

Reassessing the Role of the National Research Council: Peer Review, Political Tool, or Science Court?

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In recent years, Congress and executive agencies have increasingly turned to the National Research Council (NRC) to defuse environmental regulatory controversies. This heightened reliance on regulatory peer review raises important questions for administrative law. As the operating arm of the National Academy of Sciences, one of the most well-respected institutions in the United States, the NRC commissions consensus reports by independent experts to advise the government on science-policy issues. However, the experts who author the reports are neither infallible nor politically accountable. Further, those experts hold agency decisions to a more rigorous evidentiary standard than traditional judicial review, and often exacerbate—rather than help resolve—the underlying policy disputes. Legal academics have debated the merits of regulatory peer review yet have relied on very few data points. This Comment fills this gap in the literature by detailing recent NRC reports addressing discrete environmental disputes. Taken together, case studies regarding the Klamath Basin, Point Reyes, and the Bay Delta reveal a trend of increased politicization and decreased utility for the role of the NRC in such instances. Drawing from these case studies, this Comment concludes by recommending several ways to maximize the benefits and minimize the costs of the NRC's future regulatory peer reviews.

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INTRODUCTION

Twice in the last two years, U.S. Senator Dianne Feinstein personally intervened in Northern California environmental regulatory disputes to help empanel National Research Council (NRC) reviews of agency science. In 2008, she asked the NRC to review an agency's assertions about the environmental impacts of an oyster farm in an estuary designated for wilderness protection in

the Point Reyes National Seashore.¹ Then, in late 2009, she requested that the NRC analyze San Francisco Bay Delta water diversion regulations promulgated by federal wildlife agencies pursuant to the Endangered Species Act (ESA).² “The [NRC] is the only body whose views will be respected by all the relevant parties as a truly independent voice,” Senator Feinstein wrote in a letter to the secretaries of Commerce and Interior requesting the Delta NRC panel.³

On their face, both controversies merited scientific scrutiny. One involved allegations of scientific misconduct, and the other featured heavily litigated regulatory decisions with significant economic and environmental consequences. However, although the resulting NRC reports provided useful information that may have helped guide the policy disputes moving forward, their effects were not entirely positive. The reviews exacerbated—rather than helped resolve—disagreements among stakeholders, distracting attention away from the policy decisions and value judgments underlying the debates.

Feinstein’s recent NRC requests, more importantly, are indicative of a larger pattern: Congress and executive agencies are increasingly turning to the NRC to defuse political controversies, particularly in the natural resource arena.⁴ The NRC is the research arm of the private nonprofit National Academy of Sciences (NAS), one of the most well respected and trusted scientific institutions in the United States.⁵ It commissions consensus reports, generated

1. See *infra* Part III.B.2.

2. See *infra* Part IV.B.3.

3. Letter from Sen. Dianne Feinstein to Sec’y Ken Salazar, U.S. Dep’t of Interior, and Gary Locke, U.S. Sec’y of Commerce (Sept. 11, 2009) [hereinafter Feinstein Letter to Salazar and Locke] (on file with author).

4. See Holly Doremus & A. Dan Tarlock, *Fish, Farms, and the Clash of Cultures in the Klamath Basin*, 30 *ECOLOGICAL L.Q.* 279, 325 (2003) [hereinafter Doremus & Tarlock, *Clash of Cultures*] (“In recent years, NRC studies have gained increased visibility as the Executive and the Congress increasingly turn to the NRC to diffuse political hot potatoes.”); Holly Doremus, *The Purposes, Effects, and Future of the Endangered Species Act’s Best Available Science Mandate*, 34 *ENVTL. L.* 397, 428–29 (2004) [hereinafter Doremus, *Best Available Science*] (“Calls for such [NRC] reviews, like litigation, are accelerating. . . . In recent years, the NRC has repeatedly been asked to review policy decisions either directly made under the authority of the ESA or closely related to endangered species protection.”); see also David Policansky, *Science and Decision Making for Water Resources*, 8 *ECOLOGICAL APPLICATIONS* 610, 610 (1998) (“[The NRC] is often called on by the U.S. Congress or executive-branch agencies to help resolve controversies about natural resources . . .”).

5. See, e.g., Fred Bosselman, *A Dozen Biodiversity Puzzles*, 12 *N.Y.U. ENVTL. L.J.* 364, 504 (2004) (“[T]he NRC continues to be the most respected source of all forms of scientific and technological advice”); Editorial, *48th Is Not a Good Place*, *N.Y. TIMES*, Oct. 26, 2010, <http://www.nytimes.com/2010/10/26/opinion/26tue2.html> (describing the National Academies as “the country’s leading advisory group on science and technology”); Dianne Feinstein, Op-Ed, *Why Feinstein Seeks Review of Delta Findings*, *S.F. CHRON.*, Sept. 25, 2009, http://articles.sfgate.com/2009-09-25/opinion/17205298_1_academy-review-endangered-species-act-national-academy [hereinafter Feinstein, *Why Review*] (“The Academy of Sciences is the most highly respected scientific body in the nation”); Matt Weiser, *Science Panel’s Review of California Water Woes Prompts Fight*, *SACRAMENTO BEE*, Jan. 21, 2010, at A1 [hereinafter Weiser, *Prompts Fight*] (describing NRC reports as definitive works of the “nation’s most esteemed science body”).

by carefully selected committees of independent unpaid experts, to advise the government on science-policy issues.⁶

But the NRC experts are neither infallible nor politically accountable. They also hold agency decisions to a more rigorous evidentiary burden than traditionally deferential judicial review, and provide ammunition for regulatory opponents who wish to challenge agency environmental protections in Congress, the courts, and the press. Thus, the increased reliance on NRC reviews of regulatory decisions raises important administrative law questions about political intermeddling in agency work, the influence on policy outcomes by unaccountable external experts, and improper displacement of the evidentiary standard for judicial review.⁷

