondly, how much should we protect humans? My co-author, Frank Ackerman, wrote a book called *Can We Afford the Future?* which I thought was darkly hilarious.[30] How much of the future can we afford? How far in the future do we look? How much does it matter? And when you're combating climate change, you are operating under the premise that it matters a great deal that some of the operations of the cost-benefit analysis undercut that premise. So, I think it just raises quite a fundamental question about what we're doing.

I am not an economist and I'm going to talk to you about teaching cost-benefit analysis, and you can be sure that what I say to you is very, very simple. Anyone can do it no matter what you come to the subject with. I started looking at cost-benefit analysis years ago because I came across a table. At that time, I was interested in all the concepts around regulating risk. Every darn article had this table that showed the cost-per-life saved of life-saving regulations. They ran up to hundreds of millions of dollars per life saved and you'd see the table everywhere. And I thought, man, if that's true, then maybe our priorities are kind of wrong. Maybe it is true that we could do something else and save more lives with the money that we're spending.

I looked into it and, wow, that was an education. What I discovered is that the table was about an operation called discounting.[31] The analyst had directly discounted lives saved in the future, usually life saved from cancer with its long latency periods, and had discounted them by 10% per year.[32] I'll get to this in just a minute, but the idea was the benefits became tiny. So, any amount saved that benefits cost would be a huge dollar amount per life saved. When I saw that, I thought I needed to be able to read these documents and understand what they're saying because they're very influential advocacy pieces in the environmental law and policy community. So my pitch to you is to get you at least to the point where you can say there is something fishy here. Then, you're either going to, (like I did), devote six months to figuring out what it was or ask somebody else to get to the bottom of it. I think that is really important.

30. *See generally* FRANK ACKERMAN, CAN WE AFFORD THE FUTURE? (2009).

31. Lisa Heinzerling, *Regulatory Costs of Mythic Proportions*, 107 YALE L.J. 1981, 1984, 1991, 2018–19 (1998).

32. *Id.*

VI. SIMPLIFYING THE COST-BENEFIT ANALYSIS PROCESS

My basic approach to teaching is to keep it as simple as possible. I almost feel sheepish being up here because I'm giving the talk as if I'm some sort of expert. My approach is unbelievably simple. I cover three concepts: quantification, monetization, and discounting. For the quantification part, I think it is useful to discuss some thoughts about quantitative risk assessment that Steph talked about. I think that's very important. David Wirth's work[33] covered it some time ago, but it is still excellent work—having a piece not be about economic analysis (but of course is required because of the cost-benefit analysis I'm talking about) is really quantitative cost-benefit analysis. It's not looking at a set of goods and bads and eyeballing them. It's really quantifying each of them and comparing the benefits and costs columns at the end of day.

I then turn to monetization. Here, I focus on human life. That's the most salient benefit of environmental protection. This focus is often true for air pollution rules. This is the benefit that really packs a punch in cost-benefit analysis, because the numbers are pretty big for the value of life, or statistical life, as I'll say in a minute. A lot of air pollution rules do well at this point in cost-benefit analysis because they usually have to do with particulate matter in some form, and that kills a lot of people. The cost-benefit analysis comes out solidly in these cases.

We will often say the "value of a human life," but that nomenclature is misleading.[34] Let me explain why. I have exhumed some PowerPoint slides from about 20 years ago, and you'll see I kept the actual font and the color the same.

Remember, in those days we had stuff like that. Sans, or no, whatever it is. Comic Sans. So, just think about this scenario: On this slide, we have cartoon Tom, asking cartoon Bob how much Tom would have to pay Bob to allow Tom to kill him.[35] It's all just market transactions, right?

That's the world we're in. Everything can be converted into a market transaction. If you try to measure the value of human life and you do it from the perspective of the willingness on the part of the person to accept certain death in exchange for money, then 99% of people, maybe 100% of people are going to say, "I don't take the deal," right? And I worry about the other

33. David A. Wirth & Ellen K. Silbergeld, *Book Review: Risky Reform*, 95 COLUM. L. REV. 1857 (1995).

34. Lisa Heinzerling, *The Rights of Statistical People*, 24 HARV. ENV'T L. REV. 189, 189, 192 (2000).

35. The cartoon reference refers to a slide presented in the lecture.

1%. No, truly. Most people are not going to take the deal. So, you can't measure it, right? Because it's going to be infinite. There's no deal.

Okay, let's convert it to a different question. Cartoon Tom asks cartoon Bob: "How much would you willing to pay to avoid certain death?" Same basic idea. So, then what do you get? You don't get a measurement of the value of life. You get a measurement of the amount of money that Bob has, right? It's all about the ability to pay all the way down.

This was the conundrum until the invention of statistical life. So, let's not talk about human life anymore. And by the way, let's leave that on the cutting room floor, because actually we're never going to measure the human value of life. I think we talk as though we do, but we don't because we cannot. So here you go. Look at 100,000 people in this big picture of a stadium. They're all willing to kick in and they all face a 1-in-100,000 risk of dying. And they're each willing to pay a dollar to avoid the extra risk. All told, they'll pay $100,000 to save one life. And that's a simple example and somebody is happy in the end, but we don't know who that is. That's the statistical life. It's not a life at all. It's risk. We've glossed over the problem of valuing life, and we're just valuing risk, and I think it's worth getting this across to students. Again, it's not that difficult, but it really raises some of the fundamental, really interesting, and important questions for students to grapple with. That's all I have for the slides. I know, you're so sad.

The second thing I try to do is the valuation part. I do a lot of asides about strange things, for example, we talked about lead this morning in the EPA's cost-benefit analysis of lead. There are weird reversals. What is a "cost?" What is a "benefit?" If you don't lose IQ points due to lead, and you get more education, is that a cost or benefit? It's complicated, and I don't know if it's changed, but the EPA has long viewed it as a cost, right? Because you're spending more money on education, that's going to go in the cost column. Incredible. The point I raise here for you (at least to get your students to begin to think about the question) is does it values all the way down? To me, it's fundamental values all the way down in cost-benefit analysis.

The last thing is discounting, which is the most complicated for students. I feel like I'm crystal clear about it, and I'm not. People always end up confused. One of the things I'm tempted to say to them is something I say to students who are dealing with the kind of important question and an answer that doesn't make sense. I tried to tell them: "You are not confused." This may not make sense. The simplest way to think of discounting is as compound interest in reverse. Compound interest is magical, wonderful, because you take a little bit of money now, and later you have a lot more money, right? You haven't done anything. You just sit there and you have a ton of money, right?

Discounting works the other way. You look into the future; you say we have a big benefit. Maybe if you're saving a bunch of lives or preventing a bunch of illness, and then you discount it back to the present—compounding it in reverse from the past to the present. The magic of discounting is that it makes something really good and big seem like nothing today. It takes away what I regard as one of the fundamental purposes of environmental law—to protect the environment and human health into the indefinite future. In other words, there's not a cutoff date by when we say, "Oh, we don't care anymore, we don't want it anymore," right? What the discounting has is this kind of inexorable quality, just like compound interest, but in reverse. We just keep making those benefits smaller every year and waiting for them to arrive. This again is so simple, but if I can get that across to them, that's enough.

There are a lot of words economists use around how to measure the discount rate, exactly what it should be, and how it should differ across periods of time, and so forth. But, the premise is that the future is worth less than today. People will be richer. That's not clear anymore with climate change. Money will produce more tomorrow than it will if we spend it today, right? There are lots of premises that feel like—especially in the context of climate change—very questionable. That kind of undoes some of the basic premises of environmental law. So, I end up teaching discounting. But, again, with quite a light touch just to get some of these basic concepts.

I have two more things. First, we heard this morning about a new policy guidance on cost-benefit analysis from the Federal Government. There have been some inroads on some of this.[36] One cost-benefit analysis tendency that I didn't mention is ignoring distributional effects and putting those aside and saying, "Oh, we'll worry about those elsewhere, we don't worry about them here." That comes from the basic theoretical premise of cost-benefit, which is that you're trying to achieve something called Kaldor-Hicks efficiency. That is the happy state that occurs when you have winners and losers in a certain public policy situation.[37] The winners win by enough, let's just say, so that they could compensate the losers. It's a very fancy way of saying the benefits are bigger than the costs, right? The winners have enough leftover benefits that they could compensate the losers. And here's the trick. *They don't have to*, so everybody winds up as losers or winners according to the cost-benefit analysis with nobody compensating anybody for the loss. That is a big problem. But, there has been a little bit of an inroad—new guidance.

36. PREAMBLE: PROPOSED OMB CIRCULAR NO. A-4, "REGULATORY ANALYSIS", OFF. OF MGMT. & BUDGET 1.

37. Kaldor-Hicks Efficiency, OXFORD REFERENCE, https://www.oxfordreference.com/display/10.1093/oi/authority.20110803100028833 (last visited Dec. 19, 2024).

It is not certain as to how it'll work out, but they've tried to adjust. Ricky Revesz and this team have tried to adjust the way of looking at the willingness to pay and to adjust for wealth.[38] They've also lowered the discount rates. To me, the philosophical premises remain inconsistent with a lot of the policy agenda of this Administration.

My second point is that I think it's helpful to have a legal context, not just a plain old economic analysis freestanding in environmental law because it's grounding. It gives people a sense of, "oh, I see where this plays out. I see how important it is. I see how it works."

I'm going to give you three possibilities for teaching cost-benefit analysis. One you can cover—which you should cover, but I won't browbeat you—is the White House's regulatory review process. It's like a whole different branch of administrative law. Another possibility arises when the social cost of carbon estimated by this Administration finally comes and is inevitably challenged. Lastly, and this is so intriguing, comes Our Children's Trust's recent challenge to federal policies on discounting and their inconsistency with the Equal Protection Clause.[39] The notion is that discounting from the future in this way, of course, disproportionately disadvantages the population that has the longest to live and who has nothing to say about the political system. That might be an interesting place for you to insert legal analysis. The case is called *Genesis B. v. EPA*.[40] And that's it. Thanks so much.

VII. Q&A SESSION

Mark James:
We have 20 minutes for Q&A.

Audience:
Thank you for this, it is incredibly informative. I guess this question is for everybody. Could you talk a little about if you have class exercises, homework assignments, or something that you give the students to have them sort of work through this? You spoke a little bit about how you contextualize

38. RICHARD L. REVESZ & MICHAEL A. LIVERMORE, RETAKING RATIONALITY: HOW COST BENEFIT ANALYSIS CAN BETTER PROTECT THE ENVIRONMENT AND OUR HEALTH 1 (2008); RICHARD L. REVESZ & MATTHEW R. SHAHABIAN, CLIMATE CHANGE AND FUTURE GENERATIONS, 79 (2010).

39. *Genesis v. EPA*, OUR CHILDREN'S TRUST, https://www.ourchildrenstrust.org/genesis-v-epa (last visited Dec. 19, 2024); *see generally* Complaint for Declaratory Relief, Genesis v. EPA, No. 2:23-CV-10345 (C.D. Cal. Dec. 10, 2023).

40. *Id.*

it in the lab, but I'm just trying to think for myself how I would, as a practical matter, work through this.

Steph Tai:

I always have students read one draft regulation and comment on it. This gets them to go through the draft regulation's scientific background, cost-benefit analysis, and all that. While they write their comment however they want, I get them to analyze those sections so they understand how the agency is struggling with it and how to reflect upon it if they are a challenger or supporter.

Ed Richards:

I show the students a documentary called *The Regulators: Our Invisible Government*[41] and if you don't know about it, you should Google it and watch it. It is a PBS documentary shot in 1979 about making rules under the Clean Air Act amendments that dealt with the vistas in the national parks. Don't ask me how, but the Carter Administration gave permission for the camera crew to sit in agency planning meetings with the scientists and lawyers.

They're sitting in the precursor to the Office of Information and Regulatory Affairs (OIRA), meeting with Jim Tozzi, who starts the OIRA process. The film shows the arguments about the statute and the politics that went into making the rule. It is the best thing I have seen on getting a sense about environmental rulemaking, even though its 40 years old. It shows the backstory of the rulemaking process and the values and the fights that go into this process. I don't have students write comments to proposed rules, but we pick apart a new reg, such as the Clean Power Plan. We go through cost-benefit and the legal justification, parsing it out in class and looking at all of the pieces. I also give them pleadings and briefs to read. We do this by asking what documents a lawyer would use, how to argue, and how the 5th Circuit would never let you have standing.

Steph Tai:

Superfund exercises are also really good for students, especially in terms of splitting up the costs and stuff. There are different private parties. For example, if you're all contributing a mix of chemicals to a Superfund site, how you would look into the mix of chemicals and the amount of pollutants? How would you trace that and make the economic and scientific arguments to the contribution in terms of negotiations?

41. REGULATORS: OUR INVISIBLE GOVERNMENT (PBS 1982).

Audience:
The students like arguing with each other?

Steph Tai:
Yeah.

Ed Richards:
There's a couple of good problem-oriented books. Todd Aagaard's book comes to mind, where they've got exercises.[42] There's one exercise on the various participants to the Chesapeake Bay Pollution Reduction Plan. There's roles for them to play so their state can maximize the crap it puts into the Bay.

Steph Tai:
I like ones where there are multiple parties because that is how a lot of environmental law works.

Ed Richards:
All of them have different interests.

Mark James:
If anyone in the audience has a great assignment that they do, you can share too, we're here to take suggestions as well.

Audience:
I designed an environmental justice negotiation for clinical class where we're using examples of Confined Animal Feeding Operations as kind of the grounding thread for the disparate topics that we address within our clinic seminar. The final thing that they do is an in-class negotiation where they're assigned different roles of different environmental groups to show the often-present tension in our own communities over, you know, the potential tradeoffs and the potential benefits. This gets them thinking about distributional effects, whose voice needs to be magnified, and things like that. These questions add a more complicated wrinkle to some of the traditional negotiation exercises—one that leaves students kind of dizzy as they try to get their head around the fact that there could be infighting.

42. DAVID OWEN & JUSTIN PIDOT, PRACTICING ENVIRONMENTAL LAW (Foundation Press 2d ed. 2021).

Audience:

That's good idea because in Hawaii there are often conflicts between environmental groups and Native Hawaiian groups.

Audience:

First, thanks to all the panelists for their personal experiences. I have a STEM background and sometimes I just sort of punt and say, well, okay, here's our carbon dioxide molecule that absorbs infrared radiation, and it can bend straight, but that's just for your interest.

This is an amusing thing Lisa remined me off when she mentioned quantitative risk assessment. This is one area I don't let up with my students. Quantitative risk assessment is so important to all of these statutes. I still remember when I first started teaching this material. I put up a dose response curve (there weren't slides at the time, it was on the blackboard). I got audible gasps from the students as if they were saying, "you can't possibly expect us to know this sort of thing." My sort of knee-jerk reaction was, "and you can't read a graph?"

I still haven't really solved how to present annotative risk assessment in a useful way. I took a graduate course at another institution in quantitative risk assessment, and it helped me a lot. But it didn't help me really teach it because it's just more and more complex the further you go. So, I was wondering if anybody had any experiences with that. Because for students that are quantitatively challenged, when they come into the classroom, I don't know exactly what I can do—not just to make them more comfortable, but also to get them to actually work with these numbers. Maybe people have suggestions. I'd appreciate anything you can offer.

Lisa Heinzerling:

I do simple stuff there.

Audience:

I was wondering how it worked with your approach. I would think philosophical framing would be the best way to get them into this. When you start posing this as some sort of basic values question or philosophical premise, it might be enough of a hook to engage them.

You're right, they should be able to read the graph. To me, it isn't necessarily so much a question of their inherent ability to engage with it so much as it is a psychological block: "Oh, I'm a law student, you put numbers up, I don't do numbers." This framing is helpful for me.

Ed Richards:

There is the ultimate old-fashioned response which is you tell them: "It's on the list for the final, so figure it out." Although in our consumer-oriented world, that's not very popular.

Audience:

My other suggestion is,"it's not on the exam. You don't have to know how chlorofluorocarbons destroy the ozone layer. I'll tell you, but you don't have to reproduce it."

Ed Richards:

Got it. I have to be clear to the class that they don't have to do science on the exam. We're going to go through this process, but they're not going to have any chemistry on the exam.

Lisa Heinzerling:

I think it's nice to have a legal context. I don't know how you introduce it, but I often use the Benzene case because you can easily teach against what the court did and assume the positions they took.[43] I don't teach them cost-benefit or quantitative analysis in any meaningful sense, but I do teach both.

Steph Tai:

Wendy Wagner has some good critiques on the matter.

Lisa Heinzerling:

Oh yes, I have the students think through the critiques.

Audience:

I'm curious about your thoughts on where in the curriculum this kind of instruction would ideally happen. I teach a climate class and I'm very reassured to hear you talk about how hard it is to teach the discount rate and have them understand it. This is because I feel like I gave it my best shot. I don't think they got it and there's just so many foundational skills (we'll talk about this in the Climate Affinity group for people who come to that) that I feel like I must cover basic climate law, whether it be economics or various quantitative risk assessment and modeling. In some ways, I wish I could require them to take a prerequisite before they take the class. And so, I wonder, do you think that the basic environmental law class should cover this?

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43. Indus. Union Dep't. v. Am. Petroleum Inst., 448 U.S. 608 (1980).

We recently created a quantitative analysis requirement for our Masters policy student (at least the ones focusing on climate, and it's new, so we'll see) but I don't think many of our law students would opt to take it). However, I think they would do so much better in all the environmental electives if they did take such a class. Where do you think these teachings would belong?

Ed Richards:

Can I make a more global complaint about law schools which has plagued me for decades: it's the lack of prerequisites. It's the lack of logical structuring of curricula. It's a complete hit or miss. Law schools don't require students to take administrative law but teach environmental law without students knowing administrative law. If the students had a common background in administrative law from the first year, the upper division environmental law courses would be more effective. The basic administrative law class is a good place to do cost-benefit analysis. In administrative law we look at the study you're talking about and critiques, because cost-benefit cuts through everything in admin law. There's a website of the history of OIRA and a bunch of things about regulatory budget that you can use, but you would not have to duplicate it in environmental and climate change law.[44]

You could take a certain set of courses in sequence and waste less time repeating what should have been in other courses. Vermont might be the place to do it. At Vermont Law and Graduate School, our environmental unit requires environmental law as an early requisite to upper environmental courses.

You do administrative law, environmental science, you get tools, and take the specific courses, because otherwise all the courses overlap. I could teach 30% more in climate change law if I didn't have to teach administrative law in the process.

Steph Tai:

Yeah, I do find that annoying as well. I do try to incorporate a brief introduction whenever there's a case that involves these topics. Oftentimes I must repeat myself throughout the course because quantitative risk assessment is going to come up in a few different contexts. So, I try to bring it up in that kind of fashion, but I do think that there are other ways to go

44. *Information and Regulatory Affairs*, OFF. OF MGMT. & BUDGET, https://www.whitehouse.gov/omb/information-regulatory-affairs/ (last visited Dec. 19, 2024); *Office of Information and Regulatory Affairs*, OFF. OF MGMT. & BUDGET, https://obamawhitehouse.archives.gov/omb/oira (last visited Dec. 19, 2024).

about it. University of Wisconsin used to have an environmental law certificate which died because of the credit restricting effect of Wisconsin's diploma privilege. But now the University has been like: "Okay, well, we're going to revise certificates and just put a sustainability certificate in and that's in our environmental studies program." So, students are getting interested in these fields which have a quantitative requirement. If they want an extra badge showing they have more sustainability in their background, they can take a mixture of classes that combine social, quantitative, STEM sciences, and other classes to get that certificate.

I think that actually works slightly better than doing it within the law school, given our diploma privileges barrier. I think there's a lot of different ways to incorporate more STEM training for lawyers. I know that some schools have accounting for lawyers. That might be something where we could consider having an environmental science for lawyers. I know that there's a hydrology handbook for state judges.[45] Water scientists and water science societies put this handbook together. I don't see why we can't have the same kind of thing for environmental sciences. We just need to people to put it together.

Lisa Heinzerling:

Generally, in my classes, I like to get into the cases as soon as possible—really into the middle of it—instead of covering a lot of background stuff at the beginning. I do this because I don't know how much background they absorb and I'm not as excited by it. I think this is partly because students are taking a class usually to learn the law. I just think it works to intersperse it and to meld it into the law.

Mark James:

I have seen professors who would do the background stuff as a recorded lecture early in the semester in 20-minute or 10-minute chunks. If the student wants to go back and look at all the chapters, they can. If the students need to refresh on two or three of them, then they're able to do that. But, if you're going to create a system where you expect people coming into it to have background knowledge, then you need materials for that—or supplemental stuff. One of my questions for Ed was: Are there materials you direct students to if someone says: "I still don't get it. I sat through your class. I've done the readings, asked questions, and I still don't get it. Can you point me to something else?" It's a question I get a lot, especially as we deal with energy

45. *See generally* HYDROLOGIC MODELING BENCHBOOK, THE NATIONAL JUDICIAL COLLEGE AND DIVIDING THE WATERS (2010).

regulation and markets. There are great 7-to-10-minute videos that the Regulatory Assistance Project puts out that people can watch and come back and talk about. It would be helpful if people have good scientific or economic videos where someone can sit down and watch for five minutes intermittently. If you take any of those suggestions, they're very helpful for that. It's kind of like an evolved version of Khan Academy, where they can go back and look at various things.

Ed Richards:

The students really like the videos. They can go back and watch them. It's more oriented towards the way they think about things.

Audience:

I just want to share one thing that I've done in the clinic seminar that students have given me surprisingly positive reactions to. We just put up either a Clean Water Act or a Clean Air Act permit and spend the hour puzzling it through, asking: "Do you know what this provision means?" And then, sometimes, you get students in those discussions who have a technical background. They may have an environmental science background, and so they start to explain it—making it more of a discussion. That's very much what happens in practice, right? If you get a file or something, you have to puzzle through it and sort it out. So, sometimes doing that together collectively has been effective.

Lisa Heinzerling:

When you say you put it up, do you mean you post the whole permit?

Audience:

I have them look at it beforehand. We then put it up on the screen and go through the different parts of it so there's something they like about puzzling through this stuff—even if they're not so inclined to be the STEM person and have the encyclopedic knowledge of it. That's an interesting reaction. I wasn't expecting them to like it as much.

Ed Richards:

They are always desperate for what looks like real lawyer stuff.

Steph Tai:

But for some reason, this seemed to work to get students to be less scared of risk assessment by taking it out of the regulatory context. Say you're a lawyer for a new tech company, trying to do this green tech thing, but you're

worried about litigation involving some particular potential risks. How do you need to negotiate a package with the litigation insurance company? I then have people play the litigation insurance company and they're supposed to do their own risk analysis to assess the packages. For some reason, talking about it in that context is less scary, but it may be because they associated insurance with risk already and that's normal. I don't know. I don't know why that works but doing it in the context of insurance is okay for some reason.

Mark James:
Did you have a question or comment?

Audience:
I was just curious, you know, I taught environmental law for the first time this last year, and while trying to talk about uncertainty in the middle of dealing with one of the statutes, we pivoted to talking about the adequate margin of safety language. You're going to set a standard of error exposure, air quality standard, or a water quality standard at a certain level with an adequate margin of safety. I then think about how you translate that into more discussions of uncertainty or risk analysis. I'm really interested in how you think about the economics and cost-benefit analysis for that additional layer of safety. I'd love to hear your musings on that topic!

Lisa Heinzerling:
I've often used that example in the risk assessment context over the years as well. I've gone back and forth over the years over a couple of them. I don't always do this, but you could then pair it, because at the end of the day, you have some estimate of risk, and it often will be both death and illness. And then, if you think about it: what can you say about the monetary value of those different consequences?

Audience:
Our class discussion really focused on how this comports with the major questions doctrine. If you're thinking about doing something that is beyond the specific explicit mandate of the statute that is still within that ambit of the buffers that you're supposed to be able to provide, then is that a way of addressing the major questions doctrine, and what kind of support would you need to be able to demonstrate that to a court, or to lawmakers, or in the regulatory process?