Yet, aside from a few isolated incidents, commentators have written remarkably little about the NRC's role in environmental policy disputes.⁸ One of the few conflicts that did generate attention in legal and scientific literature was the Klamath Basin controversy, in which fallout from a critical NRC report sparked widely divergent views about the role of regulatory peer review: some characterized the report as a threat to environmental law, while others felt it served a useful purpose.⁹ Professor J.B. Ruhl, a member of the Klamath NRC committee, defended the report's contribution but acknowledged concerns that NRC reviews may fail to provide promised benefits and further politicize the decision-making process.¹⁰ He also noted that scholarly literature, despite a "raucous public debate," had not adequately addressed major questions about the role of such institutions.¹¹ "Ironically," Professor Ruhl wrote, "claims pro

6. See *infra* Part I.C.1.

7. See J.B. Ruhl & James Salzman, *In Defense of Regulatory Peer Review*, 84 WASH. U. L. REV. 1, 7 (2006) ("Regulatory peer review is being added to the administrative law toolbox, and it is important to understand what this means for agency practice in the future.")

8. For a good—but rare—example, see Policansky, *supra* note 4.

9. Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 61 (noting that it "generated inflated claims" about regulatory peer review "as either a golden virtue or a sinister evil"). Compare Kristin Carden, *Bridging the Divide: The Role of Science in Species Conservation Law*, 30 HARV. ENVTL. L. REV. 165, 256 (2006) (suggesting sound science proponents used the Klamath NRC report "as a trump card in the burgeoning legal movement that threatens the most important environmental law") (internal quotation marks omitted), with Holly Doremus & A. Dan Tarlock, *Science, Judgment, and Controversy in Natural Resource Regulation*, 26 PUB. LAND & RESOURCES L. REV. 1, 33 (2005) [hereinafter Doremus & Tarlock, *Judgment*] (suggesting that "one positive outcome" of the NRC report was "inspiring new thinking, demanding accountability, and highlighting gaps in the existing data base that could be filled").

10. Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 35; cf. Stuart Shapiro & David Guston, *Procedural Control of the Bureaucracy, Peer Review, and Epistemic Drift*, 17 J. PUB. ADMIN. RES. & THEORY 535, 536–37 (2006) ("questioning whether regulatory peer review will achieve its ostensible goal of promoting the use of sound analysis in support of sound regulatory" decisions, or whether it will "perversely encourage the politicization of science in the regulatory process").

11. Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 8; see also *id.* at 43 ("Most of the asserted promises and pitfalls . . . are posited in an empirical vacuum. . . . [H]ow much benefit or burden to expect . . . is really unknown.").

and con about regulatory peer review rely on very few data points—any rigorous peer review of their merits would fault them for this.”¹²

This Comment seeks to fill in some of those data points, using the Klamath, Point Reyes, and the Bay Delta as case studies to reassess the role of NRC reports in discrete environmental policy disputes.¹³ Is Senator Feinstein’s empanelling of NRC committees a sign of proper political accountability and congressional oversight, helping restore science to its rightful place and improving agency decision making moving forward? Or, is it simply a page out of the antiregulatory playbook—raising the agencies’ evidentiary burdens, arming opponents with scientific critiques, and manipulating the policy debate in the press?

Part I introduces regulatory peer review as a method to patrol agencies’ use of science in environmental regulation, and highlights the unique aspects of NRC study committees in particular. Parts II through IV present case studies of three recent NRC reviews of agency environmental decisions: the Klamath Basin, Point Reyes, and the Bay Delta. Drawing on these cases and existing literature, Part V weighs the costs and benefits of NRC studies to reassess their efficacy and consider where other forms of regulatory peer review served a more useful purpose in the case studies. Finally, Part VI proposes several ways to ensure that future NRC committees are more beneficial than burdensome; when carefully designed, NRC reports can provide constructive guidance to assist agencies’ environmental decision making.

I.

ENVIRONMENTAL REGULATION, PEER REVIEW, AND THE NATIONAL RESEARCH COUNCIL

Modern environmental law relies primarily on administrative regulations adopted pursuant to complex statutes.¹⁴ Congress delegates regulatory authority to specialized agencies—such as the Environmental Protection Agency (EPA) or Fish and Wildlife Service (FWS)—which are held politically accountable through procedural decision-making mechanisms, congressional oversight, and

12. *Id.* at 9; see also J.B. Ruhl, *Prescribing the Right Dose of Peer Review for the Endangered Species Act*, 83 NEB. L. REV. 398, 419 (2004) [hereinafter Ruhl, *Prescribing*] (“The Klamath is only one data point, and sound science itself would not countenance making sweeping policy decisions on that sole basis. . . . Before we rush to judgment about the import of the Klamath experience as evidence that peer review is needed to stamp out widespread agency failure, we should consider the potential for peer review to detract from the exercise of agency professional judgment.”).

13. Admittedly, the three case studies explored in this Comment might represent the “worst-case” scenario of post-hoc NRC reports that review discrete and highly contested agency policy choices, for which there is little scientific data available. As discussed *infra* Part VI.A–B, NRC reviews might be more beneficial when they focus on forward-looking, programmatic questions with a solid foundation of available scientific information.

14. See HOLLY DOREMUS ET AL., ENVIRONMENTAL POLICY LAW: PROBLEMS, CASES, AND READINGS 1, 84 (5th ed. 2008).

judicial review. The Administrative Procedure Act (APA) codifies much of this structure by ensuring public input through notice-and-comment rulemaking and agency adjudicative hearings, as well as establishing a deferential framework for judicial review.¹⁵ Under the APA, a court will only overturn an agency's regulatory decision if it is arbitrary and capricious, such that the agency failed to consider an important aspect of the problem or offered an explanation for the decision that runs counter to the evidence before it.¹⁶ In addition, when reviewing an agency decision at the "frontiers of science," the reviewing court "must generally be at its most deferential."¹⁷

A. *Science Charade and Sound Science*

In the environmental arena, Congress often directs administrative agencies to make their regulatory decisions "based on" science, a statutory mandate that reflects a misplaced faith in the ability of science to "solve" environmental problems.¹⁸ Whereas science can help test discrete hypotheses and value-neutral questions, many environmental problems pose "trans-science" questions that evade experimentation and address value-laden issues that must be defined politically, not scientifically.¹⁹ Further, environmental laws frequently address issues at the frontiers of scientific knowledge, where information is incomplete, inconclusive, and ambiguous.²⁰ Thus, contrary to popular belief, science typically cannot answer environmental policy questions; instead, agencies must rely on policy choices and value judgments to fill the gaps that science alone cannot resolve.²¹

15. See 5 U.S.C. §§ 551–59, 701–06 (2006).

16. 5 U.S.C. § 706(2)(A); *Motor Vehicle Mfrs. Ass'n v. State Farm*, 463 U.S. 29, 43 (1983) (identifying other arbitrary and capricious criteria, such as whether the agency (i) relied on factors Congress did not intend it to consider, or (ii) provided an explanation for its decision that is so implausible it could not be ascribed to a difference of opinion).

17. *Balt. Gas & Elec. Co. v. Nat'l Res. Def. Council*, 462 U.S. 87, 103 (1983). For a recent critique of the "super deference" courts afford agencies' scientific determinations, see Emily Hammond Meazell, *Super Deference, the Science Obsession, and Judicial Review as Translation of Agency Science*, 109 MICH. L. REV. 733 (2011).

18. See Carden, *supra* note 9, at 183; Wendy E. Wagner, *The Science Charade in Toxic Risk Regulation*, 95 COLUM. L. REV. 1613, 1614, 1667 (1995) [hereinafter Wagner, *Science Charade*]; see also Wendy Wagner, *Congress, Science, and Environmental Policy*, 1999 U. ILL. L. REV. 181, 195–96 [hereinafter Wagner, *Congress*] ("In a number of major environmental laws, Congress frames the legislative resolution of these multidisciplinary problems as essentially science puzzles. Rather than address the inevitable and often momentous policy choices that are left in the wake of incomplete science, Congress regularly produces mandates that misconstrue environmental problems as scientific ones.").

19. See Beth C. Bryant, *Adapting to Uncertainty: Law, Science, and Management in the Steller Sea Lion Controversy*, 28 STAN. ENVTL. L.J. 171, 209 (2009); Doremus, *Best Available Science*, *supra* note 4, at 420; Wagner, *Congress*, *supra* note 18, at 188–89; Wagner, *Science Charade*, *supra* note 18, at 1619–21.

20. See Holly Doremus, *Science Plays Defense: Natural Resource Management in the Bush Administration*, 32 ECOLOGY L.Q. 249, 253, 297–98 (2005) [hereinafter Doremus, *Science Plays Defense*].

21. See Bryant, *supra* note 19, at 199–200; Wagner, *Science Charade*, *supra* note 18, at

By requiring agencies to base regulatory decisions on science, Congress unintentionally encourages agencies to engage in a “science charade” that deliberately or unintentionally exaggerates the scientific support for their policy choices.²² The charade raises accountability concerns and can backfire when exposed.²³ For example, the NRC noted that the EPA’s failure to make policy choices explicit in their risk assessments could “undercut the scientific credibility of the agency’s” work.²⁴

While agencies historically used the “science charade” to justify environmental protection efforts, antiregulatory opponents eventually countered their efforts with a “sound science” backlash.²⁵ Those within the self-proclaimed “sound science movement” argue that environmental regulatory decisions should require that information be derived from the rigorous, unbiased practice of science.²⁶ Despite the movement’s seemingly commendable goals, however, most commentators roundly criticize the “sound science” label as little more than an antiregulatory framing strategy that avoids the appearance of self-interest and erects additional barriers to regulation.²⁷

1622 (“[P]olicy considerations must fill in the gaps that science cannot inform.”); *cf. Motor Vehicle Mfrs. Ass’n*, 463 U.S. at 52 (recognizing that available data usually does not settle a regulatory issue, forcing an agency to “exercise its judgment in moving from the facts and probabilities on the record to a policy conclusion”).

22. Wagner, *Science Charade*, *supra* note 18, at 1617; *see also* Doremus, *Science Plays Defense*, *supra* note 20, at 255; Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 22 (stating that agencies may systematically present scientific data as supporting a policy decision more than is justified in the face of institutional pressures and biases). Professor Wendy Wagner coined the phrase “science charade” and identified political, legal, and institutional reasons why agencies overstate the scientific foundations for their regulatory decisions. Wagner, *Science Charade*, *supra* note 18, at 1640; *see also* Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 35 n.132 (noting Professor Wagner was the first to explore the institutional reasons why agencies overstate the scientific support for their policy decisions).

23. *See* Bryant, *supra* note 19, at 200 (“Exposing the fact that an agency has made policy choices based on an incomplete scientific record leaves the agency vulnerable to charges of unjustifiable over- or under-regulation.”); Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 20–21 (noting that misuse of science “can raise concerns, however, if an agency justifies its decision to the public, courts, and legislature as being driven chiefly by the science when it is in fact based on a policy judgment informed by inconclusive science”).

24. Wagner, *Science Charade*, *supra* note 18, at 1686 (citing Committee on Risk Assessment of Hazardous Air Pollutants, National Research Council, *Science and Judgment in Risk Assessment* 105 (1994)).

25. The “sound science” movement originated in tort reform (and allegations of “junk science” in the courtroom), but its implications quickly extended to the regulatory arena as well. *See* Doremus, *Science Plays Defense*, *supra* note 20, at 262; Thomas O. McGarity, *Our Science is Sound Science and Their Science is Junk Science: Science-Based Strategies for Avoiding Accountability and Responsibility for Risk-Producing Products and Activities*, 52 U. KAN. L. REV. 897, 905 (2004) [hereinafter McGarity, *Sound Science*].