Steph Tai:

I might bring this up in the context of (and this is a bit of a self-plug), the Institute of Medicine panel on environmental decision making under uncertainty,[46] and we actually addressed this in a categorical kind of way. Things like "within adequate margin of safety," buffer language like that, we treated these as tools to address scientific uncertainty and the developing state of scientific knowledge. There are also other tools to address this, like statutory ones for agencies. I think that's also a tool to deal with scientific uncertainty and developing scientific things. So we approached it more like a toolkit of ways in which Congress and agencies could deal. For example, if you're doing less in terms of rulemaking, you might consider a permit requirement that requires reapplication within a shorter timeframe or the implementation of continuous monitoring. These are other ways to deal with scientific uncertainty and continual development.

Ed Richards:

If you're working on climate, the Intergovernmental Panel on Climate Change reports have explicit discussions about how they deal with uncertainty. It's useful to go back to the first report and then look at the later reports to see how they reached the threshold for greater certainty as they go through the reports.[47] This is a dynamic process. It's worthwhile getting the students to dig into the summaries for policymakers, in particular.

Audience:

That could be an opportunity. Earlier, we were talking about introducing students to how people conduct these kinds of public health assessments in agencies. It is difficult if you're not looking at a carcinogen dose response curve where you know the $PM_{2.5}$ level of risk. Historically, agencies have used safety factors through translating what the risk is regarding animal and human cancer risk studies. It is a factor of ten for variation from an animal species to humans, then the same factor within humans. It's something they use, and I think people can grasp that. But humans aren't rats, and that study was done in rats. I guess I'd figure out whether you know if it was a risk to

46. INSTITUTE OF MEDICINE OF THE NATIONAL ACADEMIES, ENVIRONMENTAL DECISIONS IN THE FACE OF UNCERTAINTY 1 (2013).

47. G. MCBEAN & J. MCCARTHY, NARROWING THE UNCERTINITES: A SCIENTIFIC ACTION PLAN FOR IMPROVED PREDICTION OF GLOBAL CLIMATE CHANGE 317 (1990) (first assessment); IPPC, GUIDANCE NOTES FOR LEAD AUTHORS OF THE IPCC FOURTH ASSESSMENT REPORT ON ADDRESSING UNCERTAINTIES 1 (2005) (fourth assessment); IPCC, GUIDANCE NOTE FOR LEAD AUTHORS OF THE IPCC FIFTH ASSESSMENT REPORT ON CONSISTENT TREATMENT OF UNCERTAINTIES 1 (2010) (fifth assessment); IPCC, THE CONCEPT OF RISK IN THE IPCC SIXTH ASSESSMENT REPORT: A SUMMARY OF CROSSWORKING GROUP DISCUSSIONS 1 (2020) (sixth assessment).

them, then if it's a risk to us. Then you build in safety factors. And then the OIRA is where you unpack what the cost and benefits are, even if you're not supposed to under that part of the Clean Air Act. You look at it because you've got to have adequate margin of safety or an ample margin of safety for toxics. Well, that's really interesting. Where does that come into play if you're not really supposed to use that in your decision making under the statute. The other thing you might think about is having the students look at some of the summaries from the Clean Air Science Advisory Committees.[48] That's like the equivalent of IPCC, but more for criteria air pollutants and see what they had to say. Sometimes they're minority views that we don't go far enough in protecting public health or that we're giving the most recent science it's due or not, you know. That allows you to incorporate it into the stuff you're going to have to cover in the environmental law survey course, like the Clean Air Act, but it also gets you some of those concepts. It goes without saying that we're going to have a day where we're going to teach you all these concepts and these methods. You know you can try to get it in when you're dealing with that particular statute.

Mark James:

Thank you. We have many more questions to talk about, but no more time to do it. Thank you to our panelists and to our audience for a most excellent discussion.

48. *Clean Air Scientific Advisory Committee (CASAC)*, EPA, https://casac.epa.gov/ords/sab/r/sab_apex/casac/home (last visited Dec. 19, 2024).

PANEL THREE: TEACHING AT THE INTERSECTION OF FEDERAL INDIAN LAW AND ENVIRONMENTAL LAW COURSES

Mia Montoya Hammersley,[*] Vanessa Racehorse,[**] Heather Tanana,[†] Nadine Padilla,[‡] and Gerald Torres[‡‡]

ABSTRACT

A discussion of the important role of Federal Indian Law in the practice of environmental and natural resources law and guidance on incorporating this intersection into traditional environmental law courses and curricula.

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[*] Mia Montoya Hammersley is the director of the Environmental Justice Clinic at Vermont Law and Graduate School. She is a member of the Piro-Manso-Tiwa Tribe in New Mexico. She is also a Yaqui descendant. She appreciates hearing from everyone at the conference and the reasons why they came to this work. She tells her students that power and control over natural resources are at the root of many aspects of how the legal system is structured, and that federal Indian law is truly at the heart of much of it.

[**] Vanessa Racehorse is an Associate Professor of Law and a core faculty member of the American Indian Law Program at Colorado Law. Her teaching and scholarship focus on American Indian & Indigenous Peoples law, human rights, international law, and environmental justice. Racehorse is a member of the Shoshone-Bannock Tribes and a descendant of the Cherokee Nation and Shoshone-Paiute Tribes.

[†] Heather Tanana (JD/MPH) is a citizen of the Navajo Nation and Visiting Professor of Law at the University of California, Irvine. She is experienced in state, federal, and tribal courts and clerked for Judge Nuffer at the U.S. District Court for the District of Utah. Heather's research interests include exploring the overlay between environmental and health policy in Indian Country. Much of her work focuses on tribal water issues, from climate change impacts to Colorado River management. She leads the Initiative on Universal Access to Clean Water, which seeks to bring awareness to the lack of clean, safe, and reliable drinking water in Indian Country and to make tangible progress on securing water access for Native communities.

[‡] Professor Padilla teaches courses at the intersection of Indian Law and Environmental Law, including Indian Water Law, Tribal Natural and Cultural Resources Law, and Environmental Justice. She also teaches in the Natural Resources and Environmental Law Section in the Law Clinic. Her research focuses on environmental issues impacting tribal communities, including uranium issues on the Navajo Nation, the protection of sacred sites, and the federal government's trust obligations to tribal nations as it relates to ensuring healthy and safe environments for tribal communities. Nadine Padilla is Navajo and Pueblo (Isleta/Laguna) from Bluewater Lake, NM.

[‡‡] Gerald Torres is Professor of Environmental Justice at the Yale School of the Environment, with a secondary appointment as Professor of Law at the Law School. A pioneer in the field of environmental law, Torres has spent his career examining the intrinsic connections between the environment, agricultural and food systems, and social justice. His research into how race and ethnicity impact environmental policy has been influential in the emergence and evolution of the field of environmental justice. His work also includes the study of conflicts over resource management between Native American tribes, states, and the federal government.

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INTRODUCTION

Mia Montoya Hammersley:

I'm so pleased to have the honor of moderating this panel. I'm grateful that all of you made the trek out to Vermont to provide your expertise with us today. I want to start with just a few statistics. Indigenous people make up about 5% of the world's population, but many studies show that they're safeguarding approximately 80% of the world's biodiversity.[1] Here in the United States, there are 574 federally recognized tribes and tribal reservations that make up over 56 million acres, which is roughly 2.3% of the country's total land mass.[2] So, taking into consideration the fact that ancestral territories are much larger than that, tribal nations are major players when it comes to public land management, including water law and mineral rights. Yet, Federal Indian Law is often treated as a distinct and separate discipline from environmental law when it comes to developing curricula and courses. Today, our panelists are going to share some advice on how to incorporate this knowledge into environmental law courses and discuss the importance of training the next generation of environmental law and Indian law advocates. With that, I'm going to let each of them introduce themselves, and then we will have several rounds of questions. Nadine, we will start with you.

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1. Anna Fleck, *Indigenous Communities Protect 80% of All Biodiversity*, STATISTICA (Jul. 19, 2022), https://www.statista.com/chart/27805/indigenous-communities-protect-biodiversity/; BLAIR TREWIN ET AL., AUSTRALIA STATE OF THE ENVIRONMENT REPORT: CLIMATE 61 (2021).

2. Manion A. Schwartz, *The 574 Federally Recognized Indian Tribes in the United States*, CONG. RSCH. SERV. (Jan. 18, 2024), https://crsreports.congress.gov/product/pdf/R/R47414; *see generally* Yukio Lippit, *About Project 562*, PROJECT 562, https://www.project562.com/about (last visited Dec. 19, 2024).

Nadine Padilla:

Hi everybody. Thank you so much for having me today. Being on this panel with my friends and colleagues is an honor. My name is Nadine Padilla. I'm an assistant professor at the University of New Mexico School of Law. I teach both in the clinic and in the classroom. I co-lead the Natural Resources and Environmental Law Clinic section. I also teach courses at the intersection of Indian law and environmental law, including Indian Water Law, Tribal Natural and Cultural Resources, Environmental Justice, and, of course, in the Clinic.

The study of natural resources and environmental law has always been very important to me. I spent about ten years working as a community organizer in New Mexico, in Navajo and Pueblo communities, on sacred sites protection. I primarily worked against uranium development on sacred sites in New Mexico. For me, these issues are more than just environmental issues. It's about our identities and who we are as Native people; protecting our lifeways, our ceremonies, and things that are culturally important to us. That's what drove me to go to law school, practice, and now teach in this area. Thank you for having me.

Vanessa Racehorse:

Hi everybody, I'm Vanessa Racehorse. I'm a member of the Shoshone-Bannock Tribes, as well as a descendant of the Cherokee Nation and the Shoshone-Paiute Tribes. I taught with Nadine Padilla at the University of New Mexico (UNM) School of Law for the past two years. But this August, I'll be starting at Colorado Law School teaching in the American Indian Law Program. At UNM, I taught a number of different courses in the Law and Indigenous Peoples Program, from Indigenous Peoples and International Law, to the Law of Indigenous Peoples. I just wrapped up a semester teaching Indian law, but all of my courses have a segment that touches on environmental law: water rights, treaty rights, and rights of nature laws. I was really driven to incorporate information that's also relevant to my own Tribes.

For example, the Shoshone-Bannock Tribes have a handful of different environmental law cases. They have a number of Superfund sites that are sort of close to the reservation and implicate their treaty rights.[3] I also emphasize

3. *See* FMC Corp. v. Shoshone-Bannock Tribes, 942 F.3d 916, 944 (9th Cir. 2019) (upholding Tribal court jurisdiction over operator storing hazardous waste on the reservation); Shoshone-Bannock Tribes v. Daniel-Davis, No. 4:20-cv-00553-BLW, 2023 WL 2744123, at *4 (D. Idaho Mar. 31, 2023) (finding a land exchange with polluter who created superfund site did not comply with federal law and

treaty rights, which has a heavy correlation with environmental law and environmental justice issues as well. I also talk a lot about the rights of nature laws in my research and scholarship. Thank you all for having me and I'm excited to have this discussion.

Heather Tanana:

I'm Heather Tanana. I'm a citizen of the Navajo Nation. On my father's side, my clans are the Kinyaa'áanii (Towering House) and Tsi'naajinii (Black Streaked Wood People). On my mother's side, I am of European descent. I was at the University of Utah for several years with the Stegner Center in a research faculty position. Last summer, I moved out to Southern California to join the University of California, Irvine, as a Visiting Assistant Professor. I currently teach Torts and the equivalent of Federal Indian Law—we can talk about terminology and how it has shifted over the years, but I chose to call my course Tribal Nations and the Law. For people who are following recent decisions, there's a really cool trespass case where the tribe was awarded nearly $400 million against a railway transporting crude oil across the reservation. So, Federal Indian Law pops up everywhere in environmental issues. Another big project I'm leading is the Universal Access to Clean Water Initiative, which focuses on water insecurity in tribal communities, accessing federal fundings (particularly with Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act (IRA)) to help tribes close the water gap and build infrastructure projects. For the last five years, my work has been very tribal-water focused, but in general, I love the intersection of the environment, public health, and Federal Indian Law. For many of the Native law professors and attorneys out there, we got into this work because it's directly impacting our communities and we wanted to elevate the well-being of our communities. That definitely underlies all my work and trying to raise awareness of Native Americans in this country.

Many people wouldn't know if you asked them how many federally recognized tribes there are. They wouldn't know that we just got federal recognition of a tribe for the first time in Illinois. They don't know what rights tribes have, so a lot of this is just basic history education as well. It's wonderful to be here, and I'll pass to Gerald Torres.

Gerald Torres:

I'm Gerald Torres. I'm on the faculty of the Yale School of the Environment, Yale Law School, teaching the basic Federal Indian Law class.

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was a breach of the federal government's trust responsibilities), *cert. granted*, Appeal Nos. 23-35543, 23-35533.

Also, I'm not endeavoring to get fired. I assume that there will be push-back because what I've tried to do is to originate a number of new courses related to Native issues, both with the law school and the Yale School of the Environment. We started a clinic, basically a tribal resource management, or co-management, clinic. We run that out of the law school and the school for the environment. We also have an advanced Federal Indian Law class. We have a class on Indigenous and tribal governance in the American Constitutional Order Seminar, which primarily tries to look at the treatment of Indigenous people in the Pacific. Last semester, we had a class co-taught between Yale and the Salish Kootenai College. We were trying to link with a lot of the tribal colleges to address resource issues effectively.

We also had a two-part class. It was a class with 12 students from Salish Kootenai College and 12 students from Yale and then the two-hour class. The first hour was a webinar on the topic and we had 3,700 people signed up for the webinar, so there's clearly an interest out there. I don't think you can teach environmental law and not think about Federal Indian Law and tribal law—you just can't. But especially when you think about the way the Department of Interior is organized, they regulate public lands and people. In fact, there's a vast overlap. But if you live in Minnesota, there's a tribal ethos that you can pick up. My friend Phil Fricky and I tried to identify all the Native lawyers in the country, and at the time we could identify 500. Five hundred is not enough. We started to create opportunities for more Native people to go to law school. Now we're trying to replicate that in the natural resource area. So, that's what I do. Water, of course, is a big factor. I haven't taught the basic environmental law course in a really long time. I'm sure we all paid our dues, though.

I. FEDERAL INDIAN LAW IN THE CLASSROOM

Mia Montoya Hammersley:

It's really exciting to hear about all of the different areas that you all cover. The panel started to answer this question already, but I would love to continue talking about some of the other courses or areas of law that overlap with Federal Indian Law—perhaps some areas that people may not expect.

Vanessa Racehorse:

I'll go ahead and start, if that's alright. I like to say that Indian law is all-encompassing. It's arguably the most all-encompassing area of law because it touches on property, environmental, criminal, and family law; pretty much any law school course that is being offered, you could probably incorporate Indian law into it as well. I've taught seven or eight different classes like

Indian Law Appellate Advocacy, International Law and Indigenous Peoples, and American Indian Children, and Youth and Families Law. As a practitioner—before joining academia—I was representing Native American tribes and became a jack of all trades. This is why I was teaching a variety of different courses: I've handled child welfare cases, worked on water law issues, I've done code development, and so on. I think that it's a really enriching experience for students to explore these different topics through a different lens. It sort of opens up this brand-new world for them. I should also mention that I do teach tribal law, so that course in particular teaches students somewhat of a different paradigm; the way to think about legal frameworks that go beyond just the Western legal framework, even though there are certain parallels.

Heather Tanana:

One thing I just want to make sure people are aware of (if they haven't seen it yet) is Dylan Hedden-Nicely's work at the University of Idaho. A couple years ago, he put together a webinar series about how you can incorporate Indian law cases into different courses;[4] obviously environmental law, but others like family, civil procedure, and property. Historically, law schools have only offered one class inclusive of Native issues—Federal Indian Law. I think we need to normalize it more for students, in the same way you want climate justice or environmental justice to be talked about in environmental law, property, and contracts classes, too. We should also be doing that with Indigenous peoples and their laws—making it more of an everyday conversation outside of the niche areas. Particularly, if you're in the West, you're going to encounter tribal issues somewhere and having our students be better prepared for that can go a long way.

Gerald Torres:

I forgot to mention that I also teach a course on environmental justice and climate justice. It's one class that intersects with a lot of these issues. The seminar that I mentioned, Indigenous and Tribal Governance, and the American Constitutional Order that arose, starts with the Insular Cases instead of the trilogy. What occurred to me was that the Insular Cases were at that moment in American legal imagination when we kind of, self-consciously, became a colonial power. A lot of what I've discovered is that many of the statutes that are litigated under Federal Indian Law (putting aside

4. *Upcoming Sovereignty Series Events*, UNIV. OF IDAHO COLL. OF L., https://www.uidaho.edu/law/news/upcoming-events/sovereignty-series (last visited Dec. 19, 2024).

the treaty cases) arose during that same period when Congress was clearly operating as a colonial government. And what I've tried to do is to figure out is what does the federal government think it's doing? It gives you a new insight into the colonial aspects of Federal Indian Law because you know if you read the Insular Cases, they're just an embarrassment. But they're still law. I mean, who's the highest appellate court in some nations in the Pacific? Anybody have an idea? The Secretary of the Interior. I didn't realize he was an Article III officer. So, you get weird things like that and want to ask, why did this develop like this? What are the forces? For me, it gives me a different insight into the statutes that were passed between 1870 and 1935. What originally started it was thinking about Native Hawaiians because Native Hawaiians and the Native people in the Southwest came under federal jurisdiction virtually at the same time, with about 15 years' difference.

But, of course, the Native people in the Southwest are Indians, but Native Hawaiians are not. Those legal categories matter, and they matter for a lot of reasons. So, I wanted to explore that tension, that distinction, and then that of course, carried out to the rest of the Pacific. However, then you're in an Alice in Wonderland world, or would be, if it weren't so bitter and cruel. That's the way it intersects with federal issues that arise in Indian law and, as you said, with basically every class. And I don't teach any tribal law because I don't know enough. So, you want to talk about teaching tribal law? There's a book. Matthew has a book.[5]

Nadine Padilla:

Also, I'll just add that for my Tribal Natural and Cultural Resources class, we start out with a bit of constitutional law and looking at the First Amendment and the free exercise of religion as it relates to tribes trying to protect their sacred sites. Just to point out some of the cases that overlap in constitutional law, there's the Oak Flat issue that you might be familiar with, another case when the Navajo Nation and community members were trying to protect the San Francisco Peaks in Arizona from a proposed ski resort—that was also a constitutional law case.[6] In that Tribal Natural and Cultural Resources class, when we look at sacred sites protection, we start with looking at the First Amendment and the Free Exercise Clause.

5. MATTHEW L. M. FLETCHER, FEDERAL INDIAN LAW (West Academic 2016).
6. Navajo Nation v. U.S. Forest Service, 535 F.3d 1058 (9th Cir. 2008).

II. LANGUAGING AND TERMINOLOGY

Mia Montoya Hammersley:

So, we use a lot of different terminology to describe what we do in the courses that we teach. I think it would be helpful if you all could give us some insight and maybe walk through some of the important distinctions in this field or important terminology that you use. I know I've had students who were a little concerned that saying "Federal Indian Law", or saying "Indian," was offensive terminology, so I walked them through the fact that "Indian" in the context of law is a legal term of art. Maybe don't go around saying that to individual people, obviously, but here it has a specific purpose. Would you all be willing to speak to that?

Heather Tanana:

Vanessa and I were actually talking about this last night. About 15 years ago, I helped start the Indian Law section of the Utah State Bar. They didn't have one yet, despite having eight federally recognized Tribes in the state. At the time, we were trying to decide on the name for the section, but we did not have Native Hawaiians or other Indigenous group members engaged. So, we decided to move ahead with the "Indian Law section" because that was the term used in the law and our community at the time. Flash forward, I think if we were to decide on a section name today, we probably would have gone with a different term. First, because you want to grow and take advantage of partnerships and allyships with other Indigenous groups; but also, I think there's a movement started by the younger generation that does view "Indian" as offensive and who prefers to identify by another term. Now, that's not what my dad or grandparents would say; I'll be really clear about that. They would say, "I'm an Indian." There are similar debates on other issues, like mascots. Some, particularly the younger generation, are very strongly opposed to "Indian mascots," but some of the older generation may not care or see it as offensive. Overall, I think we're seeing a change—a momentum and movement to use different language—so I call my course Tribal Nations and the Law, instead of Federal Indian Law. Language is something I have been thinking about, as well as how we might shift the terms used in new statutes. It's going to be a challenge, I think**,** because "Indian" is pervasive in federal laws, but we have to change it somehow, right? And then of course, one of the best approaches is to refer to the specific Tribe (e.g., Diné). When talking about cases, we should refer to the actual tribe we're talking about by tribal name.

Gerald Torres:

I agree with that, but one of the things that students need to understand is that even though it's a specific tribe that's in the litigation, the law's going to apply to all the tribes—usually. Vine Deloria was giving a talk one time, and when he finished his lecture, a woman raised her hand. She wanted to ask a question, she said. "Before I ask a question, I wanted to know how I should refer to you: 'Native American,' 'American Indian,' or 'Indian.' How should I refer to you?" And Vine said, "Native American's fine." I said, "in Indian Country we refer to each other as Indians, so that's fine, too." He said, "I'm just happy Columbus wasn't looking for Turkey." And Vine can get away with that. But I will say another thing, when I got into the Justice Department, like the second day I was there, I got a three-page single-spaced letter from Professor Vine Deloria typed edge to edge, no margins, and the letter started out with "I know you don't know shit from Shinola about Indian law, so I'm going to tell you." It was basically three pages of instruction.

Mia Montoya Hammersley:

I hope you saved that letter.

Gerald Torres:

It's in the binder, in the Beinecke Library. Pretty funny, though.

Vanessa Racehorse:

I would just add, you can always see the terminology question from a mile away. So, my first class every semester I like to first address terminology and the different terms used in this field, while offering a disclaimer that no one person is the dispositive expert on proper terminology and what's politically correct. But I do flag "Indian" as just a legal term of art that's incorporated and commonly used in Supreme Court cases. All the statutes that we're talking about, and each individual Native person is probably going to have a different perspective on the political correctness of that term, although many of us may prefer to be identified by our own individual tribes. So, helping students understand terminology right out of the gate when it's their first time being exposed to that, I think it's super helpful and sets the tone for the class to do that on the very first day. And I also flag "Indigenous peoples" as a global term of art, something that can refer to Indigenous peoples outside of the United States, with different terminology like Aboriginal peoples being utilized outside of the United States as well.

Gerald Torres:

The critical thing is that each of these terms are really fraught. So, under the Declaration, there are no Indigenous people in Africa. What they didn't want to do was recognize Indigenous people in Africa because the colonial powers divided Africa up, inconsistent with tribal areas. They're afraid of challenges to the integrity of the nations. You realize that's a huge omission. There's got to be a way of talking about it, right? There's got to be a way of talking about the politics of those terms. And to me, you've got to be able to talk about colonialism and just, kind of be frank about the world-building vision that colonialism imposed; not just here, but globally. Zyg had a question.

Zyg Plater:

I worked for the Cherokee, and they said don't call us Native Americans. That's a New York City term. But Indigenous, it seems to me, is a blanket term and Indian can be thought of as a subset of Indigenous; although maybe Indigenous just sounds and travels better.

Gerald Torres:

Like my colleagues said, it's a term of art, right? And so, it's a legal term, right? You guys can disagree, but I want to make sure that I hold on to all of the things that attach to the idea of Indian-ness, legally. If the Native Hawaiians were Indians, the litigation in Hawaii would look considerably different.

Zyg Plater:

When Mia started, she was talking about how 80% of the resources are safeguarded. But in Canada, Indigenous people have a governance role, and that gives them a veto. The problem is there's a tremendous pressure to sell out. And in Alaska, we've had that. We've had it in other places where the fossil fuel industry comes in and gives the tribal council what it wants. Or I suppose there is the temptation for Native Indigenous governance to sell out resources, which makes them sacrifice areas or potentially sacrifice areas. So it's not enough to think of Native peoples as guardians when you recognize that the pressures of capital can so easily pervert them. It seems that is not going to go away when we talk about rights of nature and things, although all I know about the Navajo is Tony Hillerman. But I didn't see that tension much.