26. *See* Ruhl, *Prescribing*, *supra* note 12, at 400; Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 4 (“This self-proclaimed “sound science” movement argues that procedural safeguards to ensure better use of scientific data will improve agency decisions.”).

27. *See, e.g.,* Carden, *supra* note 9, at 216 (calling the “sound science” initiatives “inherently unsound”); Doremus, *Best Available Science*, *supra* note 4, at 415 (“sound science” advocates “may seek to impose endless requirements for additional study before regulatory action

However, the antiregulatory tactics of “sound science” supporters have seen remarkable success, in part because they borrow the language and culture of research science and exploit the public’s misperception that science can provide “the answer” to any regulatory question.²⁸ This strategy was especially effective for the Bush Administration, which imposed high burdens of proof and used the scientific aspects of natural resource decisions to work against conservation advocates.²⁹ A key tool of the sound science movement, and a centerpiece of the administration’s agenda, was regulatory peer review.³⁰

B. Peer Review Within the Administrative State

In recent years, federal agencies have increasingly turned to expert advisory committees for guidance and regulatory peer review.³¹ Professor Sheila Jasanoff described this development as the creation of a “fifth branch” of government³² because administrative agencies are commonly referred to as the fourth. Peer review has long been an accepted norm of research science—where it typically serves as a prerequisite for publication and funding.³³ But federal agencies began using peer review procedures in the late 1970s and 1980s,³⁴ and it became a popular means of regulatory reform under the Republican-controlled Congress in the mid-1990s.³⁵ In 2004, a General Accounting Office (GAO) report tallied fifty-four agencies sponsoring roughly

can be taken (imposing ‘paralysis by analysis’); McGarity, *Sound Science*, *supra* note 25, at 900–01 (describing sound science arguments as “surprisingly vacuous assertions”); Ruhl, *Prescribing*, *supra* note 12, at 400 n.4 (referencing a “wealth of literature on the topic” including several “cautionary tales”); see also Thomas O. McGarity, *Resisting Regulation with Blue Ribbon Panels*, 33 *FORDHAM URB. L.J.* 1158, 1188–93 (2006) [hereinafter McGarity, *Resisting Regulation*] (recounting the industry’s use of “blue ribbon panels” in public relations campaigns to “manufacture uncertainty,” influence public opinion, and generate pressure against regulatory action).

28. See Doremus, *Science Plays Defense*, *supra* note 20, at 262; McGarity, *Sound Science*, *supra* note 25, at 900–01 (describing the tort and regulatory reformers as “extremely successful in framing the relevant legal issues”). Both Doremus and McGarity quote a prominent Republican consultant’s infamous memo suggesting that lawmakers frame their opposition to climate change regulation as a “commitment to sound science” because “Americans unanimously believe all environmental rules and regulations should be based on sound science.” Doremus, *Science Plays Defense*, *supra* note 20, at 255; McGarity, *Sound Science*, *supra* note 25, at 898–99.

29. See Doremus, *Science Plays Defense*, *supra* note 20, at 256, 265.

30. Ruhl, *Prescribing*, *supra* note 12, at 400 (regulatory peer review “is truly the sleeping dog of the ‘sound science’ movement”); Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 5, 32; Shapiro & Guston, *supra* note 10, at 537. The regulatory peer review tactic “struck pay dirt” with the NRC review in the Klamath Basin. Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 325.

31. Lars Noah, *Scientific “Republicanism”: Expert Peer Review and the Quest for Regulatory Deliberation*, 49 *EMORY L.J.* 1033, 1050 (2000); Shapiro and Guston, *supra* note 10, at 537 (referring to a “proliferation of advisory committees”).

32. SHEILA JASANOFF, *THE FIFTH BRANCH: SCIENCE ADVISERS AS POLICYMAKERS* (1990).

33. See Noah, *supra* note 31, at 1044–45.

34. See Thomas S. Burack, Note, *Of Reliable Science: Scientific Peer Review, Federal Regulatory Agencies, and the Courts*, 7 *VA. J. NAT. RESOURCES L.* 27, 28 (1987).

35. See Noah, *supra* note 32, at 1034–37; Shapiro & Guston, *supra* note 10, at 539.

950 peer review committees with about 62,000 members.³⁶ Congress created some of the advisory committees by statute, while agencies created many others on their own.³⁷

Professors Ruhl and James Salzman identified three main purposes to regulatory peer review.³⁸ First, it can serve a quality control function above and beyond the public input and judicial review provisions the APA requires for agency regulations.³⁹ Peer review is the “gold standard” for establishing general acceptance of scientific research, and thus may provide a means to find flawed scientific evidence on which an agency relied.⁴⁰ Second, independent expert feedback can lend useful legitimacy to an agency’s regulatory decisions.⁴¹ The review process can hold agency scientists accountable to external peers and improve oversight of executive agencies by providing increased transparency for lawmakers, administration officials, courts, and constituent groups.⁴² Third, examination by scientific peers can promote improved deliberation by creating opportunities for collaboration and dialogue with other experts.⁴³ Peer reviewers may uncover alternative approaches or solutions to a policy problem, and their reports can provide new information to guide future agency decision making and research.⁴⁴

Debate over regulatory peer review remains highly polarized: some consider it a panacea while others suggest that it poses a serious problem.⁴⁵ Supporters assert that if peer review works for science, it should work for agency decisions that rely on science as well;⁴⁶ critics stress the difference

36. U.S. GEN. ACCOUNTING OFFICE, GAO-04-328, FEDERAL ADVISORY COMMITTEES: ADDITIONAL GUIDANCE COULD HELP AGENCIES BETTER ENSURE INDEPENDENCE AND BALANCE 14 (April 2004) [hereinafter GAO, FEDERAL ADVISORY COMMITTEES].

37. Noah, *supra* note 31, at 1050–51.

38. Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 56 (describing quality control, legitimizing function, and deliberative function as benefits of peer review).

39. *See id.* at 19–21; Shapiro & Guston, *supra* note 10, at 537.

40. Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 6, 22 (quoting Congressman Greg Walden (R-Or.) describing it as a “second opinion” for regulatory decisions).

41. *Id.* at 22 (“[T]he use of independent, outside experts in regulatory peer review should enhance the legitimacy of the regulatory process”); *id.* at 47 (citing a 2004 NRC report on Fisheries Management, which concluded that proper peer review can generate public confidence in regulatory decisions); *see also* McGarity, *Resisting Regulation*, *supra* note 27, at 1158 (“[NRC] reports can be very useful to the agency, both for the information that they provide, and for the legitimacy that they can lend to the agency’s ultimate decision.”); Louis J. Virelli III, *Scientific Peer Review and Administrative Legitimacy*, 61 ADMIN. L. REV. 723, 730–31 (2009) (“Peer review in turn promotes the political legitimacy of science-based agency decisions by enhancing the integrity of the explanations for those decisions.”).

42. Shapiro & Guston, *supra* note 10, at 541.

43. Noah, *supra* note 31, at 1059–60; Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 56.

44. *See* Doremus & Tarlock, *Judgment*, *supra* note 9, at 32.

45. *See* Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 6 (“The growing debate over agency use of sound science, and of regulatory peer review in particular, has become increasingly polarized, with strong claims made on both sides.”).

46. *See id.*

between research and regulation, and argue that peer review is inherently incapable of generating the same benefits for regulation that it produces within the scientific field.⁴⁷

The efficacy of regulatory peer review might turn in part on the form of review used.⁴⁸ Some environmental agencies—such as the EPA—have their own science advisory bodies.⁴⁹ The EPA's advisory boards have received mostly favorable reviews;⁵⁰ however, commentators have pegged other self-appointed internal review boards as politically biased and little more than a rubber-stamp on agency decisions.⁵¹ The FWS peer review policy, for example, generated considerable criticism because the peer reviewers whom the agency chose usually agreed with the agency's positions.⁵²

Some regulatory peer review occurs through permanent standing committees of experts that meet periodically throughout the year and can provide continuing advice to guide an agency's ongoing decision making.⁵³ However, commentators have questioned whether these standing committees are too resource intensive to justify the substantial time and cost required of committee members.⁵⁴

47. See Ruhl, *Prescribing*, *supra* note 12, at 411; see also Holly Doremus, *Scientific and Political Integrity in Environmental Policy*, 86 TEX. L. REV. 1601, 1651–52 (2008) [hereinafter Doremus, *Integrity*] (calling external peer review a “very imperfect tool” and suggesting it can only “reveal extreme departures from acceptable norms”); Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 11 (stating that the “what’s good for science is good for regulation that relies on science” argument “compares apples and oranges”). On the whole, most legal scholarship appears relatively skeptical of—if not opposed to—regulatory peer review. Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 8.

48. See Burack, *supra* note 34, at 35 (“[Regulatory peer review] may be conducted by scientists within the same agency, scientists from other federal and state agencies, special consultants, and both ad hoc and standing panels of independent scientific experts.”); Virelli, *supra* note 41, at 731 (“Existing government peer review programs are varied in their specific approaches”); *id.* at 740–48 (discussing different models of regulatory peer review).

49. Bosselman, *supra* note 5, at 502.

50. See Noah, *supra* note 31, at 1052; see also Burack, *supra* note 34, at 38–39 (describing the EPA's Science Advisory Board as “arguably one of the most effective independent peer review bodies currently operating”).

51. See, e.g., GAO, *FEDERAL ADVISORY COMMITTEES*, *supra* note 36, at 8 (noting “a variety of concerns” including that “ideological bias was influencing the selection of experts for scientific and health advisory panels”).

52. See J.B. Ruhl, *The Battle over Endangered Species Act Methodology*, 34 ENVTL. L. 555, 586 (2004) [hereinafter Ruhl, *Battle*]; Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 38; Joanna Wymyslo, *Legitimizing Peer Review in ESA Listing Decisions*, 33 ENVIRONS ENVTL. L. & POL'Y J. 135, 152 (2009) (noting that FWS had been “accused of ‘cherry-picking’ reviewers to support” the agency's regulatory decisions, rather than using regulatory peer review to “provide an objective check on the accuracy of the decision[s]”).

53. See Noah, *supra* note 31, at 1053–54 (describing nine standing committees that advise the EPA and hold roughly fifty meetings and issue thirty reports each year).

54. See Doremus & Tarlock, *Judgment*, *supra* note 9, at 35 n.141 (noting that Professor Doremus served on a standing review panel for three years before concluding that it did not justify the time and effort).

By contrast, the NRC employs ad hoc, external, independent peer review committees that many proponents hold out as an exemplary model. In their mind, the NRC remains the “most respected source of all forms of scientific and technological advice.”⁵⁵

C. *The National Research Council*

The National Research Council operates under the auspices of the National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. Together these four organizations constitute the National Academies—a private, nonprofit institution that provides science, technology, and health policy advice to the federal government.⁵⁶ This institution is generally considered to be the preeminent scientific organization in the United States.⁵⁷

Congress created the NAS during the Civil War both as an honorific institution for top scientists and to “investigate, examine, experiment, and report on any subject of science” whenever requested by the government.⁵⁸ In 1916, the NAS created the NRC as its chief operating arm to help with “national preparedness” for World War I, and President Woodrow Wilson continued the NRC with an Executive Order in 1918.⁵⁹ Today, the National Academies jointly administer and oversee the NRC operations; for example, the NAS President simultaneously serves as chair of the NRC Governing Board.⁶⁰

The NRC’s stated mission is to “improve government decision making and public policy, increase public education and understanding, and promote the acquisition and dissemination of knowledge in matters involving science.”⁶¹ It expresses a commitment to providing elected officials, policy makers, and the public with “expert advice based on sound scientific evidence.”⁶² The NRC has influenced federal policy on a wide variety of topics, such as EPA risk assessments, forensic evidence in the courtroom, NASA flight safety, homeland security, breast implants, and genetically engineered crops.⁶³ The NRC has

55. See Bosselman, *supra* note 5, at 503–04 (describing the NRC as the “one advisory agency that has consistently and successfully survived a wide range of political changes”); see also GAO, FEDERAL ADVISORY COMMITTEES, *supra* note 36, at 42–44 (highlighting as a positive example the procedures used to eliminate conflicts of interest and bias in NRC committees).