III. TRIBAL SELF-DETERMINATION AND GOVERNANCE

Mia Montoya Hammersley:

I'll speak to that. This is definitely something that's come up in my environmental justice work, and a stance that I've taken in my personal practice and now with my clinical students. At the end of the day, the environmental community has to decide whether or not it respects tribal sovereignty. And I think something that I teach when I talk about Indigenous environmental justice, as Rebecca Tsosie discusses in many of her articles,[7] is tribal sovereignty is an aspect of Indigenous environmental justice. It's important that tribes have the right to decide how to use their resources, and sometimes that might look like fossil fuel development. It depends on their situation, resources, and what their people need at that time. So, I agree that it's inaccurate to think of Tribes only as guardians of resources. But I also think that part of practicing Federal Indian Law is that, at the end of the day, I believe in self-determination; it's important to respect the decisions of tribal governments as well. Tribes have the right to use resources in the same way that any other government does, and overwhelmingly, even with those choices, they are still protecting large swaths of biodiversity compared to larger governments worldwide. So, I think it's definitely something to continue to discuss.

Nadine Padilla:

Thank you, Mia, for providing that. I think the tension you point out is real and something that people in communities and tribal governments have to decide how they want to handle. I think tribal communities have been put in a position through decades of dispossession, where oftentimes we live in poor conditions; maybe no water, no electricity, no grocery stores within an hour's drive. People are really making hard choices to survive and it can be very tempting, I think, for some communities. Once you have a company come in—kind of throwing money around, giving your kids scholarships, and giving out meals during holidays—it's a very real tension that exists. Ultimately, I agree, it's up to the tribe, and it's up to the communities on what types of economic development they want to pursue.

Gerald Torres:

When comparing fracking state-to-state, you see the same kinds of economic pressures on the people there. I mean, in Pennsylvania, fracking is

7. Rebecca Tsosie, *Indigenous People and Environmental Justice: The Impact of Climate Change*, 78 U. COLO. L. REV. 1625, 1631 (2007).

basically unregulated. It's hard for farmers who are just scraping by to turn down that check, right? The tribes face the same kind of economic pressures that are a consequence of the historical position that colonialism has produced. And that's important to recognize. To extent that I think there is an obligation to, like my friend Pat Rogers says, what sovereignty means is the power and freedom to make mistakes. You don't have to agree with the tribal governments, but you have to respect their capacity and rights to make decisions for the people.

Zyg Plater:

One of the things I mentioned was corruption, and this of course isn't just in one community, it's everywhere. But it is particularly difficult if there's this source of money and pressure and media to subvert the decision-making of the tribal sovereignty.

It's very hard for the people in a tribal community to know about it and to counteract it. I'm sorry I'm being dismal, but it's a real problem in every society, and it seems to me some societies may be more vulnerable to the pressures. In Africa, we saw it constantly. My friends were saying we have to find a way to reform the pressure of corruption, which just creeps under the door.

Vanessa Racehorse:

I think this question is relevant to the complexities of modern Indian land use, and actually comes up a lot in my classes. I think students are actually quite measured in terms of not romanticizing tribal nations. But I do think we talk a lot about how tribal governments are comprised of just human beings, and face challenges not that different from state governments and federal governments as well, which also choose to tap into natural resources for economic development. I don't know if I would agree that these economic pressures make them any more "vulnerable," as you said, or susceptible to outside influences.

I think that this is a good indicator of how they are just people, and they are governments that make these same complicated choices that state and federal governments are also quite pressured to make.

Heather Tanana:

What this topic brings up for me is the role of the federal government historically and how they took away the ability of tribes to fully govern their lands. Even now, in the energy world, substantial federal oversight and

approvals are required for projects on tribal lands.[8] We talk about the *Cobell* case,[9] all of the trust cases,[10] and if the federal government had just done its job and upheld its treaty and trust responsibility—if it had looked out for tribal communities instead of energy interests off tribal lands—they wouldn't be in this situation. The current administration has come a long way in fixing some of these historical injustices and changing the dynamics between the federal government and tribes. But we're still not there quite yet. When we talk about corruption, and I'm looking at federal agencies, they haven't given back control and decision-making to tribes. Don't get me wrong; all the co-management stuff is amazing, but what are you doing right now? I'm more worried about what the federal government is doing than what the tribal council is doing. The other balance we're also seeing more of is at the local level. Most of my experience is with the Navajo, but a lot of local advocacy groups within the tribal community are holding the tribal councils accountable. For example, with Navajo, the Federal Energy Regulatory Commission (FERC) denied the permit for proposed hydro-storage pump projects in Black Mesa on Navajo Nation.[11] A lot of that was driven by Tó Nizhóní Áni, a local grassroots organization,[12] who went out and educated people, and got the Council to oppose it formally. Then, FERC denied the permit without a tribal agreement.[13] So, those are the two things that came to mind.

IV. DEVELOPING AREAS OF FEDERAL INDIAN LAW

Zyg Plater:

Can I ask you a question about rights of nature? I followed the *Manoomin* case[14] and was interested to see if the tribal court had decided not

8. *See, e.g.*, Indian Mineral Leasing Act of 1938, 25 U.S.C. §§ 396a–396g; 61 Fed. Reg. 35653 (to be codified at 25 C.F.R. pt. 211) (requiring Secretarial approval for all leases).

9. *Cobell v. Salazar*, 573 F.3d 808 (2009)

10. *See, e.g.*, United States v. Mitchell, 463 U.S. 206 (1983); United States v. White Mountain Apache Tribe, 537 U.S. 465 (2003); United States v. Navajo Nation, 537 U.S. 488 (2003); United States v. Jicarilla Apache Tribe, 564 U.S. 162 (2011).

11. Proceedings Before FERC, Nature and People First Arizona PHS, LLS, Preliminary Permit Application for Black Mesa Pump Storage Project – North, Motion to Intervene of the Navajo Nation, Docket No. P-15233-000 (F.E.R.C. Dec. 30, 2022).

12. *No Black Mesa Pumped Storage Project*, TÓ NIZHÓNÍ ÁNÍ (Jan. 3, 2023), https://tonizhoniani.org/no-bmpsp/.

13. *See* Minn. Dep't of Nat. Res. v. Manoomin, File No. AP21-0516 14, 17 (White Earth Band of Ojibwe Ct. App. Mar. 10, 2022).

14. *See Rights of Manoomin (Wild Rice)*, CTR. FOR DEMOCRATIC AND ENV'T RTS., https://www.centerforenvironmentalrights.org/rights-of-manoomin (last visited Dec. 19, 2024); *see generally* Order on Motion for Reconsideration, Minn. Dep't of Nat. Res. v. Manoomin, File No. AP21-0516 (Jul. 26, 2022).

to recognize the right of personhood. What do you think the potential is for tribal courts to develop some of these new areas of law, and what do you think about that?

Vanessa Racehorse:

That tribal court decision was really fascinating. It just hinged on a *Montana* question for those of you who are familiar with it. *Montana* is a landmark case that constrained tribal jurisdiction in specific ways, particularly when it comes to tribal regulatory jurisdiction over non-Indians,[15] which comes into play during the enforcement of these rights of nature laws. There, I think the tribal court's opinion really focused on enforcing tribal law for off-reservation activity involving these non-Indian actors[16] and I argued that maybe it could be cabined in that way.[17] Maybe there's still opportunity to enforce rights of nature laws on reservations. It's a very specific set of facts in the *Manoomin* case. So, I think that there are a lot of unanswered questions for what that could mean for other tribal laws and other tribal courts that will be looking at the exact same issue. For instance, the Sauk-Suiattle Tribe also had a rights of salmon law that they tried to enforce against the City of Seattle because several dams were blocking the passage of fish,[18] resulting in a settlement.[19] That case didn't actually answer the question of whether or not tribal law could be enforced in tribal court because the case settled. They got the outcome that, for the most part, they hopefully wanted. I haven't looked at what's been happening in the last month or so, but I think there's still a huge gateway open for tribes to enact rights of nature laws to exercise their sovereignty, in this path-marking way. Then, let the tribal courts decide these jurisdictional questions, which are really complex because I do think that many people assume that a

15. *See* Montana v. United States, 450 U.S. 544, 565–66 (1981) (finding Tribes' inherent sovereign powers do not generally extend to the activities of nonmembers, with two exceptions: (1) nonmembers who enter into "consensual relationships" with the Tribe; and (2) non-Indians whose conduct threatens or directly affects "the political integrity, the economic security, or the health or welfare of the tribe").

16. *See* Minn. Dep't of Nat. Res. v. Manoomin, File No. AP21-0516, 14, 17 (White Earth Band of Ojibwe Ct. App. Mar. 10, 2022).

17. *See* Vanessa Racehorse, *Indigenous Influence on the Rights of Nature Movement*, ABA SECTION OF NAT. RES. & ENV'T, Fall 2023, at 7.

18. Civil Complaint for Declaratory Judgment at 5–6, Sauk-Suiattle Indian Tribe v. City of Seattle, No. SAU-CIV-01/22-001 (Sauk-Suiattle Tribal Ct. Jan. 6, 2022).

19. *Press Release: City of Seattle Settles "Rights of Nature" Case Filed by the Sauk-Suiattle Tribe–Agrees to Create Fish Passage Through Skagit River Dams*, CTR. FOR DEMOCRATIC & ENV'T RTS. (May 2, 2023), https://www.centerforenvironmentalrights.org/news/press-release-city-of-seattle-settles-rights-of-nature-case-filed-by-the-sauk-suiattle-tribe-agrees-to-create-fish-passage-throughnbspskagit-river-dams.

tribal court is just going to say that the tribe has jurisdiction automatically. But in the *Manoomin* litigation we saw, the tribal court found that they were constrained by *Montana* and its progeny, showing how measured and deliberate they are in their decision-making process. But other tribal courts may be grappling with different fact patterns.

Pat Parenteau:

What should we be watching? Any particular issues? Any particular controversies?

Vanessa Racehorse:

I think the Sauk-Suiattle one[20] is still sort of ongoing in terms of implementing the settlement. I think I've seen some student scholarship come out about that, which is really interesting and revolutionary in certain ways. But I do think a growing number of tribes are adopting these rights of nature laws. Seeing what the will tribes do and its impact will be something to look forward to.

Pat Parenteau:

And if I may, there's one other case that intrigues me: the Bad River on the reservation and the Enbridge trespass,[21] and what is supposed to happen. Because the tribe not only wants, justifiably, the line off the reservation, but they also want the line out of the watershed. I don't know if you're following that one, but that's intriguing. There's a treaty with Canada that our friend Senator Stevens gave us, guaranteeing the right to run pipelines for gas across Canada and the United States.[22] Guess where? And so, you have a juxtaposition of, as I understand it, a treaty that governs some of the rights the tribe is asserting versus this other treaty between the United States and Canada that's supposed to be subject to arbitration. So, when you talk about Indigenous law, tribal law, and Indian law cutting across everything, it sure does. And the court and the Justice Department came in and said, well, you're both right. The Tribe, you're right; there's a trespass. Clearly, not only should that stop but the Tribe should also be compensated substantially more than

20. *See* Civil Complaint for Declaratory Judgment, *supra* note 18.

21. *Federal Judge Finds Enbridge Trespassed on Bad River Lands, but Stops Short of Shutting Down Line 5*, WIS. RUB. RADIO (Sept. 8, 2022), https://www.wpr.org/economy/federal-judge-finds-enbridge-trespassed-bad-river-lands-stops-short-shutting-down-line-5; for case-specific details see Bad River Band of the Lake Superior Tribe of Chipp v. Enbridge Energy Co., 23-2309 (7th Cir. 2023).

22. Agreement Between the Government of Canada and the Government of the United States of America Concerning Transit Pipelines, U.S.-Can., Jan. 28, 1977, 28 UST 7449.

what the lower court found. But on the other hand, there's another treaty that we have with Canada. We're going to have to navigate between our trust rights to the Tribe and our international obligations to our good friends to the north. I don't know what all this means, but it's interesting stuff.

V. INCORPORATING FEDERAL INDIAN LAW INTO ENVIRONMENTAL LAW PEDAGOGY

Mia Montoya Hammersley:

That's a great segue to my next question. Thank you so much. Vanessa's already given us some of this information, but can you provide some examples of recent case law that you would recommend incorporating into environmental courses?

Heather Tanana:

I love the *Arizona v. Navajo Nation*[23] decision from last summer. The outcome was not great, but there are so many issues that it relates to that make it a really rich case to talk about, like the background of the case when it went before the Supreme Court and the relief the Navajo were actually asking for.[24] The Nation was not asking to quantify their water rights, they just wanted federal assistance in to assess their needs, which is the number one, beginning step for development: to be able to seek infrastructure grants.[25] The Bipartisan Infrastructure Law (BIL) money that's out there is funding the shovel-ready projects because they're ready to go, and the administration wants to get the money out on the ground. That's easiest to do, but then we're overlooking all of those shovel-worthy projects that don't have the environmental or engineering assessments done yet. Thus, for me, the relief the Navajo were asking for was that preliminary step to one day be able to bring in the pipelines and infrastructure projects—and in whatever way. Maybe the feds help with it, maybe the Nation does it. I think this unfounded fear and all the things in the background about aridification, climate change, and the Colorado River Basin already being over-appropriated, drove the majority decision.[26] Even though the Justices didn't directly address it, you heard it kind of pop up a little bit in some of their

23. 143 S. Ct. 1804 (2023).

24. *Id.* at 1809–10.

25. *Id.*

26. Amelia Bates, *Tribes in the Colorado River Basin Are Fighting for Their Water. States Wish They Wouldn't.*, GRIST (Nov. 16, 2022), https://grist.org/indigenous/colorado-river-tribal-water-rights-navajo-nation-arizona-nevada-drought-data/.

thinking.[27] So again, I think it's a rich case to talk about. There's a difference, too, where the tribe tends to prevail, the Court takes the time to go through the relevant tribal history in depth. The *Arizona* majority opinion,[28] what was it—seven pages? So, if they don't go into the extensive history, you're kind of like uh-oh, they didn't get it or are disregarding it. Also, you could really say this about any recent Supreme Court case. But I like to bring up the Tribal Supreme Court Project with Native American Rights Fund and the National Congress of American Indians. Like Gerald said, many decisions uniformly get a uniformly applied to all the tribes. And so, there's this concerted effort to be thoughtful and strategic in the cases being brought that could appear before the Supreme Court, coordinating the amicus briefs, etc.

I was part of one amicus brief in *Arizona*,[29] representing Dig Deep and really focusing on the water insecurity issues; others touched on subjects like the *Winters* doctrine[30] or the trust responsibility. I think it's worth it to talk about the Tribal Supreme Court Project[31] and pull up some of the amicus briefs so you can see how this coordinated effort happens now. That's pretty cool.

Gerald Torres:

I like teaching the treaty cases out of Washington, especially the *Culverts* case,[32] because that sets up the extent to which affirmative duties are imposed or potentially imposable on the state that grow out of the treaty between the federal government and the tribe. Then you get to talk about things like ecosystem services off reservation, which have an impact on the resources on the reservation, and how are you going to incorporate that in the decision-making process. Is the tribe situated to raise those issues? And given the treaty rights, what administrative process should the tribes have access and be party to? So those are the cases that I like to teach. As for the *Arizona*

27. *Arizona*,143 S. Ct. at 1811, 1814.

> So even though the Navajo Reservation encompasses numerous water sources and the Tribe has the right to use needed water from those sources, the Navajos face the same water scarcity problem that many in the western United States face . . . . Allocating water in the arid regions of the American West is often a zero-sum situation.

Id.

28. *Id.* at 1809–16.

29. Brief of DigDeep Right to Water Project and Utah Tribal Relief Foundation, Arizona v. Navajo Nation, 143 S. Ct. 1804 (2023) (Nos. 21-1484 and 22-51).

30. Winters v. United States, 207 U.S. 564, 577-78 (1908).

31. Native American Rights Fund, *About the Project*, TRIBAL SUP. CT. PROJECT, https://sct.narf.org/ (last visited Dec. 19, 2024).

32. United States v. Washington, 853 F.3d 946 (9th Cir. 2017).

case,[33] you know, the Supreme Court is deciding more Indian law cases than it ought to.

Mia Montoya Hammersley:
Terrifying.

Gerald Torres:
So, you know, you could do *Haaland v. Brackeen*,[34] which is an Indian Child Welfare Act case, and slice that any number of ways. The same is true for the *Oak Flats* case.[35]

Pat Parenteau:
You might say a couple more words about the *Culverts* case.

Gerald Torres:
Well, praise God, it was an evenly divided Supreme Court, so the Ninth Circuit's holding was upheld. Basically, had the appointment been through, we would have lost. But the federal government and the Tribe were suing the state of Oregon to remove or replace or fix the culverts that interfered with salmon getting back to their spawning grounds.[36] If you look at photographs, you can see that the culverts clearly are a barrier. Initially, the state's defense was that: "We built these culverts with federal money consistent with federal rules so the federal government can't be telling us that we did everything wrong." It's not a terrible argument, right? But the question is: What are the treaty rights that the tribe has and can the federal government, in service of those trust and treaty rights, impose additional obligations on the state? And the answer is, yes. But you know, the amazing thing is that the state of Washington argued that the treaty only guaranteed the right to fish. It didn't guarantee any fish.

Heather Tanana:
Well, in *Arizona*, you have the right to water, but the government does not have to help you get that water.[37]

33. 143 S. Ct. 1804 (2023).
34. *See generally* Haaland v. Brackeen, 599 U.S. 255 (2023).
35. Apache Stronghold v. United States, 101 F.4th 1036 (9th Cir. 2024).
36. *See generally id.*
37. 143 S. Ct. 1804, 1810 (2023).

Gerald Torres:

We don't even have to tell you how much you actually have. Don't worry about it.

Pat Parenteau:

It's like whatever's left.

Gerald Torres:

Well, your discussion of the case is exactly right. It's like, you know, Justice Kavanaugh goes off on this toot. What the Tribe was talking about is the first decision that has to be made; how much water is the Tribe entitled to? Nobody's talking about building a pump, dam, or a pipe. But he goes off on this complete toot.

Mia Montoya Hammersley:

Probably someone from Arizona, I would imagine.

Nadine Padilla:

I have one more case to add. This is an older case from the Tenth Circuit and you all are probably familiar with. *City of Albuquerque v. Browner*[38] is a really great case to incorporate into your Clean Water Act discussions. That case looks at the Pueblo of Isleta's Tribes Approved for Treatment as a State (TAS) status and their ability to set and enforce their own water quality standards.[39] In *Albuquerque*, the Pueblo successfully held the City of Albuquerque accountable and met those standards.[40] The City of Albuquerque had to build a huge, very expensive water treatment plant to clean the water to standards that would meet the Pueblo of Isleta's water quality standards.[41] So that's a great case to incorporate and the opinion is great; it discusses the Pueblo's uses of water, including cultural and traditional uses.[42] It's a great case to include when discussing the Clean Water Act.

Cliff Villa:

I love that case, too. It has constitutional and environmental law. The City of Albuquerque actually challenges this as a violation of church and

38. *See generally* City of Albuquerque v. Browner, 97 F.3d 415 (10th Cir. 1996).
39. *Id.*
40. *Id.*
41. *Id.*at 419–21.
42. *Id.* at 427

state and the court says no, it's not, it's about protecting human health.[43] What I also love, and you may be surprised, is that the court says how the Tribe chooses to engage in a ceremonial practice, is really none of your business.[44] That's what they do for the EPA. It was really just about accepting that the Tribe had established that this is what they need in order to continue in their cultural engagement, and that's enough, and it should be enough. I love assigning that case every time I get a chance because some things just aren't my business. We just need to take this as the Tribe's value; this is the thing that we are here to protect.

Vanessa Racehorse:

Pending in the Ninth Circuit right now is *Shoshone-Bannock Tribes of the Fort Hall Reservation v. Daniel-Davis*.[45] That case is all about the Blackrock land exchange for this area that Simplot Corporation is trying to acquire so they can expand their phosphogypsum stacks, which are already a major source of pollution in that area.[46] It's already a Superfund site, known as the Eastern Michaud Flats NPL Superfund site.[47] So, I think that case is a really good study of treaties because the Tribes' treaty rights are at issue. Tribes have usufructuary rights on this land, so it also lends to a good discussion of treaty rights, land exchanges, and the trust responsibility. It provides exposure to all these fundamental components of Indian law with these environmental law issues.

Gerald Torres:

You know, you can teach the *Dann Sisters*[48] case from the Inter-American Court of Human Rights, but you don't teach the federal court case, right? Because they took it before the Inter-American Court of Human Rights and raised an issue of payment from the federal government and the way the federal government characterized the payment. So, that's an interesting case. You can approach it from an international law perspective, like the *Awas Tingni*[49] case out of Nicaragua.

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43. *Id.* at 428.

44. *Id.*

45. No. 4:20-cv-00553-BLW, 2023 WL 2744123, at *1 (D. Idaho 2023), *appeal docketed*, No. 23-35543 (9th Cir. Aug. 17, 2023).

46. *Id.* at *2.

47. *Id.*

48. Dann v. United States, Case 11.140, Inter-Am. Comm'n H.R., Report No. 75/02, doc. 5 rev. 1 at 860 (2002).

49. Mayagna (Sumo) Awas Tingni Cmty. v. Nicaragua, Mayagna (Sumo) Awas Tingni Cmty. v. Nicaragua, Merits, Reparations and Costs, Inter-Am. Comm'n H.R., Report No. 79, (2001).

And the Awas Tingni community said: "Not so fast. That's not your timber to give away, right?" And so, the case goes through this long analysis proving the Awa Tingni community's property interest in that territory. What the court discovered, of course, is that many Native communities had claims to that same land. Ultimately, the resolution was that there are lots of ways in which claims can be legitimate, even if they don't conform to the kind of fee-simple idea of ownership. The Awas Tingni community prevailed. So, it problematizes property and procedure. Judith Resnick's federal courts book also has Indian law cases in it.

Fredrick Ole Ikayo:

I'm Fred. I'm from the Maasai in Tanzania. I'm from an Indigenous tribe in Tanzania and my family is also from the reservation. One particular case that has been ongoing [omitted] is the displacement of the Maasai from the Ngorongoro Conservation Area to pave the way for tourism plus conservation. So, I think that's something that we need to keep an eye on, too. It's good to keep in mind that the structural power imbalance that is happening domestically here is also happening back home in Tanzania, which is a big, big problem. Whereas we own land as a collective right, we are not tied to the property in the same the way the U.S. regulates land property ownership individually. So, we own it as a common resource, but you know, conservation, tourism, that economic pressure that we're talking about, is having a huge impact because that area generates a lot of tourism money plus conservation, too. But it ends up displacing a community from their ancestral lands to somewhere else, apparently 330 miles away from the ancestral lands, which is just a long, long route. Corruption is one thing in Africa, but let's also keep in mind the structural imbalance. If the structural imbalance is there, the communities themselves—even if they want to oppose a particular displacement or particular economic pressure that's coming their way—they're not able to do so because of that structural imbalance.

Secondly, it's not always just about the economic pressures. It's also the conservation pressures that exist because of the historical context of those areas' establishment, such as the Serengeti National Park, which is also a World Heritage site. So those international pressures also play a role in the displacement of people in those areas. Not only displacing them, but also extreme regulation of those and Indigenous communities living in those specific areas. So, for example, you're not allowed to dig in the ground and grow maize or beans for subsistence. That's prohibited and it's still your land, and you know the government highly regulates it. We must take that into account. Also, historical context plays a huge part. Thank you.