56. *Welcome to the National Research Council*, THE NAT’L RESEARCH COUNCIL, <http://sites.nationalacademies.org/NRC/index.htm> [hereinafter *Welcome to the NRC*] (last visited Mar. 10, 2011).

57. See *supra* note 5.

58. See Shapiro & Guston, *supra* note 10, at 537.

59. 58 Fed. Reg. 5905 (Jan. 19, 1993), *reprinting as amended* Exec. Order No. 2859 (May 11, 1918).

60. *Welcome to the NRC*, *supra* note 56.

61. *Id.*

62. *Id.*

63. See, e.g., *Informing . . . Advising . . . Changing the World . . .*, THE NAT’L ACADS.,

long addressed natural resource protection, in particular.⁶⁴ Today, Congress and executive agencies often call on the NRC to help resolve environmental controversies, especially regarding biological sciences and endangered species.⁶⁵

The NRC provides science advice in several different forms, such as policy papers, symposia, and workshops.⁶⁶ Sometimes Congress requires that agencies contract directly with the NAS to address scientific questions.⁶⁷ However, the core of the NRC's work, and its "most public and familiar role," is convening expert study committees to prepare comprehensive consensus reports.⁶⁸ The NRC publishes nearly two hundred committee reports each year, making it one of the largest providers of free scientific and technical information in the world.⁶⁹

1. The NRC's Committee Study Process

Six thousand of the world's top scientists and other professionals volunteer their time to serve on NRC committees.⁷⁰ The studies usually last between six months and two years in duration and result in published consensus reports.⁷¹

a. Defining the Task and Selecting the Committee Members

Most projects originate from requests by lawmakers or agency officials who determine that the NRC, because of its unique qualifications, is the only entity that can provide the measure of expertise, independence, and legitimacy

<http://sites.nationalacademies.org/NRC/index.htm>, [hereinafter *Informing*] (click on the downloadable brochure at the bottom of the page); Noah, *supra* note 31, at 1048.

64. A NRC review in 1920 featured some of the earliest studies about air quality's effects on health. Bosselman, *supra* note 5, at 504 n.736.

65. See, e.g., Bosselman, *supra* note 5, at 504 ("[The NRC] is particularly strong in the area of biological sciences."); Doremus, *Best Available Science*, *supra* note 4, at 429 & n.187 (citing nine NRC reports on endangered species published or in progress between 1995 and 2005); Policansky, *supra* note 4, at 610 (reviewing four case studies of NRC reports about water-related controversies).

66. THE NAT'L ACADS., GETTING TO KNOW THE COMMITTEE PROCESS 3 (2005) [hereinafter COMMITTEE PROCESS], <http://sites.nationalacademies.org/NRC/PoliciesandProcedures/index.htm> (click on "Getting to Know the Committee Process").

67. See, e.g., McGarity, *Resisting Regulation*, *supra* note 27, at 1158 n.4 (citing 7 U.S.C. § 136d(d) (2000), which requires a hearing examiner under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) to refer "questions of scientific fact" to a NAS committee); Cass R. Sunstein, *The Arithmetic of Arsenic*, 90 GEO. L.J. 2255, 2269-70 (2002) (discussing the congressionally mandated NRC review to assist EPA's development of new arsenic standards for drinking water).

68. Lynn E. Dwyer, *Good Science in the Public Interest*, 7 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 3, 7 (2000); COMMITTEE PROCESS, *supra* note 66, at 5.

69. COMMITTEE PROCESS, *supra* note 66, at 15; *Welcome to the NRC*, *supra* note 56.

70. *Welcome to the NRC*, *supra* note 56.

71. COMMITTEE PROCESS, *supra* note 66, at 5.

to meet the agency's needs.⁷² Before signing a contract, the NRC works with the government sponsor to develop a budget and a "statement of task" that defines the scope and specific questions for the study.⁷³ If needed, the NRC reformulates the agency's questions to be appropriately scientific.⁷⁴

Eventually, a proposed study requires approval by the NRC Governing Board Executive Committee, which scrutinizes factors such as the importance of the question, the likely impact of the report, and the competence of the institution to take on the task.⁷⁵ The Executive Committee's review frequently results in additional changes to the proposed statement of task, and, on occasion, the committee may turn down a study it deems inappropriately framed or beyond the NRC's purview.⁷⁶ The NRC also often breaks committee studies into two separate stages, resulting in an initial and final report.⁷⁷

After approving a study and statement of task, the NRC convenes an interdisciplinary committee of ten to twenty members, uniquely selected for each particular study.⁷⁸ Committee members receive no compensation aside from travel expenses; they volunteer their time either because they have an interest in the problem and want to contribute to a solution, or because they

72. *See id.* at 4. A presidential Executive Order gives the NRC special authority to receive government contracts on a noncompetitive basis. Exec. Order 12832, 58 Fed. Reg. 5905 ¶ 4 (Jan. 19, 1993).

73. THE NAT'L ACADS., WORKING WITH THE NATIONAL ACADEMIES: A GUIDE FOR PROSPECTIVE STUDY SPONSORS, <http://sites.nationalacademies.org/NRC/PoliciesandProcedures/index.htm> [hereinafter PROSPECTIVE SPONSORS]; *see also* Ruhl, *Battle*, *supra* note 52, at 601 n.202 (noting NRC's current practice of negotiating the scale of effort and budget).