Cliff Villa:

Can I ask a question? I'm still thinking about your comment, Zyg. I'm thinking about tribes and temptation. Particularly about economic incentives from a New Mexico observation. I think it's pretty remarkable that there have been multiple generations of proposals for high-level radioactive waste disposal in New Mexico. And yet, none of them have gotten through. So, on one hand, while there's all this temptation, it hasn't actually happened. There are still proposals now for monitored, retrievable, high-level radioactive waste disposal, and that still hasn't gone anywhere. But I'm just wondering because, you know, law professors love a hypothetical. What if there was a tribal council that said: "Let's do it, you know, bring in a billion dollars of economic development and schools and jobs." Then, imagine you had a strong, vocal minority that said: "No." There are those tribal organizations—Diné CARE—but others might be ones who would challenge that. I'm just wondering, what does the panel would think? How do you navigate that? Do you represent the tribe and tribal sovereignty? Do you represent the people who might have a strong and valid objection, and what would be the role of good, ethical lawyers that in that space?

Mia Montoya Hammersley:

That's quite the hypothetical, Cliff.

Pat Parenteau:

Who are we representing in this hypothetical?

Gerald Torres:

I mean, that hypothetical arose, right? But I have this basic rule, which is probably not a good rule, but it's the rule I apply to myself, and that is: I don't sue tribes. This is not because every tribe is noble, and every tribe is good, and every tribe is on the right side. I represent individual tribal members in various ways. And sometimes that is within a tribal, legal context, not in the state or federal administrative context. But by and large, that's the rule I apply.

Pat Parenteau:

Would you represent the tribe in defending a challenge to bring the high-level hazardous waste to their tribe . . . ?

Gerald Torres:

Would I?

Mia Montoya Hammersley:
Are you just trying to get us on record, Pat, with these questions?

Gerald Torres:
If they were my client?

Pat Parenteau:
Would you take the case?

Gerald Torres:
I guess not. I probably wouldn't have taken the case if I didn't have to. That's the chicken answer, I recognize.

Zyg Plater:
But you could avoid a fight perhaps by saying: "You know this is a pissing contest, we have to listen to our people." Otherwise, our government becomes illegitimate or some conversation like that. Even when representing a tribe, you can say things like that behind the door.

Gerald Torres:
I mean, yeah, there is within the broad ambit of client counseling, if you're asked, you're asked; you can discuss that.

Zyg Plater:
Ask me this and I would tell you.

Gerald Torres:
But you know, I agree with Pat that you can talk about it if you're asked.

Pat Parenteau:
But if you project that watch out, you are running into a real tension area of client relationships and that loyalty. And I've been in that room so it's not an easy one to navigate.

Heather Tanana:
That's one issue of internal disputes of tribal community members and their tribal leadership. There's a process there. We get all these lawsuits where we might have a turnover in tribal council. They disagree about who should lead, frequently asking federal courts to decide. And federal courts are always saying no. That's an internal tribal dispute; it's up to tribes to

manage. That to me is an internal kind of dispute. What's interesting is some work the Environmental Law Institute was doing. They were trying to compile cases where a tribal member had sued the tribal government in tribal court, for lack of environmental protections. Elizabeth Kronk Warner and I were talking about this, and we couldn't think of any case where that had actually happened (that we were aware of) within our communities. Then, they certainly searched the few tribal cases that are on LEXIS or Westlaw but could not find any. In the future, it will be interesting to see if Diné CARE or others, when they feel like their tribal government isn't being protective, takes action against them. But I still think that the federal government is controlling a lot of it, and they're the ones you go after right now, not the tribe.

Gerald Torres:

I was involved in this suit representing tribal members against the tribe's interests. But we were suing the Department of the Interior.

VI. ETHICS AND FEDERAL INDIAN LAW

Mia Montoya Hammersley:

Well, there are two more questions that I would love to get through and I want to give you all a break before the next panel. Two ethics-related questions are really important to teaching in this area. You have touched on them in our discussion quite a bit. Obviously, teaching Federal Indian Law and a lot of related Tribal Law courses often involve teaching students about very traumatic history and things that can be difficult to talk about. So, I'd love to hear from you about how you help your students navigate that, and how you incorporate teaching and cultural competency into your classes.

Nadine Padilla:

I can go first. I think it is really tricky to teach and I think it can be uncomfortable for Native students as well as non-Native students to discuss. I approach these conversations by first trying to create an open and respectful space and hopefully setting the tone for my class so that we can trust each other to engage in those conversations. I also would say don't shy away from it. You have to say it, you have to bring it up. A lot of times, you have to quote our Supreme Court and read the offensive language and terms that it uses. But I've been fortunate, I think, to have really great students who are kind and respectful to one another as we have those conversations. But it can be tricky. In my Environmental Justice class, when we discuss hot topic issues or issues where there's a lot of debate on both sides, I like to ask

students to debate both sides. I feel like that helps take the spotlight off of the student because then they're advocating for ideas and thoughts that might be different from their own personal opinions. That's been helpful for me.

Vanessa Racehorse:

That's really great. I will build off this concept of not shying away from it because students will often have to read highly racially charged language that is very offensive. I'll acknowledge the law can be really racist and unjust, but this is still "good," legally binding law, that's on the books. These are foundational Indian law cases that refer to Native people in really inappropriate ways, but it forms our understanding of the Supreme Court's decision-making process and the lens it applies. So, I do try to address it head-on, but it is really uncomfortable. I don't think there is a solution to alleviate that discomfort except to acknowledge it and create space for students to talk through it. I've also been fortunate enough to have students themselves who will engage in that dialogue and talk about how problematic it is or deconstruct and critique it in their own ways. I actually sometimes borrow language from them each semester. I think creating that space for students and acknowledging the laws' problematic nature are important. For example, when discussing *Johnson v. McIntosh*,[50] I spend time talking about how problematic the decision-making is and how frankly racist it is, and that opens up the dialogue in a way that I think can be really helpful in understanding our legal framework.

Heather Tanana:

I guess I'd say I tried. My goal in my Tribal Nations course is for students at the end to come away understanding how we got to the inequities that tribes face and that historical context because I think that is the hardest to grasp. You can Google the law later. You can pull that up, right? You get a case, you'll research it. But for me, what's most important is having that understanding of what tribes and Native people in this country have gone through so that when you go to the reservation and look around, you can understand why it looks the way it does. Because it's shocking, when you are somewhere like D.C. and then next, you're in Window Rock. They don't look the same because of past federal policies. So, I spend a lot of time going through history and emphasizing why it is important. I also share a lot of my family history and bring in guest speakers from the community so that it grounds the content and makes it real. I want to connect with my students and try, if I can, to get one of them to care. That, to me, is a win, because

50. *See generally* 21 U.S. 543 (1823).

let's face it, tribes are still building back their capacity. We have to rely on outside individuals to assist them in a lot of situations. If I can have my students who care and understand that history, I think they'll be much stronger advocates.

Gerald Torres:

I think spending some time on the history is important. In the class we taught with Salish-Kootenai, we had a lot of guest speakers come. Because not all the students in the class are from the Salish-Kootenai Tribe, they objected to some of the Native speakers that we brought in for forest management. But, the speakers were discussing managing certain plants—and for some of the students in class, it was like they couldn't even talk about those plants. The question was, what do we say to the presenter, because it didn't affect all of the students. It only applied to some, and it directly went to that particular tribal management of that area. So those are kind of tricky problems, right? And that was hard, right? The only other time it's ever came up for me was when a student in my property class objected to me teaching those Indian law cases. Because God dammit, we beat them in the war, and damn it, we shouldn't have to account for anything. But this was when I was teaching at Texas.

Pat Parenteau:

So, we stole it fair and square.

Gerald Torres:

Now my response is very plain, and I said, you know, for somebody sitting in Austin, Texas, that's a really peculiar argument to make. You sure you want to stick with that one? A little self-reflection work here. Anyway, there's another question you wanted to ask. Sorry, I shouldn't tell jokes.

Mia Montoya Hammersley:

It wouldn't be an Indian law panel without jokes. So no, I want to give you at least a 10-minute break before the next panel. I know we've spent a lot of time discussing this, but why is it generally important to incorporate Federal Indian Law into environmental law curricula?

VII. THE IMPORTANCE OF INCORPORATING FEDERAL INDIAN LAW INTO THE ENVIRONMENTAL LAW CURRICULUM

Gerald Torres:

I think in teaching the kind of the decisional structure and the use of canons and things like that in Federal Indian Law and to ask how it impacts things like administrative law, are really critical. Additionally, teaching things like tribes' and states' status. But you know, the jurisdictional questions are always the most complex ones. I was thinking, you were talking about rights of nature, right? The Penobscot River is now a citizen of the Penobscot Nation. So, the Penobscot River should have standing.

Pat Parenteau:

And maybe the Penobscot River is liable when somebody drowns, right?

Gerald Torres:

Maybe, we don't know. But you know, we have Ecuador and New Zealand who have also adopted these things. What can we learn from them? If you look at the way the legal treatment of Native people historically has evolved, it opens up every significant question that the law addresses, period.

Heather Tanana:

Building off of what Gerald was saying, looking to other communities that are learning lessons like tribes today. In the Colorado River Basin, it's recognized that an average 25% of the river's flow are tribal rights.[51] Then, there are 11 outstanding claims,[52] which will probably drop to, I don't know, 8 or so after the *Arizona* settlement. But tribes are big players in this field now. They can be big players in the renewable energy sector, in water law and climate responses. So, it's a missed opportunity if the next generation of attorneys are not familiar with those opportunities to forge partnerships. Again, there's the need to be a little careful and not be extractive, right? Because sometimes, people come in and want to partner with tribes. But they shouldn't be offended if the tribe says: "Thanks, but no thanks. I don't want to partner with you." That's a natural reaction because they've been exploited in the past. We're seeing increased recognition and incorporation of traditional knowledge. There is so much to be learned and so much that tribes

51. Bates, *supra* note 26.

52. *Tribal Water Rights*, CENT. ARIZ. PROJECT, https://www.cap-az.com/about/tribal-water-rights/ (last visited Dec. 19, 2024).

can contribute. But, we need to engage with them in a way that's not exploitative again and benefits everybody else except the tribes themselves.

Vanessa Racehorse:

I think that's a fantastic point. I think incorporating this information into the law school curriculum provides a great opportunity to expand students' worldviews about what the law is and what it could be because there's so much diversity within tribal communities and what they're doing within their own legal frameworks. I do think students get really excited when they can explore a sometimes different way of approaching the law, or enacting laws. They can ask themselves: "What are the new possibilities?" But that being said, I'm always mindful that tribes are to be treated as important stakeholders, not subjects for study. We're not trying to be extractive in any way, shape, or form. But I do think that incorporating this into the environmental law curriculum also pulls together these different pieces and concepts because it's so all-encompassing. For instance, with these topics, students are learning about federal courts, and about the interactions between the federal, state, and tribal governments, while also studying these core environmental law concepts.

Gerald Torres:

I wanted to flip to the next slide, so just for forest management. These are all the federal statutes you have to pay attention to, right? So, it cuts across all manner of things like range or animal protection.

Nadine Padilla:

Just to add on to that, I think it's really important because when we bring in Federal Indian Law, we're telling the story of people. We're bringing in that human story and how environmental issues impact tribal communities on every level, from cultural sites and sacred site protection, to reproductive justice and physical ailments that people are experiencing. For me, it's important to put a face to all of these environmental laws and cases that we study so that people will remember the human story when they leave law school.

Mia Montoya Hammersley:

Thank you everyone for this robust discussion. Please give a round of applause for the panelists.

DEBATE: HACKING THE PLANET: IS GEO-ENGINEERING A SALVATION OR A CURSE?

Jenny Rushlow,[*] Wil Burns,[**] and Pat Parenteau[†]

Panelists:

Wil Burns, Co-Director, Institute for Responsible Carbon Removal, American University and Associate Director, Environmental Policy & Culture Program, Northwestern University

Pat Parenteau, Professor of Law Emeritus and Senior Fellow for Climate Policy, VLGS Environmental Law Center

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INTRODUCTION

Dean Jenny Rushlow:

I'm going to give you a little bit of a primer on climate geoengineering to tee up the debate that's going to happen in just a few minutes between these fine gentlemen. Geoengineering is a topic for which, at least in my experience, many in our profession have an uneven level of expertise and a sense of controversy. This makes it the perfect topic for a debate. We wanted to give you a little bit of background in case it is something you haven't spent a lot of time exploring.

"Geoengineering refers to a set of emerging technologies that could manipulate the environment and partially offset some of the impacts of climate change."[1] That definition is from Harvard's solar geoengineering research program. We are not on track to meet the goals of the Paris Agreement.[2] So, it is the opinion of many experts that in addition to greenhouse gas (GHG) reduction—climate change mitigation measures—

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1. Harv. Univ., *The Harvard Solar Geoengineering Research Program*, THE SALATA INST. FOR CLIMATE & SUSTAINABILITY, https://salatainstitute.harvard.edu/sgrp/ (last visited Dec. 19, 2024) (follow "ABOUT GEOENGINNERING" subsection).

2. *The Paris Agreement*, UNITED NATIONS CLIMATE CHANGE https://unfccc.int/process-and-meetings/the-paris-agreement (last visited Dec. 19, 2024).

geoengineering may be an important part of the portfolio for avoiding the worst impacts of climate change. Many geoengineering methods cover a variety of ways to capture and store carbon dioxide (CO_2), and these methods have very different levels of readiness, potential, and durability. Each of these methods has sustainability risks that could limit long-term deployment. I'm going to give a brief introduction to some of the most common technologies.

The first category of geoengineering methods is solar radiation management (SRM), which aims to reduce the amount of solar radiation that the Earth is absorbing—hopefully in an amount that offsets the increased trapping of heat from the increased presence of GHGs in the atmosphere.[3] Some SRM technologies include sulfur aerosol injection, which is where substances are injected into the atmosphere to form sulfate aerosols that increase reflectivity.[4] This is similar to the impact of a volcanic eruption. There is cirrus cloud thinning, which decreases the amount of high cirrus clouds that trap infrared radiation emitted by the Earth.[5] This is doneby injecting ice nucleating particles, which increase the sedimentation rate of ice crystals that compose and thin the clouds. This allows more infrared radiation from the Earth to escape into space so that less of it is trapped. Additionally, marine cloud brightening involves increasing the number—but decreasing the size—of droplets in these clouds to have more surface area. More surface area increases reflectivity and lengthens the lifespan of clouds.[6] Finally, space-based systems, such as sunshields, are positioned in space to deflect sun rays from reaching the Earth.[7] Those are some of the main categories of SRM.

The other major category for climate geoengineering methods is carbon dioxide removal (CDR). CDR methodologies sequester CO_2 from the atmosphere by enhancing carbon sinks or remove CO_2 from the atmosphere with chemical engineering.[8] One such technology is ocean iron fertilization, which increases organic matter production by phytoplankton.[9] More CO_2 is absorbed for photosynthesis by the phytoplankton if it is fertilized with iron, which is currently limited in supply in some southern oceans. Another CDR technology is bioenergy, which is created with carbon capture and storage,[10]

3. WILLIAM C. G. BURNS, OVERVIEW OF CLIMATE GEOENGINEERING: THE PARIS AGREEMENT AND CLIMATE GEOENGINEERING GOVERNANCE, 6 (Cigi Papers No. 111) (2016).
4. *Id.* at 7.
5. *Id.*
6. *Id.* at 8.
7. *Id.*
8. *Id.* at 9.
9. *Id.*
10. *Id.* at 10.

and I'm sure is a more familiar technology for some of you. And then, there is direct air capture, which is likely also more familiar to you. Direct air capture is where you draw air into towers, bringing the air into contact with a chemical solution that absorbs CO_2.[11] When the solvents in the tower reach capacity, the CO_2 is compressed for storage or reuse.

Now, I'll give you a bit of an update on the status of these technologies. I'll spend a couple minutes on SRM and then CO_2 removal. For SRM, there is a fair amount of international research into these methods, but they are not systemically tracked yet, so it's hard to know exactly the full scope. Per a report I reviewed from the Carnegie Climate Governance Initiative, "SRM-related research has been supported by public and private funding in" at least 12 countries, plus the European Union, collectively.[12] The amount of literature published on the topic is steadily increasing. For a decade, researchers have been collaborating internationally to compare models.[13] At the same time, objection to SRM research has also been growing among some experts. In fact, in 2022, a group of academics launched an initiative calling for governments to ban SRM experiments and development, which, as of this report's writing, had 450 or more academic signatories.[14] So, some people even push back on conducting research in this area.

There is some CDR deployment occurring on the CO_2 removal front. However, it occurs at a low level, mostly using what's known as conventional CDR methods. These are more well-established methods, such as land use change and forestry activities, principally through afforestation or reforestation. There is far less deployment of novel CDR methods, or those that are in the earlier stages of development. In fact, those make up 0.1% of the total CDR in use right now.[15]

Okay, so with that background, today we are going to have a debate, and the debate is framed around this resolution:

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11. *Id.* at 11.

12. CARNEGIE CLIMATE GOVERNANCE INITIATIVE, GLOBAL STATUS OF ACTIVITIES RELATING TO SOLAR RADIATION MODIFICATION AND ITS GOVERNANCE 2 (9th ed. 2023).

13. *See generally* Rutgers Univ., *GeoMIP Welcome*, DEP'T OF ENV'T SCIENCES, (last updated Oct. 11, 2024) https://climate.envsci.rutgers.edu/GeoMIP/publications.html.

14. *See* Open Letter from Solar Geoengineering Non-Use Agreement - *We Call for an International Non-Use Agreement on Solar Geoengineering* (last visited Dec. 19, 2024) https://www.solargeoeng.org/wp-content/library/downloads/open-letters/The-Case-for-a-Solar-Geoengineering-Non-use-Agreement_Open-Letter_EN_211221.pdf; *see Signatories*, SOLAR GEOENGINEERING NON-USE AGREEMENT, https://www.solargeoeng.org/non-use-agreement/signatories/ (last visited Dec. 19, 2024) (noting 450 academic signatories).

15. STEPHEN M. SMITH ET AL., THE STATE OF CARBON DIOXIDE REMOVAL 10–11 (2nd ed. 2024).

Resolved. The United States Opposes Large-Scale Modification of the Earth's Climate System through Industrial and Technological Means Known as Geoengineering.

I'm very pleased to introduce you to our debaters today. Arguing in the affirmative of the resolution is Mr. Pat Parenteau, who is Professor of Law Emeritus and Senior Fellow for Climate Policy here at Vermont Law and Graduate School. Opposing the resolution is Dr. Wil Burns, Co-Director at the Institute for Responsible Carbon Removal at American University and Associate Director of the Environmental Policy and Culture Program at Northwestern University. Both of them have extremely storied careers and much to offer on this topic. So, the way this is going to work is that they will each have ten minutes to present their arguments, an opportunity for rebuttal, and closing arguments. I'm going to be right there keeping time. And then we'll have an opportunity at the end for the audience to weigh in, offer points that were missed, tell the debaters how they did, ask questions, and then we'll wrap up for the day before dinner. So, without further ado, Pat, you're going to be up first.

I. DEBATE

Pat Parenteau:

First, who the hell drafted that resolution? I'm reminded of the story of a gentleman who is attending a sermon. And the gentleman's friend said, "well what was the sermon about?" And the gentleman said "sin." And the friend said, "well, was he for it or against it?" When it comes to geoengineering, I admit I'm against it.

I'm not going to talk about that whole range of geoengineering technologies that Jenny so masterfully overviewed for you. Frankly, I consider SRM to be a form of ecocide, so I'm not going to dwell a lot on why it's immoral, unethical, and totally unacceptable—at least to this right-thinking, left-leaning so-called expert.

But, I am going to acknowledge that we are facing the need to remove carbon from the atmosphere by one mean or another. Even if we eliminated emissions tomorrow there will be residual carbon in the atmosphere for hundreds or thousands of years driving climate disruption. And I really want to focus on the natural system approach to the inevitable need to take some of the carbon we've put into the atmosphere out. Right now, we're north of 420 parts per million (ppm).[16] According to the scientists I greatly respect,

16. *Carbon Dioxide: Latest Measurement: September 2024*, NASA, https://climate.nasa.gov/vital-signs/carbon-dioxide/?intent=121 (last visited Dec. 19, 2024).

we need to get back to 350 ppm. We've burned through more than half of the carbon budget that the scientists say we have before we enter extraordinarily dangerous climate territory. So, there's just no question that even if we were beginning to see declines in emissions—and we are not, they are continuing to rise[17]—but even if we were further along in the transitions that we need across every sector of the economy, we know that we're going to have to find ways of "scrubbing the skies," to use Wil's term, one way or another.

So, I want to focus on why I don't think geologic and technological approaches are the way to go. I'll start with what I know Wil is going to have a lot to say about because he is one of the true experts in this field, and I am not. He is trying his best to ensure it goes how it should. But I don't think the idea that we can do everything—that we can simultaneously focus our attention, energy, and money on emissions reduction and on sucking carbon out of the atmosphere, while at the same time putting more emissions into the atmosphere—is going to work. Those who argue this idea is a dangerous diversion—a "moral hazard,"[18]—are right. I think they have the better argument that this is the fossil fuel industry's talking points, and we know they have been big on carbon capture and sequestration for many decades. We know that the track record of carbon capture and sequestration is terrible. It has not reduced emissions. It doesn't work at the scale required to stabilize the climate. This is all about scale. It's not about whether you can do one plant or one project here or there. It's not just the new Climeworks facility in Iceland that is supposed to suck 36,000 metric tons of CO_2 out of the atmosphere[19] at the same time we're putting 40 billion tons into the atmosphere every year.[20] It's not about that. It's about whether whatever we do can scale. And at what cost. It's nice to think that we have unlimited money to do all the mitigation, adaptation, and all the loss and damage compensation required—yet we can still do all these geoengineering investments and expenditures.

17. *Id*.

18. Dane Scott, *Geoengineering and Environmental Ethics*, NATURE EDUC. (2012), https://www.nature.com/scitable/knowledge/library/geoengineering-and-environmental-ethics-80061230/.

19. Corbin Hiar, *New Direct Air Capture Plant Poised for Record Removals*, E&E NEWS BY POLITICO (May 7, 2024), https://www.eenews.net/articles/new-direct-air-capture-plant-poised-for-record-removals/.

20. Univ. of Exeter & Stanford Doerr Sch. of Sustainability, *Global Carbon Emissions from Fossil Fuels Reached Record High in 2023*, STAN. DOERR SCH. OF SUSTAINABILITY (Dec. 5, 2023) https://sustainability.stanford.edu/news/global-carbon-emissions-fossil-fuels-reached-record-high-2023.

Here's the deal. Carbon removal right now costs around $600 a ton.[21] Suppose you really want to achieve the Paris Agreement goals of not only holding average global temperature well below 2 degrees Celsius, but returning it to 1.5 degrees Celsius once we've overshot that target (which scientists say is likely within the next three or four years). In that case, you are looking at some mind-numbing costs. The point is achieving that objective using carbon removal through mechanical and geological means is going to require about 10 billion tons of CO_2 annually by 2050. So, doing the math, 10 billion times $600 a ton is 6 trillion—with a "T." Now, sure, that cost can come down if we make a major investment in carbon removal technologies. But is that really the way we want to spend the money? On something that hasn't been (and might never be) proven at scale?

With the last five minutes I have, I want to shift to what I think is the better approach. And it isn't just planting trees. Although, there's nothing wrong with planting trees—right? But, five systems of natural source carbon removal are proven, well-studied, common sense, cost effective, sustainable, and fair—meeting all the criteria. These natural systems are forests, farmlands, grasslands, rangelands, and wetlands (marine and freshwater). The real potential for forest sequestration is in conservation. Afforestation, or planting trees where they aren't, might have a role. But not planting a trillion trees—not committing that much land use to growing trees for carbon sequestration—but conservation, preservation of forests, eliminating illegal forestry, all those kinds of approaches must be done. I'm not talking about offsets. Offsets are a road to hell. They don't work. They are riddled with scams.[22] If we're going to get to carbon neutrality—not net zero but actual zero—why are we talking about offsets? Offsets allow continued use of fossil fuel. I'm not talking about counting natural system investments as offsets. I'm talking about investing in sustainable long-term resource conservation and stewardship.

Because I don't have the time to go through all these individual land systems in the kind of detail you would need, I will recommend an article by the person that should be sitting in this seat right now: Professor Mary Wood. She is also known as "Mims" to her friends and teaches at the University of Oregon. Professor Mary Wood wrote this fantastic article published in our

21. *Carbon Removal*, WORLD RES. INST., https://www.wri.org/initiatives/carbon-removal (last visited Dec. 19, 2024).

22. Angus Chapman & Desne Masie, *Are Carbon Offsets All They're Cracked Up to Be? We Tracked One from Kenya to England to Find Out*, VOX (Aug. 3, 2023), https://www.vox.com/23817575/carbon-offsets-credits-financialization-ecologi-solutions-scam.

very own *Vermont Journal of Environmental Law*.[23] She goes through each of these systems, and calculates, using the work of James Hansen, Michael Oppenheimer, and many distinguished climate scientists worldwide. The potential for drawdown through natural systems is well beyond any of the technological and geological CDR schemes I've seen. I'll leave it to Wil to expand on that. One of the studies led by Dr. James Hansen concluded that natural systems—forests and soils—have the potential to draw down carbon by 100 gigatons this century.[24]

The other thing is any solution, so called, that we have to the climate crisis has to take account of the biodiversity crisis. It must take account of many other things: sustainability, environmental injustice, just transition, paying attention to communities—Indigenous communities in particular—that rely on a lot of natural systems, forested areas, and other areas of the world. So, there are multiple objectives. But, in my view, any proposed solution to the carbon problem that doesn't address the biodiversity crisis is a nonstarter. All these natural system approaches do address the biodiversity crisis. They talk about restoring and expanding habitat to account for the disruptive impacts of global warming. These natural system approaches address adaptation for ecosystems that are migrating in response to the heat and the other effects of climate disruption.

So, these systems that we have that have worked for us for so many millennia can still work for us. They can do so in a much more effective and fair manner than mechanical devices, which rely on an industrial system. That not only captures the carbon, but transports them in pipelines, to places where it can be injected underground and kept "forever." I would rather go with natural systems now. We'll hear from Wil on alternatives.

Wil Burns:

Alright, thanks for that, Pat. When I used to be a college debater (and then a college debate coach), one of the sacrosanct rules was you concede absolutely nothing—right? But I don't think we have to adhere to that rule here. First, solar radiation modification context (that's now usually termed "modification," because it's a nicer word than management) is where we agree. I'm one of the signatories of that letter that calls for a ban on SRM research, so we don't have to talk about that. However, I do believe that CDR has an important role in our portfolio of responses to climate change.

23. Mary Christina Wood, *Sky Carbon Cleanup and Biodiversity Restoration: Devising Regional Frameworks*, 25 VT. L. ENV'T L. 209.

24. James Hansen et al., *Assessing "Dangerous Climate Change": Required Reduction of Carbon Emissions to Protect Young People, Future Generations and Nature*, PLOS ONE, (Dec. 3, 2013) https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0081648.

Moreover, I would argue that a focus purely on nature-based solutions, as Pat appears to propose, will not get us to where we need to be. That focus is probably not the most judicious approach from a social justice or sustainability standpoint.

Second, I fundamentally disagree with Pat's overarching thesis—that we can't do both climate mitigation and carbon removal. I think we can, and the science tells us we need to. The Intergovernmental Panel on Climate Change (IPCC) has indicated that we can only meet the Paris Agreement temperature targets through pursuit of *both* full-throated decarbonization of the world economy and large-scale deployment of CDR approaches (perhaps at a scale of 10–15 gigatons annually by mid-century, and perhaps 20 gigatons by the end of the century). Growing recognition of the need for CDR has manifested itself in the rise of hundreds of startup companies dedicated to developing and scaling such technologies, as well as growing support from governments, including at the forefront, the United States.

Let me address some of Pat's objections to potential deployment of CDR approaches other than nature-based options, for example, tree-planting. Let's start with Pat's objection that such approaches are far too costly to be justified. In support of this proposition, Pat indicates that one industrial CDR approach, direct air capture, can cost $600 or more to capture a ton of CO_2. However, there's a couple of things to emphasize. First, research on direct air capture and economies of scale as more units are deployed may ultimately drive costs below $100—though we may not see such cost reductions for a decade or more. Additionally, direct air capture is not the only so-called novel or industrial approach we're looking at. Indeed, there are a number of other options that may prove much cheaper.

One example is an approach called enhanced rock weathering. Enhanced rock weathering accelerates the natural processes by which various minerals absorb CO_2 from the atmosphere. This natural process, called weathering, currently converts about one billion tons of atmospheric CO_2 into minerals each year, providing reliable, long-term storage. Enhancing or speeding up this weathering process would begin with mining and processing specific kinds of rock, such as olivine or basalt; or waste materials from mining, steelmaking, or other industries. One prominent proposal to implement enhanced rock weathering would involve grinding basalt into powder and spreading it over soils, where it would react with CO_2 in the air to form stable carbonate minerals. These minerals would ultimately migrate to the world's oceans, where shell-forming species would utilize them. When these species die and drop to the bottom of the ocean, it would effectuate storage of CO_2 for potentially 10,000 years. We may be able to bring down the cost of enhanced rock weathering to approximately $120 per ton—maybe even less

in the long term. Moreover, the process could provide compelling co-benefits, because it fertilizes crops in ways that could substantially increase crop yields.

Another approach is called biochar. This is where we take biomass residues and subject it to a low- or no-oxygen environment with high temperatures instead of letting the biomass residues decompose on the surface or burning them, which can quickly release CO_2 into the atmosphere. This process creates a charcoal that can then be applied on land, potentially locking up CO_2 for up to 1000 years. This process can also make nitrous oxides and methane—far more potent GHGs than CO_2—more recalcitrant, meaning that they'll stay locked into soils. This can be done for about $100 per ton. Biochar can also substantially raise crop yields, providing an important co-benefit that can help drive uptake. We already have a fairly large market for biochar that could be substantially expanded in the future. And again, starting at a base of about $100 per ton, we estimate that we can get this down, at scale, to probably about $50 or $60 per ton. Another approach, bioenergy and carbon capture with storage can sequester CO_2 for $150–$175 per ton at this point, and again, these costs can be brought down through innovation and economies of scale.

Nature-based solutions alone can't be scaled up sufficiently to meet the imposing goals of 10–20 gigatons annually later this century. As Jennifer indicated at the outset, afforestation, reforestation, and soil sequestration sequester about two billion tons of CO_2 at this point—and that's certainly salutary in terms of combatting climate change. The question is, however, how much more CO_2 sequestration can we effectuate through nature-based approaches? There, I have to disagree with Patrick, including the hypothetical potential he cites for nature-based options. This is because we can't scale up approaches, such as tree-planting, to these levels—for several reasons. First, these projections assume huge amounts of rangelands are converted to forests; which is not realistic unless there's a radical change in lifestyles, with people suddenly opting for a lot less meat and a lot more vegetables; which does not seem to be a realistic prospect currently.

Many studies that tout the benefits of tree-planting to sequester CO_2 ignore the fact that massive expansion of forest stands would not necessarily be an unalloyed good from a sustainability perspective. First, the leading study that advocates nature-based solutions as the primary way to implement CDR assumes that we would expand forest lands by 900 million hectares, which is an area approximately the size of Africa.[25] If you make that

25. Jean Francois Bastin et al., *The Global Tree Restoration Potential*, 365 SCI. 76, 76–78 (2019).

assumption, you're first going to look inside the methodology. If you look, you're going to encroach on large amounts of savannas and prairie grasslands and convert them to areas where trees will be planted. Well, then you're going to defeat one of the primary criteria that Pat set forth, for a system to benefit biodiversity as well as carbon sequestration, because these ecosystems are critical repositories of biodiversity. Also, the studies assume that about one-fourth of all those trees will be planted in areas in the Northern Hemisphere, especially in ice-covered areas, because it's land for which there is low demand for alternative uses. The problem is that those areas have very high albedo, which reflects large amounts of incoming radiation away. When you plant trees on those areas, studies indicate that you either obviate all the benefits of planting trees in terms of sequestration (because you decrease albedo so much, resulting in substantial additional amounts of incoming solar radiation being absorbed); or see a net increase in warming. So, you realize that these approaches can be problematic once you start looking under the hood.

Even when we talk about things like grasslands and other nature-based solutions, we find a lot of examples of "green grabbing." These are policies that undermine the livelihoods of vulnerable populations—including Indigenous peoples. It's easy to say, well, we'll reconcile the interests of those that are currently using that land for other purposes and carbon sequestration. But we have a lot of empirical evidence, including in the context of the Reducing Emissions from Deforestation and Forest Degradation (REDD+) program, where that doesn't happen.[26] What actually happens is global elites in the North and South often get together and expel or kill people to seize their land to establish income-generating carbon sequestration projects.

By contrast, industrial CDR approach footprints, such as direct air capture, are much smaller. Some of these other approaches, such as enhanced rock weathering, have powerful co-benefits that lead to political buy-in and reduce the possibility of inequities and injustice.

Blue carbon, another nature-based CDR approach that's highly touted, currently sequesters a mere 0.4% of all CO_2 in the world. It's been estimated that if we had a hyperaggressive blue carbon program, we could increase the amount of blue carbon mangroves, seagrasses, etc. sequestration by about 10 to 20% at most. Of course, blue carbon initiatives may be justified because

26. *See* Jennifer C. Franco & Saturnino M. Borras, Jr., *Grey Areas in Green Grabbing: Subtle and Indirect Interconnections Between Climate Change Politics and Land Grabs and Their Implications for Research*, 84 LAND USE POL'Y 192, 192–98 (2019); James Fairhead et al., *Green Grabbing: A New Appropriation of Nature?*, 39 J. PEASANT STUD. 237, 238 (2012).

of their compelling co-benefits, such as building ecosystem resilience. But, from a standpoint of carbon sequestration, it's a proverbial drop in the bucket. This means that scaling CDR to requisite scales over this century is going to require a commitment to both nature-based and industrial approaches, with more of an emphasis on the latter in the second half of the century according to most studies.

Pat Parenteau:

I want to go on record saying I don't support killing people for sequestration. Rock weathering sounds not so objectionable. I don't see what the ecosystem benefits of that are. I don't see the benefits of wildlife diversity. I'm a big biochar fan. I mean, that's *terra preta*, developed by the Indigenous people in the Amazon, millennia ago. It is a great soil supplement, and it restores soil fertility. So yeah, sign me up for biochar. But, regarding the point about whether these estimates of what natural systems can do is exaggerated, read the studies for yourself.[27] I can cite chapter and verse to you so you can look at their assumptions and the land areas they're talking about.[28]

These studies do not talk about planting trees in Antarctica. For example, they're talking about looking at the forest, grassland, and farmland systems with regenerative agriculture and other techniques. The studies are looking at proven techniques to improve how natural systems are managed, *i.e.*, abused. These studies talk about grazing and overgrazing, herd management, convincing people that there are healthier and more efficient ways to feed ourselves, and eliminating half the food that's wasted, for example.

So, it's a suite of practical, common-sense, and proven approaches to better manage the systems that used to maintain the Earth's energy balance for millions of years—before we came along and started stuffing carbon into the atmosphere.

The amount the atmosphere needs withdrawn is a function of how much we're putting into the atmosphere—and when we're going to stop. So, what's your calculation? How fast do you think we are going to get to zero emissions? Because the longer we put carbon in the atmosphere at the rate we're putting it in, 40 billion tons a year and maybe more, the greater the drawdown required to restore equilibrium.

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27. Robert F. Service, *U.S. Unveils Plans for Large Facilities to Capture Carbon Directly from Air*, SCI. (Aug. 11, 2023), https://www.science.org/content/article/us-unveils-plans-for-large-facilities-to-capture-carbon-directly-from-air.

28. *Natural Climate Solutions*, THE NATURE CONSERVANCY, https://www.nature.org/en-us/what-we-do/our-insights/perspectives/natural-climate-solutions/ (last visited Dec. 19, 2024).

Think about this. One of the solutions to emissions reduction is electrification of everything, isn't it? So now you're talking about artificial intelligence, electric vehicles, electric systems to heat and cool homes, and great, big, huge data servers all over the place. Where's all that electricity going to come from? How fast can we decarbonize our electricity systems? We are really poised on the precipice—staring at the climate cliff—and the idea that we would divert our attention the slightest from the challenges that we face in decarbonizing these energy systems is frankly reckless. It's dangerous for sure.

I don't know if the natural systems can do the job. There is a residual set of emissions, primarily air traffic, right? Not so much cement or iron and steel, which you hear about a lot. There are technological ways to deal with those emissions, but airlines, that's going be tough, right? So, there's probably a set of residual emissions that we just can't eliminate. How we deal with that is certainly a major focus. If a limited research and development program's focus on carbon removal is looking at that residual slice, which is estimated to be between 10 and 20%, then maybe I don't have as much problem with it. But, if we go that way and go all in, which I bet we're going to do, because it's a tempting path, (it's what my mother used to call "an occasion of sin, Patrick.") that's where we're going to end up. We're going to end up with more and more emissions in the atmosphere that we'll be having a hard time getting out.

Wil Burns:

So, a couple of things in terms of residual emissions. First, let's talk about the economics of decarbonization in a number of sectors, including steel, cement, and agriculture. These sectors are usually currently categorized as "hard to abate" from a climate mitigation perspective. That is, it is either technologically impossible to eliminate GHG emissions from these sectors; or it could prove economically (and thus most likely, politically) impossible to do, with costs often ranging from $1600–$2000 per ton of GHG removal. It's been estimated that approximately 10–20% of GHG emissions fall into this category.

This is why the Paris Agreement refers to "net zero" emissions goals in the latter half of the century. The Treaty acknowledges we'll need to balance out a portion of hard-to-abate GHG emissions with carbon removal to achieve its objectives. And, given the projected level of these "residual emissions," it's very clear that we'll need far more carbon removal than can feasibly be tapped from nature-based solutions. Of course, if the costs of emissions reduction methods in these sectors begin to decline in the future,

regulators may wish to impose additional mitigation options. This can reduce the need for deployment of CDR.

Finally, once we ultimately reach the point of net-zero emissions, that's not the end of the story. Many scientists tell us that we will need substantial amounts of *net-negative* emissions in the latter part of this century and beyond to facilitate bringing concentrations of CO_2 down to historically safer levels. Many advocate bringing concentrations of CO_2 to 350 ppm, or even ultimately 300 ppm. Again, this will require massive amounts of carbon removal to be effectuated, far beyond what nature-based solutions alone can facilitate, at least sustainably.

Now in terms of the land area, once again, everybody can read the studies. In all cases where nature-based solutions are touted as playing a substantial role in carbon removal, it assumes huge amounts of afforestation. For example, one study says 900 million hectares, an area the size of Africa. It's not going to happen. If it did happen, it would result in the parade of horribles that we talked about before: land grabbing and the undermining of biodiversity in ecologically sensitive areas. That afforestation area would also require us to double the amount of fertilizer we currently use, which would also have dire environmental implications.

This means that we need to acknowledge that nature-based solutions can't ultimately take the lead in terms of large-scale deployment of carbon removal. But, the good news is that many industrial approaches can also be utilized, and many have compelling co-benefits, as discussed above.

The last thing Pat argues is that nature-based solutions are "common sense" solutions. They may be common sense, but they're apparently not society's sense because we don't use them. A lot of these things that we're talking about—like changing diets radically—seem to be far more unrealistic to me than developing industrially based carbon removal machines to suck carbon out of the atmosphere. That's stupid too, right? We should have never gotten to a point where we talked about any of this crap, right? But we have to, because my generation, my parents' generation, and now this generation are profligate. And so, I think that in the long term, job one is to aggressively decarbonize the world economically, and try to increase the amount of nature-based solutions in ways that are sustainable and equitable. This is because there are clearly co-benefits, as Pat has said. We also need to be cognizant to the moral hazard issues Pat raises, *i.e.*, carbon removal can't be used as a pretext to take our eye off the decarbonization mandates. We don't want the oil companies and others to use this as a get-out-of-jail-free-card, right? But there's creative, legal ways to stop that from happening. For example, the European Union and its new carbon removal certification framework are mandating separate commitments for decreasing emissions

and removing carbon. These are separate mandates that will ensure nobody thinks they can continue to party like it's 1999. We need to look at those kinds of approaches in the United States and other places to try to create cohesive climate policy.

Dean Jenny Rushlow:
We now have two minutes for closing statements.

II. CLOSING STATEMENTS

Pat Parenteau:
If we're going to talk about what we're really capable of, or prepared to do—I have no idea. I'm not terribly sanguine about either of the approaches that my good friend Wil is talking about or the preferred approach that I'm trying to talk about. And if it comes down to politics, then November's everything, isn't it? This isn't a debate about that, but it's the reality that we must do things we have never done before to confront the climate crisis. We, collectively, as a global society, have never faced anything like this. There is no clear path to a safe—or even relatively safe—future. There just isn't. It's a matter of making your choices, deciding which risks you want to take, and doing the very best job you can do every day to work towards that. And if people in the room would rather work towards building great, big machines to suck carbon out of the atmosphere, and finding places to stick it underground, more power to you. I'm going to spend my time, my limited time, which is growing more limited by the minute, fighting for the things that got me into this game to begin with: the critters—including us critters. But I want to go down swinging. I don't want to see a million species[29] leave the planet Earth this century. I believe I won't be around for that, but I don't want to be in any way, shape, or form responsible for something like that. So, I'll just devote my little bit of energy and voice to fighting for nature.

Wil Burns:
Well, I wouldn't disagree with that. I think, then, the key consideration is what is the optimal way of protecting nature, right? We know climate change is an existential threat to biodiversity. One of the Intergovernmental Panel on Climate Change (IPCC) assumptions on why we have reached a point that we not only need to aggressively decarbonize, but also build

29. United Nations, *UN Report: Nature's Dangerous Decline 'Unprecedented'; Species Extinction Rates 'Accelerating'*, SUSTAINABLE DEV. GOALS (May 6, 2019), https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/.

machines to suck CO_2 out of the sky, is because we sucked as a society in the last 50 years. And that's where we're at. So, I think we agree in terms of protecting biodiversity. But, I know nature-based solutions themselves, at a massive scale, can pose a threat to biodiversity. If society commits itself to massive afforestation, we're going to focus on monocultural plantation-style projects that are cheap and sequester CO_2 quickly. However, these kinds of projects often crowd out far more diverse natural tree stands, imperiling biodiversity in such regions. If we're going to do afforestation and reforestation right, we're going to have to erect some guardrails which will greatly limit the amount of carbon sequestration we can expect from these approaches. Again, this counsels in favor of also focusing on large-scale development of industrial CDR approaches to meet the CDR goals set forth by the IPCC. As Dave Hawkins at Natural Resources Defense Council is fond of saying "there's no silver bullet, there's silver buckshot."

III. SELECTIONS FROM AUDIENCE DISCUSSION

Ed Richardson (Louisiana State University Law):

Solar radiation management (SRM) is simple to understand. Although simple is always dangerous, it is something that we have a whole infrastructure for. I've actually refrained from writing because I don't want to give anybody ideas. But, I am shocked that the U.S. defense industry has not engaged with that because they have made a lot of money setting up the infrastructure to do it. As these crises happen, people are going to demand short-term action, and that's the only short-term action there is. The decisions aren't going to be made by people like us. It's going to be made by politicians facing crises in their countries.

Pat Parenteau:

We need to do something even if it's wrong?

Ed Richardson:

Are you actually, realistically saying that this is the way the policy works? That is the way the policy works. I know because we play at recycling, and all this kind of nonsense we do, that doesn't work—but it makes you feel good. But you're talking about a politician whose got a bunch of dead people. We're going to have major events in other countries, particularly in countries we don't control. You know, China or India have their own capabilities. This is easy stuff to do. I think we ought to be actually asking: how do we respond to realistic things that will be on the table when

there's a foreseeable massive human crisis? How do you argue against that when 20 million people die?

Wil Burns:

Let me respond in a couple ways. First, SRM is not easy to do, and I'm comforted by the fact that someone opposes this approach. If you wanted to do sulfur aerosol injection, you need special high-altitude planes to do it. The latest estimates are that it will take us at least 20 years to develop them. Maybe 25–30 years to develop the delivery mechanisms for the fine sulfur aerosols that would facilitate albedo. So, we're talking decades away.

Ed Richardson:

Well, that's if you want to be scientifically perfect.

Wil Burns:

Well, no, that's if you want to be able to put it in the stratosphere, you need the planes to do it—and we don't have the planes. It's only in the stratosphere that you get this effect. If you put it in the troposphere, you just kill people with sulfur dioxide. This is probably very fortunate because there's lots of reasons to worry about the impacts of sulfur aerosol injection. These concerns include some pretty powerful evidence from a "natural" sulfur aerosol injection incident. In the 1990s, a volcano named Mt. Pinatubo erupted in the Philippines, spewing approximately 15 teragrams of sulfur dioxide into the atmosphere. This amount is approximately the same amount some advocates of sulfur aerosol injection have recommended releasing into the stratosphere annually. After the eruption of Mt. Pinatubo, we witnessed the lowest stream flow of the Ganges River in history. We also saw the lowest amount of global precipitation for a few years. I don't think India would ever consider engaging in sulfur aerosol injection. It's possible sulfur aerosol injection would shut down their monsoon on a regular basis. That's what a lot of the studies conclude.

If you look at the statements that have been made in the last couple of years, for example, by the African and Caribbean environmental ministers, they have said we don't even want SRM research to occur. They argue that the Global North has got to get its act together. Maybe the Global South will change its mind if climatic conditions get far more dire. But right now, the Global South is not down with SRM. It would take a long time to deploy under the best of circumstances. Any of these SRM approaches, including marine cloud brightening, space-based options, like giant space mirrors, are very, very slow.

There's also a lot of public resistance to even research in this context. For example, the city of Alameda, California recently decided to shut down a marine cloud brightening field experiment helmed by researchers at the University of Washington. Harvard's efforts to engage in field research on sulfur aerosol injection in Sweden were also scuppered due to public resistance primarily led by Indigenous peoples.

Dee Gish (Vermont Law and Graduate School):

I just saw a headline in the Guardian: *Climate Engineering Off the U.S. Coast Would Increase Heat Waves in Europe, Study Finds*. So, they're saying that engineering techniques designed to reduce high temperatures in California could inadvertently intensify heat waves in Europe. What would you say about that? Making something better in one location may negatively impact another.

Wil Burns:

I think a lot of proponents of SRM would agree that there would be winners and losers. The argument that they make is that, on balance, society would be better off than in terms of unchecked climate change scenarios. Proponents sometimes contend that we could compensate the losers. Right now, I find that to be incredibly unrealistic. It would be extremely difficult to prove causality, for example, if there were declines in precipitation in one region of the world—what would constitute adequate compensation under those circumstances?

If you deployed SRM on a long-term basis, there's all kinds of other potential manifestations. One of the potentially most serious is the so-called "rebound" or "termination" effect. So, if you deploy sulfur aerosol injection, for example, for over 20 or 30 years, and assume anthropogenic greenhouse gases (GHG) emissions continue, you'll have a carbon dioxide (CO_2) buildup in the atmosphere. But, this buildup's manifestations will be masked by the SRM "protective umbrella." What happens then if you suddenly cease the use of this approach, for example, because the technology fails? Or a country threatened with negative impacts, such as India, threatens the world with nuclear war, what happens then? Recent research indicates that the globe might experience 5 to 6 degrees Celsius of temperature increases within a few decades, which could prove "lights out" for many ecosystems. This means that you would need to keep deploying this approach for perhaps a thousand years, which evokes all kinds of questions of intergenerational equity and governance.