74. *See* Dwyer, *supra* note 68, at 7; *see also* Bryant, *supra* note 19, at 186 (the NRC negotiated with a federal fisheries council to define its statement of task more broadly than the initial congressional charge).

75. COMMITTEE PROCESS, *supra* note 66, at 8 (noting that it also looks at the intended audience for the report, and whether there is an adequate base of scientific knowledge to support the study); PROSPECTIVE SPONSORS, *supra* note 73.

76. THE NAT'L ACADS., OUR STUDY PROCESS: ENSURING INDEPENDENT, OBJECTIVE ADVICE, <http://sites.nationalacademies.org/NRC/PoliciesandProcedures/index.htm> [hereinafter STUDY PROCESS] (last visited Mar. 10, 2011).

77. *See, e.g.*, COMM. ON ENDANGERED AND THREATENED FISHES IN THE KLAMATH RIVER BASIN, NAT'L RESEARCH COUNCIL, SCIENTIFIC EVALUATION OF BIOLOGICAL OPINIONS ON ENDANGERED AND THREATENED FISHES IN THE KLAMATH RIVER BASIN: INTERIM REPORT 33 (2002) [hereinafter KLAMATH INTERIM REPORT] (describing separate charges for an interim and final report); COMM. ON BEST PRACTICES FOR SHELLFISH MARICULTURE AND THE EFFECTS OF COMMERCIAL ACTIVITIES IN DRAKES ESTERO, NAT'L RESEARCH COUNCIL, SHELLFISH MARICULTURE IN DRAKES ESTERO, POINT REYES NAT'L SEASHORE, CALIFORNIA 114-15 (2009) (describing separate charges for a first and second report); COMM. ON SUSTAINABLE WATER AND ENVTL. MGMT. IN THE CAL. BAY-DELTA, NAT'L RESEARCH COUNCIL, A SCIENTIFIC ASSESSMENT OF ALTERNATIVES FOR REDUCING WATER MANAGEMENT EFFECTS ON THREATENED AND ENDANGERED FISHES IN CALIFORNIA'S BAY DELTA 2 (2010) (describing two main projects resulting in two reports).

78. COMMITTEE PROCESS, *supra* note 66, at 3.

benefit from the prestige.⁷⁹ Government sponsors may offer suggestions but cannot themselves select committee members.⁸⁰

NRC committee selection factors include scientific expertise, reputation among peers, ability to work in groups, and writing skills.⁸¹ The NRC also makes a concerted effort to include a range of disciplinary expertise and balance of perspectives on the committee.⁸² Further, it screens for potential conflicts of interest, defined broadly as any “financial or other interest [that] could significantly impair the individual’s objectivity [or] create an unfair competitive advantage for any person or organization.”⁸³ The NRC requires each committee member to complete a detailed, confidential form listing all information relevant to potential conflicts, then posts nonconfidential information about committee candidates on its website and solicits public comments regarding any real or perceived conflicts or biases.⁸⁴

Ultimately, the NAS president has sole authority to appoint NRC study committee members.⁸⁵ But before the NRC finalizes committee membership, it requires a closed discussion among prospective members about any work experiences, affiliations, or other experiences that might pose potential conflicts.⁸⁶ The purpose of this confidential discussion is to provide committee members with relevant background information to evaluate the perspectives of their fellow members.⁸⁷

b. Gathering Information and Producing the Committee Reports

NRC committees gather information for their studies through public testimony at meetings, submissions by outside parties, reviews of published scientific literature, and investigations by committee members and staff.⁸⁸ The NRC does not conduct its own research.⁸⁹ While the committees solicit input from interested parties and other individuals who are involved in the dispute, the NRC’s primary role is to “separate fact from opinion” and “analysis from

79. Doremus, *Best Available Science*, *supra* note 4, at 428, 434–35; *see also* Ruhl, *Battle*, *supra* note 51, at 601 n.202.

80. COMMITTEE PROCESS, *supra* note 66, at 6.

81. *See* Dwyer, *supra* note 68, at 8.

82. Doremus, *Science Plays Defense*, *supra* note 20, at 303 n.264 (noting the NRC’s “strong effort to discover and balance the ‘biases’ of review committee members”); GAO, FEDERAL ADVISORY COMMITTEES, *supra* note 36, at 42–43.

83. THE NAT’L ACADS., POLICY ON COMMITTEE COMPOSITION AND BALANCE AND CONFLICTS OF INTEREST FOR COMMITTEES USED IN THE DEVELOPMENT OF REPORTS (May 12, 2003), http://www.nationalacademies.org/coi/bi-coi_form-0.pdf.

84. COMMITTEE PROCESS, *supra* note 66, at 6; GAO, FEDERAL ADVISORY COMMITTEES, *supra* note 36, at 43–44.

85. PROSPECTIVE SPONSORS, *supra* note 73.

86. COMMITTEE PROCESS, *supra* note 66, at 6–7.

87. GAO, FEDERAL ADVISORY COMMITTEES, *supra* note 36, at 49.

88. STUDY PROCESS, *supra* note 76.

89. COMMITTEE PROCESS, *supra* note 66, at 4 (the NRC does not have its own research laboratories).

advocacy.”⁹⁰ Government sponsors, therefore, do not control meeting agendas.⁹¹

The NRC is not subject to public disclosure laws that govern other advisory bodies—namely, the Freedom of Information Act (FOIA) and the Federal Advisory Committee Act (FACA)—but its initial information-gathering meetings are typically open to the public.⁹² Once they have compiled all the necessary information, NRC committees deliberate in closed meetings to avoid outside influences.⁹³ Drafts of their reports also remain confidential until they receive formal, final approval by higher officials in the NRC.⁹⁴