David Wirth (Boston College Law School):

Just a couple of comments on SRM. First, I agree that the policy energy seems to be behind us on SRM and not the alternatives that are being discussed here, but a couple of points. One is that this same pollutant gave us acid rain, sulfur, and long-distance transport. We already have some law that deals with that both bilaterally and multilaterally, in Europe in particular. Second, a fair amount of law deals with transboundary effects, which is what we're talking about when talking about SRM, maybe not some of the others. Third, is that the United Nations system, despite appeals to it, has been totally remiss and has failed to address any sort of governance issue. These are inherently international issues. A couple of resolutions under the London Convention and the biodiversity conventions are nonbinding and very weak. So, there's plenty of opportunity for lawyers to work in this space in terms of what might be appropriate standards for approval, particularly for SRM, which is inherently transboundary in its effect.

Dean Jenny Rushlow:

Thank you to our debaters and thank you to all of the panelists today.

THE U.S. SUPREME COURT OVERRULES THE *CHEVRON* DOCTRINE

Stuart Silverman[*]

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INTRODUCTION

In a highly consequential decision, on June 28, 2024, in *Loper Bright Enterprises, Inc. v. Raimondo* (*Loper Bright*) and *Relentless, Inc. v. Department of Commerce* (*Relentless*)[1] the Supreme Court overruled the *Chevron* doctrine, a decision rendered on ideological grounds, dividing the conservative supermajority and liberal justices on the Court.

On May 1, 2023, the Supreme Court granted a writ of certiorari to the D.C. Circuit in *Loper Bright*.[2] On October 13, 2023, the Court granted a writ of certiorari to the First Circuit in *Relentless*.[3] In the litigation, Petitioners made concerted efforts to have the *Chevron* doctrine overruled. They were successful in this regard.

With its ruling, the Supreme Court has cast aside 40 years of administrative law, causing significant ramifications in the implementation of federal statutes for executive agencies and industry sectors.

The Supreme Court's June 28, 2024 decision goes beyond the fact-based merits of the two cases of how a federal statute impacts the financial interests of commercial fishermen. The central holding, as a matter of law, in *Loper*

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1. Loper Bright Enters., Inc. v. Raimondo, 144 S. Ct. 2244 (2024).
2. Loper Bright Enters., Inc. v. Raimondo, 143 S. Ct. 2429 (2023) (granting certiorari).
3. Relentless, Inc. v. Dep't of Com., 144 S. Ct. 325 (2023) (granting certiorari).

Bright and *Relentless* exemplifies the Supreme Court's view that the *Chevron* doctrine was contrary to the role of the judiciary under Article III of the U.S. Constitution and statutory mandate under the Administrative Procedure Act (APA). These were fatal flaws in the doctrine, and the Court rejected outright, in the context of deference under *Chevron*'s two-step framework, the notion of congressional delegation of interpretive authority to agencies for ambiguous statutes. The Court set forth principles to apply, elevating the role of courts to exercise their independent judgment to construe statutes. Thus, Article III courts are the ultimate deciders of what statutes mean.

The *Chevron* doctrine was announced in 1984 by the Supreme Court in *Chevron, U.S.A. Inc. v. Natural Resources Defense Council* (*Chevron*).[4] There, the Court established a two-step framework for courts to follow when interpreting ambiguous legislation enacted by Congress. For 40 years, the *Chevron* doctrine, a judge-made rule, has been the bedrock of administrative law, impacting a swath of industries, including the health sector and those entities affected by environmental regulatory regimes. The Court's June 28 decision jettisoned the two-step framework that the courts have used to interpret federal regulatory statutes. In doing so, the Court ushered in a new era of administrative law.

The purpose of this Article is to frame the fact-based inquiry arising from the D.C. Circuit and First Circuit opinions in *Loper Bright* and *Relentless*, respectively, and to provide an analysis of the Supreme Court's June 28 decision to overrule the *Chevron* doctrine. The Article will conclude with observations.

I. BACKGROUND

Under the U.S. Constitution, there are three co-equal branches of government. Article I sets forth the duties of the legislative branch wherein Congress is granted "[a]ll legislative [p]owers."[5] Article II empowers the executive branch to "faithfully execute[]" the laws enacted by Congress,[6] and Article III provides that judicial power "shall be vested" in "one supreme Court" and "inferior Courts" to adjudicate "Cases" and "Controversies."[7]

Tensions arise between the three branches of government. No other area of law exemplifies the dueling powers and duties of the three branches that exist in the enactment, implementation, and interpretation of laws passed by Congress. As noted, the role of judges under Article III is to decide cases and

4. 467 U.S. 837 (1984).
5. U.S. CONST. art. I, § 1.
6. *Id.* art. II, § 3.
7. *Id.* art. III, §§ 1–2.

controversies. Congress further ensured the role of courts in the Administrative Procedure Act (APA), enacted in 1946.[8] There, under § 706, it is explicitly mandated that "the reviewing court shall decide all relevant questions of law," and "interpret constitutional and statutory provisions."[9] Thus, by constitutional and statutory design, it is clear that the judiciary has a distinct function. It is against this backdrop that sets the inquiry on the role of courts to interpret statutes enacted by Congress which are administered by federal agencies.

The seminal case of *Chevron* has been viewed as the bedrock of administrative law. In that case, the U.S. Environmental Protection Agency (EPA) was required by Congress under the Clean Air Act Amendments of 1977 to regulate the amount of air pollutants from "stationary sources."[10] Exercising its authority, the EPA undertook notice-and-comment rulemaking wherein it defined the statutory term "stationary source." The final rule was challenged in federal court.[11] Reversing the D.C. Circuit, the Supreme Court ruled in favor of the agency's definition of "stationary source," concluding that EPA's reading of the statute was reasonable.[12]

In its decision, the Supreme Court established a two-step framework for courts to apply when an agency's final rule is challenged as exceeding statutory authority. In construing a statute, the Court in *Chevron* instructed that "[f]irst . . . is the question whether Congress has directly spoken to the precise question at issue. If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress."[13] Second:

> If, however, the court determines Congress has not directly addressed the precise question at issue, the court does not simply impose its own construction on the statute as would be necessary in the absence of an administrative interpretation. Rather, if the statute is silent or ambiguous with respect to the specific issue, the question for the court is whether the agency's answer is based on a permissible construction of the statute.[14]

8. 5 U.S.C. § 706 (2018).
9. *Id.*
10. 42 U.S.C. § 7502(b)(6) (1982).
11. Nat. Res. Def. Council v. Gorsuch, 685 F.2d 718 (D.C. Cir. 1982), *rev'd* 467 U.S. 837 (1984).
12. *Chevron*, 467 U.S. at 859–66 (1984).
13. *Id.* at 842–43.
14. *Id.* at 843.

This two-step framework has been known as "*Chevron* deference" or the "*Chevron* doctrine." The doctrine requires deference to an agency's construction of an ambiguous statute that is deemed reasonable, even if a court believes that there is a preferred reading of the statute.[15]

In *Chevron*, the Court went further, explaining how best to apply the two-step test. It instructed that the authority of an administrative agency to administrate a program created by Congress may require policy choices.[16] Thus, whether Congress intended to expressly or implicitly delegate authority to an agency to interpret a statute has played a part in navigating the balance of power between the judicial and executive branches. Congress may enact legislation that leaves a gap in the text of the law suggesting that it intended a delegation to an agency to exercise its expertise in the interpretive function, particularly when it pertains to a complex regulatory regime that an agency with expertise is best equipped to undertake.[17] Importantly, a principle premise for the rule of deference announced by the Supreme Court in *Chevron* was that "policy choices" should be left to executive branch officials directly accountable to the people, rather than to the judiciary.[18]

Through the years there has been simmering criticism of the *Chevron* doctrine. It has been argued that the doctrine has led to the abdication by courts of their role to rigorously apply traditional tools of statutory construction to interpret statutes.[19] Those who have leveled attacks against the *Chevron* doctrine have vehemently contended that courts have too hastily found ambiguity in a statute, and thus have deferred to the agency's reading of the law, thereby giving rise to the "administrative state."[20] It has been argued that this is contrary to constitutional and statutory dictates.[21] Those

15. *Id.* at 843 n.11; *see also* Entergy Corp. v. Riverkeeper, Inc., 556 U.S. 208, 218 (2009); Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs., 545 U.S. 967, 980 (2005).

16. *Chevron*, 467 U.S. at 843.

17. *Id.*

18. *Id.* at 865.

19. *See* Jack M. Beermann, *End the Failed Chevron Experiment Now: How Chevron Has Failed and Why It Can and Should Be Overruled*, 42 CONN. L. REV. 779, 784 (2010). In his article, Professor Beermann expressed the view that *Chevron* "encourages irresponsible . . . judicial behavior." *Id.* He wrote that reviewing courts "can brush off serious challenges to agency decisions by invoking *Chevron* without engaging whether the agency is thwarting imperfectly expressed congressional intent." *Id.*

20. *See* Buffington v. McDonough, 143 S. Ct. 14, 18 (2022) (Gorsuch, J., dissenting) (denying cert. to Buffington v. McDonough, 7 F.4th 1361 (Fed. Cir. 2021)). Justice Gorsuch wrote that *Chevron*, as construed by some courts, presents "a serious threat to . . . fundamental commitments as judges . . . ." *Id.* He explained that "[t]oday, administrative law doesn't confine itself to the regulation of large and sophisticated entities. Our administrative state touches almost every aspect of daily life." *Id.* at 21 (internal quotation marks and citations omitted).

21. *Id.* at 16, 18–19.

less inclined to criticize *Chevron* deference have suggested that, assuming a delegation by Congress to an agency, interpretation by the agency of statutory terms where the statute is ambiguous or where gaps exist in the law, allows an agency to exercise its expertise which a court may lack.[22] *Chevron* deference thus allows for more national uniformity in the interpretation and implementation of a statute. This view is consistent with the Supreme Court's rationale expressed in its *Chevron* decision.

Detractors of the *Chevron* doctrine have emphasized that the two-step framework, grounded in a finding of statutory ambiguity, is not practicable in the sense that courts frequently disagree on when the text of a law is ambiguous. This has resulted in a lack of uniformity in deriving a statute's meaning. Justice Scalia, an early champion of the doctrine, spoke to this when he opined that "battles . . . will be fought" over the "ambiguity" of the *Chevron* test.[23] Justice Kavanaugh expressed a similar concern, writing that "different judges have wildly different conceptions of whether a particular statute is clear or ambiguous."[24] In his view, the inconsistency in applying the two-step model under *Chevron* is often "antithetical to the neutral, impartial rule of law."[25]

II. THE LITIGATION

The matter in *Loper Bright* and *Relentless* involved the Magnuson-Stevens Fishery Conservation and Management Act (MSA or the Act), which designates implementation and delegation authority under the Act to the Secretary of Commerce.[26] The Act sets forth the role of the National Marine Fisheries Service (Fisheries Service or the Service), in conjunction with regional councils, to approve fishery management plans mandating certain practices.[27] The MSA grants authority to undertake rulemaking to implement fishery management plans.[28] Congress enacted the Act to maintain the fisheries as a marine ecosystem, for economic, recreational, and nutritional benefits.[29]

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22. *Chevron*, 467 U.S. at 865–66 (1984).

23. Antonin Scalia, *Judicial Deference to Administrative Interpretations of Law*, 1989 DUKE L.J. 511, 520–21 (1989).

24. Brett Kavanaugh, *Fixing Statutory Interpretation*, 129 HARV. L. REV. 2118, 2152 (2016) (reviewing ROBERT KATZMANN, JUDGING STATUTES (2014)).

25. *Id.* at 2154.

26. *See generally* 16 U.S.C. §§ 1801–1891(d) (2018).

27. 16 U.S.C. §§ 1801(a)(6), 1801(b)(1), 1852(h)(1), 1854, 1855(d) (2018).

28. *Id.* § 1853(a)(11) (specifying contents of fishery management plans); *see also* 16 U.S.C. §§ 1853(c), 1854 (2018).

29. *Id.* § 1801.

At issue in both *Loper Bright* and *Relentless* was the Atlantic herring fishery management plan, developed by the New England Fishery Management Council and approved by the Fisheries Service.[30] Rulemaking was undertaken to generally put in place a process for administering future industry-funded monitoring for certain New England fisheries.[31] Part of the implemented regulation mandated industry-funded monitoring for the Atlantic herring fishery was under direct challenge in the litigation. The Atlantic herring fishery was one of several fisheries governed by the New England Fishery Management Council.[32]

The 2020 final rule that was promulgated provided for the cost of at-sea monitoring to be shared between the federal government and the industry on a target percentage of designated fishing trips, subject to the herring fishery management plan.[33] The requirement that the fishing companies contribute to the cost of the wages paid to the monitors who accompany the fishing trips was the focus of the lawsuits' challenge.[34] Under this industry-funded scheme, the fishing vessels directly pay the wages of at-sea monitors.[35] The appellants (the fishing companies) asserted that these imposed payments assumed by fishing vessels were contrary to the MSA, and would cause extreme economic hardship for the fishing companies.[36] In the rulemaking, the Fisheries Service acknowledged that industry funding for at-sea monitors would have "direct economic impacts" on the fishermen of a significant nature.[37]

The issue presented in the litigation, industry-funding for monitor wages, has contextual reference to distinct provisions under the MSA. Aside

30. Magnuson-Stevens Fishery Conservation and Management Act Provisions; Fisheries of the Northeastern United States; Industry-Funded Monitoring, 83 Fed. Reg. 47326 (proposed Sept. 19, 2018) (to be codified at 50 C.F.R. pt. 648); Magnuson-Stevens Fishery Conservation and Management Act Provisions; Fisheries of the Northeastern United States; Industry-Funded Monitoring, 83 Fed. Reg. 55665 (proposed Nov. 7, 2018) (to be codified at 50 C.F.R pt. 648); Magnuson-Stevens Fishery Conservation and Management Act Provisions; Fisheries of the Northeastern United States; Industry-Funded Monitoring, 85 Fed. Reg. 7414 (Feb. 7, 2020) (to be codified at 50 C.F.R. pt. 648).

31. Magnuson-Stevens Fishery Conservation and Management Act Provisions; Fisheries of the Northeastern United States; Industry-Funded Monitoring, 85 Fed. Reg. at 7414.

32. *Id.* at 7417.

33. *Id.* Under limited circumstances, a waiver or an exemption from the duty to assume the cost of a monitor may be available. *See* 50 C.F.R. §§ 648.11(m)(1)(ii), (m)(1)(iii), (4)(ii) (2023).

34. Magnuson-Stevens Fishery Conservation and Management Act Provisions; Fisheries of the Northeastern United States; Industry-Funded Monitoring, 85 Fed. Reg. at 7417.

35. *Id.* at 7417–18.

36. Loper Bright Enters. Inc. v. Raimondo, 45 F.4th 359, 364, 370–71 (D.C. Cir. 2023).

37. Magnuson-Stevens Fishery Conservation and Management Act Provisions; Fisheries of the Northeastern United States; Industry-Funded Monitoring, 85 Fed. Reg. at 7418. The agency estimated that the "industry's cost responsibility" would be $710 per day, reducing annual returns for the vessel owner by "up to approximately 20 percent." *Id.*

from the Atlantic herring fishery management plan, the Act specifically mandates three other fishery management programs that provide for funding of monitors by owners of vessels. They are: (i) the limited access privilege program,[38] (ii) the North Pacific Council monitoring program,[39] and (iii) the foreign fishing vessel monitoring program.[40] These statutorily mandated plans will be discussed herein as part of the statutory analysis.

A. Loper Bright

A divided panel of the D.C. Circuit in *Loper Bright* upheld the rule that mandated fishing companies governed by the Atlantic herring fishery management plan pay the wages for at-sea monitors. In doing so, it affirmed the district court's decision which concluded that the rule was a lawful exercise of agency authority.[41] The D.C. Circuit engaged in extensive analysis of the statutory text.[42] In ruling against appellants (the fishing vessels) the court of appeals concluded that the MSA was ambiguous on whether Congress intended to mandate that fishing companies directly assume the cost of hiring monitors.[43] Thus, applying the *Chevron* doctrine, The D.C. Circuit deferred to the interpretation of the Act by the Fisheries Service since the government's reading of the statute was reasonable.

The Fisheries Service argued that the Act unambiguously grants it the authority to implement industry-funded monitors for the Atlantic herring fishery.[44] The court rejected this position. In its analysis, the D.C. Circuit in *Loper Bright* considered the text of the Act, its structure, and purpose.[45]

Citing various statutory provisions, the D.C. Circuit concluded that the Act lacked sufficient clarity, such that the relevant text was ambiguous.

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38. 16 U.S.C. § 1853(a)(e) (2018). The limited access privilege program allows program fees to cover management, data collection, and enforcement costs. *Id.* While not explicitly mandated, monitoring may be considered part of "data collection and analysis." *Id.* Vessel owners must pay fees to the government under this program. *Id.*

39. *Id.* § 1862. The North Pacific Council monitoring program requires observers be stationed on fishing vessels and owners of vessels are required to pay fees to the government to cover the cost of onboard observers. *Id.*

40. *Id.* §§ 1821(h)(4), (6). The foreign fishing vessel monitoring program authorizes the imposition of a surcharge, paid by vessel owners to the government, to cover the costs of observers on foreign vessels. *Id.* The statute also allows for a "supplementary observer program" by which fees are established to be paid by foreign fishing vessels directly to observers, an industry-funded mechanism. *Id.*

41. Loper Bright Enters. Inc. v. Raimondo, 544 F. Supp. 3d 82 (D.D.C. 2021), *aff'd*, 45 F.4th 359 (D.C. Cir. 2022), *vacated*, 144 S. Ct. 2244 (2024).

42. Loper Bright Enters. Inc. v. Raimondo, 45 F.4th 359 (D.C. Cir. 2022), *vacated*, 144 S. Ct. 2244 (2024).

43. 45 F.4th 359, 366.

44. *Id.* at 365.

45. *Id.* at 365–70.

Specifically, the court of appeals referenced § 1853(b)(8) of the Act.[46] Under that provision, plans may "require . . . observers be carried on board a vessel . . . for the purpose of collecting data . . . for the conservation and management of the fishery."[47] The court of appeals explained that the text states that fishery management plans may mandate at-sea monitors, but is entirely silent whether the Service may impose the costs for the monitors as an obligation of the fishing vessels.[48]

The D.C. Circuit then observed that § 1853 contains two "necessary and appropriate" clauses. For example, § 1853(b)(14) allows for plans approved by the Service to prescribe such "other measures, requirements, or conditions and restrictions as are determined to be necessary and appropriate for the conservation and management of the fishery."[49] Moreover, a penalty clause in the Act, § 1858(g)(1)(D), allows the Service to impose permit sanctions for failure to make "any payment required for observer services provided to or contracted by an owner or operator."[50] Citing *Michigan v. EPA*, the court of appeals suggested that the "necessary and appropriate" clause allows an agency to impose compliance costs on regulated parties.[51] This, together with the Act's requirement that the Service under § 1851(a)(8) "minimize adverse economic impacts,"[52] could imply that fishing vessels would assume at least some of the costs of hiring at-sea monitors.

The D.C. Circuit concluded, though, that the Act does not "definitively establish[] whether at-sea monitors are the type of regulatory compliance cost" that would be assumed by fishing vessels.[53] Thus, there could be no presumption that § 1853(b)(8), coupled with the "necessary and appropriate" clauses and the penalty provisions under the Act "unambiguously affords" authority by the Service to mandate that vessels pay wages for the monitors.[54] The court wrote that the text of the Act "does not compel the Service's interpretation . . . as granting authority by omission to require industry-funded monitoring. Courts construe [a statute's] silence as exactly that: silence."[55] Significantly, quoting *Michigan v. EPA*, the court of appeals recognized that the "necessary and appropriate" clauses in the Act afford a

46. 16 U.S.C. § 1853(b)(8) (2018).

47. *Id.*

48. 45 F.4th at 365 (D.C. Cir. 2022).

49. *Id.* § 1853(b)(14); *see also id.* § 1853(a)(1)(A) (requiring "measures . . . necessary and appropriate for the conservation and management of the fishery.").

50. *Id.* § 1858(g)(1)(D); *see also id.* § 1857(1)(L).

51. 576 U.S. 743, 752 (2015).

52. 16 U.S.C. § 1851(a)(8) (2018).

53. *Loper Bright*, 45 F.4th at 366 (D.C. Cir. 2022), *vacated*, 144 S. Ct. 2244 (2024).

54. *Id.*

55. *Id.* at 368.

"capacious" grant of authority that "leaves agencies with flexibility."[56] In sum, the D.C. Circuit held that where Congress "has not 'directly spoken to the precise question at issue,'" then the agency "may fill this gap," as was the case here, with a "reasonable interpretation" of the statute.[57] This is particularly so since, in the court's view, the Act lacked any restriction on the Service to impose on vessels the duty to pay wages for at-sea monitors.

Separately, the fishing vessels (appellants) argued that three other programs to protect fisheries covered by the MSA, unrelated to the jurisdiction of the New England Fishery Management Council, explicitly provide in the statute for the funding of monitors by owners of vessels.[58] Appellants were referring to statutorily specified programs: (i) the limited access privilege program, (ii) the North Pacific Council monitoring program, and (iii) the foreign fishing vessel monitoring program.[59] Appellants argued Congress's failure to explicitly incorporate in the MSA industry-funded monitors for the New England fisheries, including the Atlantic herring fishery implies that Congress did not intend to impose industry-funded at-sea monitors on that class of fisheries.[60] The D.C. Circuit rejected this argument as unpersuasive.[61] The court of appeals explained that the other three programs explicitly mentioned in the Act have different purposes, with different statutory funding mechanisms via fees.[62] The court succinctly stated that just because the provision for funding applied to other programs in the Act, it does not suggest Congress "implicitly intended to preclude" the Service from mandating that the herring fishing vessels directly pay the wages for at-sea monitors.[63]

The D.C. Circuit's applied mode of analysis in *Loper Bright* conformed with the two-step framework under the *Chevron* doctrine. The court of appeals, having determined the Act was ambiguous regarding whether the Service had statutory authority to require the vessels to pay the wages for at-sea monitors, then addressed whether the rule itself was reasonable under *Chevron* Step Two. The requirement under scrutiny, imposed on the Atlantic herring fishery need not be the best choice of agency decision-making. Rather, the court must affirm the agency's action as long as the agency's

56. *Id.* at 366 (quoting Michigan v. EPA, 576 U.S. 743, 752 (2015)).

57. *Id.* at 365 (quoting Chevron U.S.A., Inc., v. Nat. Res. Def. Council, 467 U.S. 837, 842 (1984)).

58. *See* 16 U.S.C. §§ 1853a(e), 1862(b), 1821(h)(4), (6) (2018).

59. *See supra* notes 38, 39, 40.

60. Loper Bright Enters., Inc. v. Raimondo, 45 F.4th 359, 366 (D.C. Cir. 2022), *vacated*, 144 S. Ct. 2244 (2024).

61. *Id.* at 367–68.

62. *Id.*

63. *Id.* at 366–68.

interpretation is a "reasonable resolution of an ambiguity" in the statute[64] and the agency has offered "a reasoned explanation" of the choices made.[65]

Under *Chevron* Step Two, the D.C. Circuit upheld the Service's rule. The Act's very text that the court of appeals found lacked clarity under *Chevron* Step One provided the basis for the court to find that industry-funded monitors was a reasonable reading of the statute under *Chevron* Step Two's deferential standard.

Specifically, the court observed that under § 1853(b)(8), and the "necessary and appropriate" clauses, the Service deemed the monitoring of fishing vessels to comport with the Act's conservation and management goals.[66] On that basis, it was a reasonable inference by the Service that it had the latitude under the "necessary and appropriate" clauses to implement cost-shifting by imposing industry-funded at-sea monitors.[67]

In *Loper Bright*, the fishing vessels argued that the rule requiring industry-funded monitors in the Atlantic herring fishery would be financially crippling.[68] The D.C. Circuit reviewed the record, and it concluded that the Service considered the important factors, including cost to the vessels.[69] It noted that a waiver or exemption was potentially available to redress hardships.[70] The court of appeals concluded that the rule was legally binding, and was not arbitrary or an abuse of discretion under § 706(2)(a), the APA standard governing judicial review of agency action.[71]

There was a dissenting opinion in *Loper Bright*. In his dissent, Circuit Judge Justin Walker agreed that the two-step framework under *Chevron* was the appropriate analytical tool to use in the case.[72] Judge Walker took issue, though, with how the majority applied the framework. Specifically, under *Chevron* Step Two, where a statute is ambiguous, an agency can have the explicit or implicit authority, delegated to it by Congress, to interpret the law.[73] Judge Walker took issue, though, where a statute is silent on a particular topic. He wrote that a statute's "silence

64. *Id.* at 369 (internal quotation marks and citation omitted) (quoting Michigan v. EPA, 576 U.S. 743, 751 (2015).

65. *Id.* (internal quotation marks and citation omitted) (quoting Cigar Ass'n of Am. v. FDA, 5 F.4th 68, 77 (D.C. Cir. 2021)).

66. *Id.* at 369.

67. *Id.* at 370.

68. *Id.* at 370–71.

69. *Id.*

70. *Id.* at 371.

71. 5 U.S.C. § 706(2)(a) (2018); *see also* Loper Bright Enters., Inc. v. Raimondo, 45 F.4th 359, 370–71 (D.C. Cir. 2022), *vacated*, 144 S. Ct. 2244 (2024).

72. *Loper Bright*, 45 F.4th at 374 (Walker, J., dissenting).

73. *Id.*

on a given issue does not automatically create such ambiguity or give an agency carte blanche to speak" under the notion of delegated authority.[74] He explained that "silence indicates a lack of authority."[75] Where the law is silent, there can be no assumption that Congress intended to implicitly delegate interpretive authority to an agency. Thus here, since the Act is silent on the duty of herring vessels to assume the cost of wages for monitors, then that ends the matter. Judge Walker construed the MSA such that there were no provisions that could be read to implicitly delegate authority to the Service to exercise an interpretive function. The D.C. Circuit disagreed and pointed out that *Chevron* Step Two directs judicial deference to an agency where the statute is ambiguous or silent regarding an issue.[76] Thus, the dissent's insistence that deference is appropriate only where the statute is ambiguous, is misguided. Further, the court viewed the Act's silence on industry-funded monitors "in the context of a comprehensive statutory fishery management program," to be implemented by the Service, coupled with a broad "necessary and appropriate" clause, amounted to a lawful delegation to the agency.[77]

B. Relentless

The challenge brought by the herring fishing vessels in *Relentless* was based on similar facts and raised similar legal issues that were faced by the D.C. Circuit in *Loper Bright*. The First Circuit in *Relentless* held that the imposition of industry-funded monitors for the herring fishery under the New England Fishery Management Council plan was a permissible exercise of agency authority.[78] In so ruling, the three-judge panel affirmed the district court's decision to uphold industry funding for at-sea monitors.[79]

The First Circuit in *Relentless* referred generally to the two-step framework under *Chevron*. Although the D.C. Circuit did not explicitly state whether its analysis was driven by Step One or Step Two under *Chevron*, it explained its view on the standards to apply in review of agency action generally.[80] Specifically, when determining the meaning of a statute, traditional tools of statutory construction are applied. The First Circuit

74. *Id.*; *see also* 5 U.S.C. § 706(2)(a) (2018).

75. *Loper Bright*, 45 F.4th at 374.

76. *Id.* at 369.

77. *Id.* at 370.

78. Relentless, Inc. v. Dep't of Com., 62 F.4th 621, 633–34. (1st Cir. 2023).

79. Relentless, Inc. v. Dep't of Com., 561 F. Supp. 226 (D.R.I. 2021), *aff'd*, 62 F.4th 621 (1st Cir. 2023).

80. 62 F.4th at 621, 628.

explained that the terms of a statute should not be read in isolation.[81] Rather, the statutory text is to be read in context, with a view to the statutory scheme.[82] Under these interpretive rules, if it is concluded that a statute is ambiguous, the court of appeals wrote that then, the agency has "leeway to enact rules that are reasonable in light of the text, nature, and purpose of the statute."[83]

The primary principle argued by the vessel owners in *Relentless* was the absence of any authority in the MSA that empowered the Fisheries Service, via rulemaking, to impose industry-funded monitors.[84] The court of appeals disagreed. It cited § 1853(b)(8) of the Act.[85] The court emphasized that Congress expressly provided that fishery management plans for the herring fishery may "require . . . observers be carried on board a vessel . . . for the purpose of collecting data . . . for the conservation and management of the fishery."[86] The appellants, though, asserted that the text of § 1853(b)(8) speaks of provisions for only "observers," and not "at sea monitors" which is the subject of the challenged agency rule.[87] The court of appeals was not persuaded. The First Circuit referenced § 1802(31)[88] of the Act, which provides for an expansive definition of the term "observer" to include "any person required or authorized to be carried on a vessel for conservation and management."[89] Thus, the court concluded that at-sea monitors were included under that definition and were authorized by regulation.[90]

The appellants were not deterred, and insisted that the Act was silent, "contain[ing] no language" that allowed the agency to "force" vessel owners to fund the monitors.[91] Here too, the court of appeals disagreed, and made reference to a "default norm" as applied to federal regulatory mandates generally.[92] Simply put, the First Circuit observed that "the government does not reimburse regulated parties for the cost of complying with properly enacted regulations."[93] Thus, the expectation is that, unless otherwise stated, the regulated party will cover the costs of complying with a rule's mandate.[94]

81. *Id.* at 628.
82. *Id.*
83. *Id.* (quoting Cuozzo Speed Techs. v. Lee, 579 U.S. 261, 277 (2016)).
84. *Relentless*, 62 F.4th at 628–29.
85. *Id.* at 629.
86. 16 U.S.C. § 1853(b)(8) (2018).
87. *Relentless*, 62 F. 4th at 629.
88. 16 U.S.C. § 1802(31) (2018).
89. *Id.*
90. *See* 50 C.F.R. § 648.11(m)(i) (2023).
91. *Relentless*, 62 F.4th at 629 (1st Cir. 2023).
92. *Id.*
93. *Id.*
94. *Id.*

The court of appeals concluded that there was no basis to assume that Congress meant something other than that the regulated party assumes the cost incurred to comply with the challenged rule.[95] Further, there was separate statutory support for industry-funded monitors. The First Circuit pointed to the penalty clause in the Act under § 1858(g)(1)(D).[96] There, the Service has the authority to impose permit sanctions for failure to make "any payment required for observer services provided to or contracted by an owner or operator . . . ."[97] The court construed that text as congressional intent for imposing punitive measures where vessel owners failed to fund monitors.[98]

Separately, in *Relentless*, the appellants argued that under the MSA, Congress explicitly legislated for funding of monitors by the owner of vessels for three statutorily designated fishery programs that are not within the jurisdiction of the New England Fishery Management Council.[99] Those programs are (i) the limited access privilege program, (ii) the North Pacific Council monitoring program, and (iii) the foreign fishing vessel monitoring program.[100] The appellants emphasized that provisions for funding of those fishery programs in the MSA, where there is no funding for monitor wages in the statutory text for vessels governed by the New England Fishery Management Council, must be construed to suggest that Congress did not intend the herring vessels to assume the cost for monitors.[101] The First Circuit rejected this argument. It made clear that there is statutory text under the MSA, accounting for the Act's structure and purpose, to conclude that requiring herring vessels to assume the direct cost for wages of monitors is a reasonable construction of the statute.[102] Thus, to suggest that explicit provision in the Act for monitor funding under three unrelated programs, with different purposes and funding mechanisms via fees, precludes industry-funded monitors by herring vessels, in the court's view, lacked merit.[103] The appellants in *Loper Bright* made a similar argument, but to no avail.[104]

The First Circuit concluded that, as a matter of law, the agency's decision to require herring vessels to assume the cost of at-sea monitors was

95. *Id.* at 630.
96. *Id.* at 630–31.
97. 16 U.S.C. § 1858(g)(1)(D) (2018).
98. *Relentless*, 62 F. 4th at 630–31.
99. *See* 16 U.S.C. §§ 1853a(e), 1862(b), 1821(h)(4), (6) (2018).
100. *See supra* notes 38, 39, 40.
101. *Relentless*, 62 F. 4th at 631–32.
102. *Id.* at 633–34.
103. *Id.* at 631–32.
104. Loper Bright Enters., Inc. v. Raimondo, 45 F.4th 359, 366–68 (D.C. Cir. 2022), *vacated*, 144 S. Ct. 2244 (2024).

permissible, and that imposition of such costs was reasonable.[105] The waiver and exemption features of the challenged rule, while not affording financial relief as contended by the appellants, were also upheld as meeting the arbitrary and capricious standard of review under the APA for agency action.

III. ARGUMENTS BEFORE THE SUPREME COURT

On writs of certiorari, the Supreme Court granted review of the D.C. Circuit and First Circuit decisions in *Loper Bright* and *Relentless*.[106] The Court limited its review to two issues. Those issues were (i) whether the Court should overrule *Chevron*, and (ii) under *Chevron* Step Two, where a statute is "silent," how best to construe the Magnuson-Stevens Fishery Conservation and Management Act (MSA) on whether vessel owners for the Atlantic herring fishery must pay the wages of at-sea monitors.[107] The two companion cases involved the same federal statute, implementing rules, and had substantially the same facts.[108]

Petitioners, the fishing vessels, in *Loper Bright* and *Relentless* made a concerted effort to argue that the *Chevron* doctrine should be overruled by the Supreme Court, or at a minimum, the doctrine should be narrowed in its scope.[109] Alternatively, Petitioners sought to have the rule imposing industry-funding for the herring fishery at-sea monitors invalidated as an unlawful exercise of agency authority under the Administrative Procedure Act (APA).[110] Importantly, attempts made in the litigation to overrule *Chevron* were directed to the two-step methodology announced by the Supreme Court in that case, and not to disturb, or challenge, the underlying substantive decision upholding the EPA's rule defining "stationary source" under the Clean Air Act Amendments of 1977.[111]

For context, there were dueling schools of thought regarding the historical record on the role of federal courts in the exercise of their

105. *Relentless*, 62 F. 4th at 634.

106. *See* Loper Bright Enters. v. Raimondo, 143 S. Ct. 2429 (granting certiorari); Relentless, Inc. v. Dep't of Com., 144 S. Ct. 325 (granting certiorari).

107. *Loper Bright*, 144 S. Ct. at 2257.

108. References to "Petitioners" in this section are meant collectively, rather than to specific parties either in *Loper Bright* or *Relentless*. Specific cites to the main briefs filed in the case before the Supreme Court by *Loper Bright* and *Relentless* are denoted as "BL" and "BR," respectively. Specific cites to the brief filed by the government as Respondents in *Loper Bright* are denoted as "BL-G."

109. Brief for Petitioner, Loper Bright Enters. v. Raimondo, 144 S. Ct. 2244 (2024) (No. 22–451) at 18–43 [hereinafter *BL*]; Brief for Petitioner, Relentless Inc. v. Dep't of Com., 144 S. Ct. 325 (2024) (No. 22–1219) at 14–40 [hereinafter *BR*].

110. 5 U.S.C. § 706(2)(A) (2018); BL, *supra* note 109 at 4, 28–29; BR, *supra* note 109 at 23, 28.

111. Loper Bright, 144 S. Ct. at 2273.

Article III duties.[112] In the litigation, Petitioners emphasized that in the late 19th century, federal courts were granted general federal question jurisdiction to decide cases.[113] When reviewing agency action, courts had the duty to construe statutes.[114] According to Petitioners, the predominant view was that deference to agency action was not favored as a standard of review. The notion of delegation of authority to a federal agency to construe federal law, and deference to agency action was not the norm. Petitioners further argued that in 1946, Congress enacted the APA. There, under § 706, it is declared that "the reviewing court shall decide all . . . questions of law," and "interpret . . . statutory provisions."[115] Under the APA, legal interpretations were for independent judicial resolution. Petitioners thus made efforts to cast the *Chevron* doctrine as contrary to the traditional role of federal courts, and argued that the judge-made rule announced in 1984 by the Supreme Court in *Chevron* lacked legitimacy.[116]

The government took issue with Petitioners' suggested historical perspective of the authority of federal courts.[117] It explained that in certain cases, federal courts like the Supreme Court gave deference to agency views on the meaning of statutes the agency was charged with administering.[118] This was so both before and after Congress enacted the APA, expressly codifying the province of federal courts to interpret laws.[119] The Supreme Court confirmed this in its *Chevron* decision.[120] Thus, the government argued that the announcement by the Supreme Court of the *Chevron* doctrine in 1984 did not usher in a new-found acceptance of granting deference to agencies. Rather, in view of past practice pre-dating *Chevron*, some have argued that the two-step framework under *Chevron* provided a more predictable, uniform structure for determining the meaning of federal statutes.[121]

Through the years, there has been simmering criticism of the *Chevron* doctrine.[122] Petitioners argued that the doctrine has been viewed as contrary to the principle of separation of powers enshrined in the U.S. Constitution,

112. BL, *supra* note 109 at 23–25, BR, *supra* note 109 at 20–21, 23–24.

113. BL, *supra* note 109 at 3; BR, *supra* note 109 at 20–21.

114. BL, *supra* note 109 at 3; BR, *supra* note 109 at 20–21.

115. 5 U.S.C. § 706 (2018).

116. *See* BL, *supra* note 109, at 4–7; BR, *supra* note 109, at 13.

117. Brief for Respondents, Loper Bright Enters. v. Raimondo, 144 S. Ct. 2244 (2024) (No. 22–451) at 22–26.

118. *Id.*

119. *Id.* at 25.

120. Chevron U.S.A., Inc. v. Nat. Res. Def. Council, Inc., 467 U.S. 837, 844 (1984) (collecting cases).

121. Scalia, *supra* note 23, at 521.

122. BL, *supra* note 109, at 23–26; BR, *supra* note 109, at 15.

diminishing the role of Congress to legislate and the role of the courts to construe statutes, in favor of the executive branch.[123] It was contended that this shifting of roles enhances the power of federal agencies, and thus raises due process concerns for litigants.[124] Affording deference to an agency's reading of a statute under *Chevron* Step Two bestows to the agency, as a litigant, a role normally assumed by a court, to the detriment of the opposing party. Due process is implicated since there is no level playing field for litigants challenging agency action. Additionally, Petitioners questioned the feasibility of the doctrine, observing that courts have struggled to apply the doctrine in "a principled way."[125] This includes the inherent fault under the doctrine that results in courts reaching inconsistent views on when a particular statute is ambiguous.

Further, assuming, without conceding that the *Chevron* doctrine has applicability in some form, Petitioners objected to the analysis by the lower courts that resulted in upholding the rule imposed on the herring vessels under the New England Fishery Management plan.[126] Here, the dispute centered on the framework under *Chevron* that speaks to instances where a statute is either silent or ambiguous about an aspect of the law enacted by Congress.[127] As noted previously, under *Chevron*, where a statute is either silent or ambiguous, courts must defer to an agency's reasonable interpretation of the law. Petitioners, though, argued that the MSA was silent regarding industry-funded monitors for the herring fishery.[128] Thus, Petitioners insisted that, as applied to the facts in *Loper Bright* and *Relentless*, silence in the MSA does not create an ambiguity in the statute that would justify *Chevron* deference for the agency's reading of the law.[129] According to Petitioners, this is so in that Congress statutorily provided under the MSA for the funding of monitors under three other distinct programs mentioned previously, (i) the limited access privilege program, (ii) the North Pacific Council monitoring program, and (iii) the foreign fishing vessel monitoring program. Petitioners contended that the failure of Congress to explicitly legislate for the funding of monitors applicable to the herring fishery infers that no such funding was intended by Congress.[130] Thus, the rule imposing

123. BL, *supra* note 109, at 23–27; BR, *supra* note 109, at 15–20.
124. BL, *supra* note 109, at 27–28; BR, *supra* note 109, at 30–32.
125. BL, *supra* note 109, at 16.
126. *Id.* at 39–40; BR, *supra* note 109, at 51.
127. BL, *supra* note 109, at 24; BR, *supra* note 109, at 34.
128. BL, *supra* note 109, at 43–44.
129. BL, *supra* note 109, at 43–46; BR, *supra* note 109, at 7–8, 48–49.
130. BL, *supra* note 109, at 47–48; BR, *supra* note 109, at 50–52.

industry funding for at-sea monitors for that class of fishery should be invalidated as an unlawful exercise of agency authority under the APA.

Assuming the Supreme Court declines to overrule *Chevron*, the Petitioners argued that the Court should narrow its scope.[131] Petitioners challenged the notion of implied delegation under *Chevron*, empowering an agency to pursue policy goals when interpreting an ambiguous statute.[132] Petitioners viewed implied delegation as a "fiction[]," and not grounded in law.[133] An ambiguous statute raises questions of law, not policy. Courts, not agencies, are better suited to undertake the interpretive function. Further, as applied to the two cases before the Court, the MSA is silent on the authority to impose industry-funding for at-sea monitors for the herring fishery. Thus, silence must be construed as a lack of delegation by Congress of law-making powers to an agency to impose its will through rulemaking.

Petitioners' view of the MSA is more closely aligned with the dissent by Circuit Judge Walker in *Loper Bright*, wherein he wrote that a statute's silence on an issue cannot always equate to an ambiguity, and an implicit delegation to the agency to assume an interpretive function.[134] Where a statute is silent, an agency lacks such authority.

IV. THE SUPREME COURT'S DECISION

Chief Justice Roberts wrote the Court's majority opinion, with Justices Thomas, Alito, Gorsuch, Kavanaugh and Barrett joining.[135] Justices Thomas and Gorsuch each filed concurring opinions.[136] Justice Kagan filed a dissenting opinion, joined by Justice Sotomayor, and Justice Jackson joined in *Relentless* only.[137] Justice Jackson took no part in the *Loper Bright* case before the Court.

In a broad sweep, the Supreme Court rejected the entirety of the *Chevron* doctrine of deference. The Court addressed the doctrine in the context presented by *Loper Bright* and *Relentless*, namely the fiction of implied delegation of agency authority by Congress to interpret ambiguous statutes. The Court identified the doctrine's infirmities and concluded that it must be cast aside in its entirety.[138] Most fundamental to its ruling, the Supreme Court

131. BL, *supra* note 109, at 43–46; BR, *supra* note 109, at 47.
132. BL, *supra* note 109, at 36-37; BR, *supra* note 109, at 34-36.
133. BL, *supra* note 109, at 25, 43–46; BR, *supra* note 109, at 33–34.
134. BL, *supra* note 109, at 46–50.
135. Loper Bright Enters. v. Raimondo, 144 S. Ct. 2244, 2253 (2024).
136. *Id.*
137. *Id.*
138. *Id.* at 2263.

took great effort to emphasize that the *Chevron* doctrine was contrary to the role of Article III courts under the Constitution and could not be reconciled with § 706 of the Administrative Procedure Act (APA).

For historical context, the Court traced the history of the authority and practice of courts under Article III, and cited the seminal case *Marbury v. Madison* as establishing the quintessential authority of the federal judiciary.[139] Chief Justice Roberts emphasized that in that case, Chief Justice Marshall clearly stated that "[i]t is emphatically the province and duty of the judicial department to say what the law is."[140] The judiciary was to fulfill its function using independent judgment. The Court acknowledged, though, that Congress may pass statutes that are ambiguous. Under these circumstances, it would be appropriate to give "due respect" to interpretations by the executive branch.[141] Such weight afforded by federal courts was particularly appropriate where an agency's interpretation was contemporaneous with the statute's enactment and was consistently adhered to by the agency. As such, an interpretation by the executive branch "can inform" and even be entitled to "great weight" but "not supersede," the court in determining the meaning of a statute.[142]

Chief Justice Roberts canvassed the case law during the New Deal period. He referenced instances where Congress had, on occasion, explicitly delegated interpretive authority to an agency in the text of the statute. This is distinctly different from a situation where Congress enacts a law that is ambiguous on its face, without any explicit delegation to an agency to perform an interpretive function. The Court acknowledged that an explicit delegation by Congress to interpret a specific term in the statute commands deference to the agency's view of the meaning of the statutory term. This would apply where the agency is authorized by Congress to determine how a broad statutory term applies to a set of facts found by the agency. Deference to the agency would apply if the agency's decision reflected "a sensible exercise of judgment."[143] The Court cited two cases that exemplified this explicit delegation with a deferential standard of review. Those cases are *Gray v. Powell*[144] and *National Labor R Board v. Hearst Publications, Inc*.,[145] decided in 1941 and 1944, respectively.

139. 5 U.S. (1 Cranch) 137, 177 (1803).
140. *Loper Bright*, 144 S. Ct. at 2257 (quoting *Marbury*, 5 U.S. (1 Cranch) at 177).
141. *Loper Bright*, 144 S. Ct. at 2257.
142. *Id.* at 2258–59.
143. *Id.* at 2259 (quoting Gray v. Powell, 314 U.S. 402, 412–13 (1941)).
144. 314 U.S. 402 (1941).
145. 322 U.S. 111 (1944).

In these situations, such as those in *Gray* and *Hearst*, a deferential standard applies in cases where Congress makes an explicit delegation of interpretive authority to an agency. As the Court emphasized, the statutory term is "sufficiently intertwined with the agency's factfinding," where the agency's interpretation has a "reasonable basis in law."[146] Here, it is important to pause to emphasize the nuanced approach embraced by the Court. The deference extended to an agency, as just noted, "was cabined to factbound determinations" made by an agency.[147] The Court in *Loper Bright* and *Relentless* made clear that the *Gray* and *Hearst* decisions must not be construed as changing the judicial approach to pure questions of law. For questions of law, there is no basis for conferring on the agency a deferential standard. Rather, for questions of law, the courts must assume the interpretive function using independent judgment. The Court, though, was not consistent in its later decisions in that, for factbound determinations, it simply interpreted the statute on its own, rather than defer to an agency's view.[148]

As the Supreme Court observed in its decision, the evolution of court applied standards of review for agency decision-making is punctuated by the Court's 1944 ruling in *Skidmore v. Swift & Co*.[149] and the enactment by Congress in 1946 of the APA.

In *Skidmore*, the Court recognized that an agency may express opinions and interpretations regarding the meaning of statutes that courts may look to as "guidance."[150] For this to apply, the agency must be acting in the course of its official duties, relying on its expertise. The relevant factors to consider are those that would give the agency's view the "power to persuade," including the "thoroughness evident in its consideration, the validity of its reasoning, [and] its consistency with earlier and later pronouncements."[151] Here, where the relevant factors apply, the agency's view helps to inform the court, but not to control, in the exercise of independent judgment, the court's function to interpret the statute.

Further, as relevant here, Congress directed in § 706 of the APA that "the reviewing court shall decide all . . . questions of law," and "interpret constitutional and statutory provisions."[152] Further, § 706(2)(A) directs courts to "hold unlawful and set aside agency action, findings, and

146. Loper Bright Enters. v. Raimondo, 144 S. Ct. 2244, 2259–60 (2024).
147. *Id.* at 2259.
148. *Id.* at 2260.
149. 323 U.S. 134 (1944).
150. *Loper Bright*, 144 S. Ct. at 2259 (quoting *Skidmore*, 323 U.S. at 139–40).
151. *Skidmore*, 323 U.S. at 140.
152. 5 U.S.C § 706 (2018).

conclusions found to be . . . not in accordance with law."[153] The Court specifically noted that § 706 "prescribes no deferential standard for courts to employ in answering . . . legal questions."[154] That is the plain reading of the section's text. Writing for the Court, Chief Justice Roberts further emphasized that the role of courts codified in § 706, as one of deciding questions of law, is confirmed by the legislative history of the APA.[155] The Chief Justice explained that the "traditional understanding" of the role of courts, the judicial function, is that courts "must exercise independent judgment" when determining the meaning of statutes.[156] There is "no deferential standard for courts to employ in answering . . . legal questions."[157] That is clearly exemplified by the text of § 706 of the APA.

Significantly, Chief Justice Roberts distinguished instances where the matter under review by a court pertains to agency policymaking and fact-finding. In those latter cases, §§ 706(2)(A) and 706(2)(E)[158] of the APA mandate a degree of specified deference to the agency's decisions.[159] The Court concluded that "[t]he deference that *Chevron* requires of courts reviewing agency action cannot be squared with the APA."[160]

Along these lines, Chief Justice Roberts cited to Justice Scalia's concurring opinion in *Perez v. Mortgage Bankers Association*[161] wherein he addressed the APA's enactment, and its intended purpose. The APA was enacted in 1946 at a time of rapid growth of the administrative process, and thus was intended as "a check upon administrators whose zeal might otherwise have carried them to excesses . . . ."[162] The design and purpose of the APA are in direct tension with *Chevron* deference, defying the very intent of Congress when it enacted the APA.[163] Further, Justice Scalia wrote that it was telling that the Court's 1984 *Chevron* decision never mentioned the APA, even as it approved the principle of deference for agency action under the two-step framework.[164] While Justice Scalia was an early advocate of the *Chevron* doctrine, he wrote in *Perez* that the Court, "[h]eedless of the original design of the APA," developed in *Chevron* "an elaborate law of deference to

153. *Id.* § 706(2)(A).
154. *Loper Bright*, 144 S. Ct. at 2261.
155. *Id.* at 2262.
156. *Id.*
157. *Id.* at 2261.
158. 5 U.S.C §§ 706(2)(A), (2)(E).
159. *Loper Bright*, 144 S. Ct. at 2261.
160. *Id.* at 2263.
161. 575 U.S. 92, 108 (2015) (Scalia, J., concurring).
162. *Id.* at 109 (quoting United States v. Morton Salt Co., 338 U.S. 632, 644 (1950)).
163. *Perez*, 575 U.S. at 109–10 (Scalia J., concurring).
164. *Id*.

agencies' interpretations of statutes . . . ."[165] Justice Scalia observed that the Court ignored the directive under § 706 of the APA that the courts interpret statutory provisions; in doing so the Court empowered agencies to resolve ambiguous statutes.[166]

Lastly, the Supreme Court in *Loper Bright* and *Relentless* recognized that Congress may expressly delegate a degree of discretion for an agency to implement an enactment.[167] By way of example, the Court noted that Congress, in some instances, may expressly delegate in a statute authority to define a statutory term.[168] Congress may also give an agency the authority to prescribe rules to "fill up the details" of a statutory scheme or to regulate subject to the limits imposed by a term or phrase in a statute while conferring on the agency "flexibility" to do so.[169] This would apply when words such as "appropriate," "reasonable," or "necessary" are included in the statute.[170] Under these circumstances, the reviewing court must apply independent judgment when interpreting the law, but also consider the agency's views provided they reflect "reasoned decision making," and the agency has stayed within the boundaries of the congressional delegation of authority.[171]

The Supreme Court found vexing *Chevron*'s two-step formula—which in the Court's view was fundamentally misguided. First, the Court rejected the argument that an ambiguity in a statute reflects a conscious decision by Congress to implicitly delegate to an agency the task of interpreting a statute rather than rely on a court to construe the statute[172]. The Court viewed this as a fiction, not grounded in reality.[173] This was so since many ambiguities may be unintentional, or simply reflect a failure by Congress to consider a particular issue with clarity when enacting a law.

Chief Justice Roberts explained that rather than relying on an agency's "permissible" reading of an ambiguous statute, as would be the case under *Chevron* Step Two, it is far better to allow a court to interpret the statute using the traditional tools available to it.[174] Courts are equipped to do this task. This is so even for highly technical statutory provisions.[175] The Court rejected the

165. *Id.* at 109.
166. *Id.* at 109–10.
167. Loper Bright Enters. v. Raimondo, 144 S. Ct. 2244, 2263 (2024).
168. *Id.*
169. *Id.* (citations omitted).
170. *Id.* at 2263 & n.6 (explaining the degree of discretion granted to the U.S. Environmental Protection Agency).
171. *Id.* at 2263 (citations omitted).
172. *Id.* at 2265.
173. *Id.*
174. *Loper Bright*, 144 S. Ct. at 2266.
175. *Id.* at 2267.

notion that only an agency has the competence, the expertise, to provide meaning to highly complex statutes.[176] The Chief Justice observed that courts routinely confront the task of interpreting complex statutes when there is no involvement of an agency under the statute at issue.[177] Ambiguous statutes, "no matter how impenetrable, do—in fact, must—have a single, best meaning."[178] Thus, the Court explained that instead of concluding that an agency's reading of the law is "permissible" under *Chevron* Step Two, it is far preferable for courts to employ all available tools to derive the "best reading" of the statute.[179] This was in recognition that agencies have no special competence in construing ambiguous statutes.[180] Courts, though, have the capability to do so.[181] The Chief Justice suggested that courts can always "seek aid" from an agency on its views regarding technical aspects of a statute.[182] Such information, constituting a "body of experience" from an agency, can influence a court's independent judgment to the extent the agency's views are entitled to that influence.[183] This is particularly so where an agency's view "rests on factual premises" that arise from an agency's expertise.[184] The Court recognized that an agency's contemporaneous interpretations of a statute, if consistently adhered to, may well be useful as guidance to courts.[185]

Proponents of agency deference argued that matters involving policymaking are most appropriately left to political agency officials, not to the courts.[186] The dissent pressed this point, but the majority disagreed.[187] The Court stated that judges have always been expected to render their judgments independent of the political branches when interpreting laws.[188]

The Court also summarily rejected the argument that allowing agencies to interpret ambiguous statutes promotes uniformity in a statute's meaning.[189] The Court mentioned that this was highly doubtful in that judges have inconsistently applied the Two-Step framework and uniformity was not the practice for agencies, which have routinely changed prior interpretations of

176. *Id.*
177. *Id.* at 2267.
178. *Id.* at 2266.
179. *Id.*
180. *Id.* at 2266.
181. *Id.* at 2266–67.
182. *Id.* at 2262.
183. *Id.*
184. *Id.* at 2267.
185. *Id.* at 2262.
186. BL-G, *supra* note 117, at 19–21.
187. *Loper Bright*, 144 S. Ct. at 2273.
188. *Id.* at 2273.
189. *Id.* at 2267.

statutes with a change in the political leadership of the executive branch.[190] This hardly promotes consistency.

By casting aside *Chevron* deference as a standard of judicial review, the Court emphasized the role of *Skidmore*, and the factors set forth therein, as a guide for courts to determine the validity of an agency's decision-making[191]. Under the *Skidmore* standard, deference to the agency's interpretation of a statute is not the standard to be applied.[192] Rather, the inquiry for the reviewing court is the degree to which the agency's reading of the law is entitled to weight, the degree to which the agency's views have the "power to persuade."[193] Here, though, the reviewing court always retains its function to determine questions of law using independent judgment.[194]

As to the principle of *stare decisis*, the majority of the Supreme Court ruled that *stare decisis* does not preclude overruling the *Chevron* doctrine.[195] The Court framed the analysis, noting that *stare decisis*, requiring adherence to judicial precedent, "is not an inexorable command."[196] Rather, there are certain factors to consider case-by-case. Those factors are: (i) the strength of the decision's reasoning, (ii) the rule's workability, and (iii) "reliance on the decision."[197]

The Court viewed the *Chevron* doctrine as "fundamentally misguided."[198] This was particularly so in that in the past, there was no serious attempt to come to terms with its application vis-à-vis the APA.[199] Further, a history of the doctrine's application reveals attempts by the Court to continually adjust the two-step framework in response to difficulties in the methodology.[200] To make matters worse, *Chevron* Step One, with the ambiguity criterion, led to more confusion, highlighting the difficulty faced by courts in applying that element with consistency.[201] Drawing from experience with the *Chevron* doctrine, the Court concluded that the doctrine was not workable, writing that "[f]our decades after its inception, *Chevron*

190. *Id.* at 2267, 2272.
191. *Id.* at 2267 (citing *Skidmore*).
192. *Id.*
193. *Id.*
194. *Id.* at 2262.
195. *Id.* at 2270.
196. *Id.* at 2270 (internal quotation marks and citation omitted).
197. *Id.*
198. *Id.*
199. *Id.* at 2265.
200. *Id.* at 2268–72.
201. *Id.* at 2270.

has . . . become an impediment . . . to accomplishing the basic judicial task of say[ing] what the law is."[202]

Turning to the question of reliance interests, the Court likewise found this element lacking.[203] Simply put, the doctrine does not allow for a "clear or easily applicable standard," and it has been applied inconsistently by the courts, such as when agencies make decisions alerting their prior interpretations of a given statute.[204] *Chevron* thus hardly allows for a basis of reliance by those who wish to plan their future conduct. The Court opined that the *Chevron* doctrine, as a fundamentally flawed judge-made rule, with all its instability, cannot provide a basis to proclaim justifiable reliance interests.[205]

The majority opinion was quick to emphasize, though, that by overruling the *Chevron* doctrine, the Court did not intend to question prior cases that applied the *Chevron* framework.[206] Thus, those decisions that applied the *Chevron* methodology affirming an agency's action as lawful are subject to *stare decisis*. This includes *Chevron* itself wherein the Court upheld the EPA's definition of the term "stationary source" under the Clean Air Act Amendments of 1977.[207]

The majority opinion expressly overruled the *Chevron* doctrine.[208] It thus vacated the D.C. Circuit and First Circuit judgments in *Loper Bright* and *Relentless*, respectively in that their analysis applied *Chevron*'s two-step framework. Further, it remanded the two cases for further proceedings in accordance with the Court's decision.[209]

The essential principles arising from the Supreme Court's decision are:

> 1. Courts must employ independent judgment free of agency deference when exercising their role under Article III of the Constitution and in accordance with the APA under § 706 when interpreting statutes.
>
> 2. Resort to an agency's views is appropriate to inform the court on the meaning of a statute, and the degree of weight to be afforded to an agency's reading of the law will vary depending upon factors

202. *Id.* at 2271 (internal quotation marks and citation omitted).
203. *Id.* at 2272.
204. *Id.* (citation omitted).
205. *Id.*
206. *Id.* at 2273.
207. *Id.* at 2273.
208. *Id.*
209. *Id.*

> considered by the agency, its reasoning, and the agency's power to persuade.
>
> 3. Where Congress has expressly delegated to the agency a degree of discretion to interpret a statutory term, or to "fill up the details" of a statutory scheme, courts are to respect that delegation[210]. This respect is due if the agency acts within the authority delegated by Congress, and the agency's views warrant weight or respect under traditional tools applied for review of agency action. The analysis includes the reasoning reflected in the agency's decision. Here, the reviewing court, when interpreting the law, must ultimately apply independent judgment.
>
> 4. Courts may not defer to an agency's interpretation of a statute merely because the statute is ambiguous.

Justice Thomas and Justice Gorsuch each wrote separate concurring opinions. Justice Thomas was compelled to emphasize the serious flaw in an implicit delegation of authority to agencies under the *Chevron* model. He viewed this as most serious in that it presented a direct challenge to the very design under the Constitution that embodied separation of powers between the three co-equal branches of government.[211] He explained that the *Chevron* doctrine denied the judicial power of the courts and expanded the authority of the executive branch by anointing it with the power to legislate and perform a judicial function contrary to the Framers' intent.[212] On this basis alone, Justice Thomas viewed *Chevron* as doomed to failure on constitutional grounds. Justice Thomas in his concurring opinion condemned the doctrine since the most pernicious impact, in practice, favored an agency's reading of an ambiguous statute, if found to be merely permissible, even though a court may believe a different interpretation was the more correct one.[213]

Justice Gorsuch in his concurring opinion went to lengths to explore the historical treatment of *stare decisis* principles. He supported the Court's views on *stare decisis* and reliance interests.[214] His position was generally influenced by a few key factors. First, *Chevron* deference directly conflicted with the APA's governance of Article III courts to exercise independent

210. *Id.* at 2263.
211. *Id.* at 2274 (Thomas, J., concurring).
212. *Id.* at 2274–75.
213. *Id.*
214. *Id.* at 2281–82, 2288 (Gorsuch, J., concurring).

judgment in interpreting laws.[215] Second, *Chevron* deference reflected a disregard for the notion of separation of powers under the Constitution which, as designed, envisions three co-equal branches of government.[216] Third, the lack of workability under the *Chevron* framework, and its aberrations, had negative impacts, particularly for reliance interests.[217] Fourth, the doctrine embodied a "systematic bias," thus depriving the party challenging agency action due process.[218]

As for due process, Justice Gorsuch was adamant about *Chevron*'s shortcomings. He succinctly explained that *Chevron* deference, by preventing courts from fulfilling their function under Article III to determine a statute's meaning, "forces judges to abandon the best reading of the law in favor of views of those . . . holding the reins of the Executive Branch."[219] Further, courts are subject to the government's changes in its interpretations of a statute at the government's whim. There are concerns that arise from this. Instead of providing a fair adjudication in challenges brought against an agency's actions, "insulate[d] . . . from power and politics,"[220] *Chevron* deference "requires courts to place a finger on the scales of justice in favor of the most powerful of litigants, the federal government."[221] Justice Kagan wrote a dissenting opinion, joined by Justice Sotomayor in both *Loper* and *Relentless* and Justice Jackson in the *Relentless* case.[222]

The substance of the dissent is that *Chevron* deference had, for 40 years, become interwoven in administrative law. *Chevron*'s two-step formula provided for a more natural recognition that where a statute is ambiguous or has gaps, then it is the agency's reading of the law, assuming it is reasonable, that governed.[223] This is particularly so in the enactments of complex and technical regulatory regimes. The dissent opined that it is understood that Congress does not always write clear statutory language addressing all issues. This could be either intentional or unintentional. The principle of implied delegation under *Chevron* reflected what Congress expected and wanted. Thus, *Chevron* deference "is rooted in a presumption of legislative intent,"[224] an implied delegation of authority to the agency with expertise. Where there is ambiguity in the law or gaps, policy choices often need to be

215. *Id.* at 2281–82, 2285.
216. *Id.* at 2289.
217. *Id.* at 2286–88.
218. *Id.* at 2285 (internal quotation marks and citation omitted).
219. *Id.*
220. *Id.*
221. *Id.* (internal quotation marks and citation omitted).
222. *Id.* at 2294 (Kagan, J., dissenting).
223. *Id.*
224. *Id.*

made. Under implied delegation, those decisions naturally fall within the ambit of agency decision-making in the absence of an explicit delegation by Congress to an agency.[225]

Justice Kagan chastised the majority, observing that the Court reached its decision to jettison *Chevron* deference because it is contrary to the dictates of the APA. The dissent disagreed, writing that the APA is no impediment to a delegation of implied interpretive authority to agencies. Justice Kagan emphasized that *Chevron* is "entrenched precedent, entitled to the protection of *stare decisis* . . . ."[226]

Much of the dissent's views pertained to the supposed expertise of agency officials in construing and implementing complex regulatory statutes. To this point, Justice Kagan explained that the presumption under *Chevron* was the recognition that resolving ambiguities in statutes often entails consideration of policy to balance competing goals.[227] It is the agency, with the duty to administer the law, that has the expertise and knowledge on how to strike the best balance on issues of policy. Judges are not suited to engage in policy.

Chief Justice Roberts, though, addressed this argument in the majority opinion. He argued that courts have the sole duty to interpret the law, using traditional tools of statutory interpretation.[228] Contrary to what the dissents suggests, courts have long been viewed as capable of interpreting statutes with complex, technical provisions. As noted in the majority's opinion, the role of courts is to derive the best interpretation of the statutory text, even with highly technical statutes, shrouded in ambiguity.[229]

Further, an agency has the leeway to advise the court of the technical aspects of a statute, and the agency's views may be entitled to respect, or weight—the power to persuade. Chief Justice Roberts addressed the view, pressed by the dissent, that ambiguous statutes involve policymaking, best left to political agency officials, and not to the courts.[230] He wrote that Congress intends to leave matters of policy choices to agencies.[231] When it comes to resolving ambiguities in a statute, though, that task involves legal interpretation particularly suited for the courts. Chief Justice Roberts wrote that *Chevron* deference was fundamentally misguided, in that agencies "have

225. *Id.*
226. *Id.* at 2295.
227. *Id.* at 2299.
228. *Id.* at 2266 (majority opinion).
229. *Id.* at 2267.
230. *Id.* at 2267–68.
231. *Id.*

no special competence in resolving statutory ambiguities."[232] Further, he made the point that where Congress intends to leave policy determinations to an agency, it can do so by delegating discretionary authority explicitly in the statute.[233] This would not, though, amount to deference to an agency's reading of the law that existed under the *Chevron* regime.[234] Additionally, Congress could, of course, explicitly make policy choices itself when drafting legislation.

The dissent had a radically different view of § 706 of the APA, in direct conflict with the majority opinion. Section 706 was enacted to codify pre-existing law. Justice Kagan wrote that § 706 and pre-existing law are both compatible with *Chevron* deference.[235] For sure, § 706 provides that a reviewing court "shall decide all . . . questions of law" and "interpret . . . statutory provisions."[236] The majority reads § 706 as an explicit command for courts and does not indicate that courts may also employ a deferential standard for agency actions. Justice Kagan objected to this reading of § 706, noting pointedly that the section does not provide for a *de novo* standard.[237] In the dissent's view, § 706 does not prescribe any standard of review. Thus, under the deferential *Chevron* framework, a reviewing court applying § 706 appropriately evaluates whether the agency's interpretation of the law is reasonable.

In so doing, the court fulfills its function under § 706 to "decide all questions of law" and "interpret . . . statutory provisions."[238] To emphasize the point, the dissent wrote that § 706 "neither mandates nor forbids Chevron-style deference."[239] To complete the analysis, Justice Kagan wrote that § 706, when enacted, was meant to reflect the then current state of the practice by courts which generally tended to apply a deferential standard of review for agency actions.[240] By way of example, the dissent cited the 1941 case *Gray v. Powell*[241] and the 1944 case *National Labor Relations Board v. Hearst Publications, Inc.*[242] Justice Kagan further expounded on the

232. *Id.* at 2266.
233. *Id.* at 2263.
234. *Id.* at 2666.
235. *Id.* at 2303–04 (Kagan, J., dissenting).
236. *Id.* at 2261 (majority opinion).
237. *Id.* at 2261 n.4; 5 U.S.C. § 706 (2018).
238. 5 U.S.C. § 706 (2018).
239. *Loper Bright*, 144 S. Ct. at 2303 (Kagan, J., dissenting).
240. *Id.* at 2304.
241. *Id.*at 2305; *see* Gray v. Powell, 314 U.S. 402 (1941).
242. *Loper Bright*, 144 S. Ct. at 2305; *see* NLRB v. Hearst Publ'ns, Inc., 322 U.S. 111 (1944).

practice of favoring deference to agency interpretations of ambiguous statutes pre-dating the APA.[243]

As to *stare decisis*, here too, the dissent was critical of the majority decision. Justice Kagan wrote that *Chevron* deference was entitled to the "strongest form of protection" under *stare decisis*, and it cast a grim view of the majority's holding.[244] "*Stare decisis* promotes the even-handed, predictable, and consistent development of legal principles."[245] The dissent predicted that the majority's decision "will cause a massive shock to the legal system" by creating doubt about established interpretations of statutes and impeding the interests of those who have relied on them.[246] Tellingly, Congress could have taken action to alter or do away with the *Chevron* model, but has not done so. Justice Kagan presented a litany of objections arising from the majority's decision to deny *stare decisis* for the *Chevron* doctrine.[247]

The dissent concluded by observing the frailties of the majority decision, a realignment of roles for the executive branch and the courts with negative consequence.[248] Justice Kagan found essential fault with the majority's decision which, in her view, ignored the wish of Congress.[249] Executive agencies perform the functions as actors with expertise to implement complex regulatory regimes, resolve ambiguities and "fill the gaps" in statutes.[250] Justice Kagan wrote that agencies are part of the political realm to weigh factors and make policy choices.[251] By overruling *Chevron*, the Court has ignored that dynamic—one that Congress would have chosen—rather than look to the judiciary to interpret regulatory statutes in the exercise of independent authority.[252]

V. OBSERVATIONS

Past commentary over the years on the *Chevron* doctrine was overwhelmingly negative. The most consistent focus, as expressed by members of the Supreme Court and others, has been separation-of-powers and non-delegation principles, rooted in the Constitution and codified under

243. *Loper Bright*, 144 S. Ct. at 2306.
244. *Id.*
245. *Id.* at 2307 (internal quotation marks and citation omitted).
246. *Id.*
247. *Id.* at 2306–07.
248. *Id.* at 2310–11.
249. *Id.* at 2311.
250. *Id.*
251. *Id.*
252. *Id.*

the Administrative Procedure Act. The Supreme Court, in its June 28 decision, came to terms with the infirmities of the doctrine. By its decision to overrule the doctrine in its entirety, the Court rewrote the landscape of modern administrative law. This will burden federal agencies with new realities in the implementation of congressional enactments that, as recognized, will be the responsibility of the courts, through the exercise of independent judgment, to interpret. Thus, the Court has put to rest what has been referred to as an experiment: the "*Chevron* project."[253]

While casting aside the *Chevron* doctrine that raised a host of uncertainties in its application, the Supreme Court's decision brings to the forefront new doubts as to how the courts—and interested parties—will interpret this decision. These doubts will be particularly great as to what standards to apply when reviewing actions taken by federal agencies to implement complex regulatory regimes.

As Chief Justice Roberts observed in the Supreme Court's majority opinion, the Court has not applied the *Chevron* doctrine since 2016. Erosion of *Chevron* deference in recent years is perhaps best exemplified in two recent cases decided by the Supreme Court in 2022: *American Hospital Association v. Becerra*[254] and *Becerra v. Empire Health Foundation*.[255] Both of those decisions involved Medicare reimbursement to hospitals—a complex subject. In both of those cases, briefing papers filed with the Court mentioned the relevance of *Chevron*. The Supreme Court's decisions, though, made no explicit reference to the *Chevron* framework.[256] This was a conspicuous omission in the Court's rulings since *Chevron*'s applicability was an issue.

In closing, the Supreme Court in its June 28, 2024 decision has cast aside 40 years of administrative law. In so doing, the Court has pivoted to another dynamic, re-establishing the role of courts to fulfill their duty to exercise independent judgment when interpreting the law, as Chief Justice Marshall envisioned in *Marbury v. Madison*.

VI. CONCLUSION

In a practical sense, now that the *Chevron* doctrine is overruled, federal agencies will be burdened with their newly defined, reduced authority to administer ambiguous statutes.

253. *Id.* at 2270 (majority opinion).
254. 596 U.S. 724 (2022).
255. 597 U.S. 424 (2022).
256. *See generally Am. Hosp. Ass'n*, 596 U.S. 724 (2022); *Becerra*, 597 U.S. 424 (2022).

In a post-*Chevron* era, a large swath of industries subject to regulatory statutes must now grapple with choices, assess risks, and strategically plan ahead for litigation challenging agency rulemakings. The actions taken by agencies will no longer enjoy the deferential standard of review once afforded under *Chevron*'s two-step formula. It is reasonable to conclude that the *Skidmore* standard of review, no stranger to the judiciary, will be more frequently applied by reviewing courts. Further, the courts will employ the standards set forth in the Administrative Procedure Act (APA) for review of agency action under § 706(2)(A). Not to be overlooked, the Supreme Court's decision also looks to Congress by placing the onus on legislators to be more mindful of the statutory text they consider and the complex technical aspects of the laws they draft and enact. The Court invited Congress to consider formal, explicit delegation to agencies of interpretive authority for certain provisions, or statutory terms, which may give rise to a degree of agency discretion requiring reasoned decision-making. It is the power to persuade, not the power to control, that would govern under these circumstances. Here, the courts retain ultimate authority, provided under the APA, to exercise independent judgment in construing statutes.

To be sure, it will take time for litigants and courts to navigate the uncertainties that the Supreme Court's June 28 decision brings to bear in review of agency actions. In this sense, it is a new day, and new landscape, in administrative law.