All NRC reports undergo rigorous, anonymous expert review before publication. A review committee of thirty NAS members examines specific criteria, considering questions such as:

- Is the charge clearly described, and are all aspects of it fully addressed? Do the authors go beyond their charge or expertise?
- Are the conclusions and recommendations adequately supported, with uncertainties or incompleteness explicitly recognized? If any recommendations are based on value judgments or the opinions of the authors, is this acknowledged and adequately explained?
- Are sensitive policy issues treated with proper care? Is the report fair and its tone impartial?⁹⁵

The NRC does not ask reviewers whether they concur with the findings.⁹⁶

After receiving formal approval, the NRC posts final reports on its website and publishes the studies as printed books for sale through the National Academies Press.⁹⁷ Many NRC reports are newsworthy, and the NRC views the media as a valuable channel for distributing the content of its work.⁹⁸ Thus, for each report, the NAS works with staff to develop a public communications plan that may include a news release, public briefing, outreach to targeted

90. *Id.* at 7.

91. Doremus & Tarlock, *Judgment*, *supra* note 9, at 35 (noting that NRC panels control the agenda of meeting presentations); PROSPECTIVE SPONSORS, *supra* note 73.

92. COMMITTEE PROCESS, *supra* note 66, at 4, 12. Congress passed FACA in 1972 in response to a proliferation of science advisory committees; it established rules governing committee balance, independence, and transparency. GAO, FEDERAL ADVISORY COMMITTEES, *supra* note 36, at 9; Burack, *supra* note 34, at 36–38; Shapiro & Guston, *supra* note 10, at 538 n.5. The FACA Amendments of 1997 indirectly require the NRC to ensure some public access and involvement in the study process by prohibiting a federal agency from using any NAS advice unless the NAS met certain requirements. Pub. L. No. 105-153, 111 Stat. 2689 (1997) (codified at 5 U.S.C. App. 2 § 15).

93. STUDY PROCESS, *supra* note 76.

94. COMMITTEE PROCESS, *supra* note 66, at 11.

95. THE NAT'L ACADS., REPORT REVIEW COMMITTEE: GUIDELINES FOR THE REVIEW OF REPORTS, http://sites.nationalacademies.org/NRC/PoliciesandProcedures/ssLINK/NRC_039341 (click on “Review Criteria for Consensus Reports”).

96. *Id.*

97. COMMITTEE PROCESS, *supra* note 66, at 15.

98. *Id.*

media, or coaching to help committee members speak comfortably with reporters.⁹⁹ The NRC also provides government sponsors with early copies of the report, and offers prerelease briefings for them and other key lawmakers and administration officials.¹⁰⁰

2. Strengths and Weaknesses of the NRC Study Process

Commentators often hold up the NRC as a premier model of regulatory peer review,¹⁰¹ but its unique process harbors both strengths and weaknesses in its role of reviewing environmental regulatory decisions. This Section briefly summarizes these pros and cons to provide a reference for comparing the efficacy of the NRC and other forms of regulatory peer review in the three case studies.

a. NRC Strengths

A positive NRC report, perhaps more than any source of peer review, can legitimize an agency regulatory decision.¹⁰² The legitimacy largely stems from the institution's reputation for providing "independent, objective, and non-partisan advice" that is free from political and special interest influence.¹⁰³ The insulated process of selecting NRC committee members distinguishes it from other forms of regulatory peer review, where political officials choose the purportedly independent science advisors that review the agencies' work.¹⁰⁴ NRC committees also confer legitimacy through the caliber of their members and thoroughness of review. More so than other advisory boards or review panels, the NRC's prestige affords it a unique ability to convene experts willing to donate substantial amounts of time and energy.¹⁰⁵ Even commentators who are generally skeptical of regulatory peer review agree that the intensity of NRC reviews may provide useful quality control and deliberative functions as well.¹⁰⁶

99. *Id.*

100. PROSPECTIVE SPONSORS, *supra* note 73.

101. See, e.g., GAO, FEDERAL ADVISORY COMMITTEES, *supra* note 36, at 63; Bosselman, *supra* note 5, at 504 ("Of the available options, the NRC is the best equipped to study the puzzles of biodiversity in a thorough and credible manner.").

102. See, e.g., Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 325 (NRC reports legitimized the Clinton EPA's position on arsenic drinking water standards, and confirmed that global climate change is a serious problem). The press also portrays NRC reports as definitive works of the "nation's most esteemed science body." See, e.g., Weiser, *Prompts Fight*, *supra* note 5.

103. *Informing*, *supra* note 63. In its self-promotional materials, the NRC lists independence as its primary value and proclaims "[w]e are not the federal government." *Id.*

104. Ruhl, *Battle*, *supra* note 52, at 586-87 (describing the independence and objectivity of agency-appointed peer review panels as "inherently suspect," and contrasting it with the NRC policy); Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 38-39 & n.147 (citing a GAO report that found, unsurprisingly, "peer reviewers chosen by FWS usually agreed with the agency's positions").

105. See Doremus, *Best Available Science*, *supra* note 4, at 434-35.

106. *Id.* at 447 (NRC-like resource-intensive peer review "can prevent agencies from fall-

Interdisciplinary NRC committees also benefit deliberation by bringing together experts from disciplines and backgrounds that might otherwise not collaborate. A cross-disciplinary committee is more likely than a single expert in one field to uncover alternative approaches and solutions to environmental problems, and the NRC's commitment to seeking balanced, unbiased committees facilitates this multidisciplinary deliberation.¹⁰⁷

Finally, the public release of NRC reports can aid the public's understanding of an issue, facilitate agency accountability by providing transparency about regulatory decisions, and identify key areas for further research. The reports inform the public about limitations in the agencies' data and identify places where policy decisions must have filled the gap.¹⁰⁸ Further, a lingering challenge in "science-based" environmental law is identifying the line between an agency's scientific and policy judgments. Doing so can lead to greater agency transparency and legitimacy in the eyes of the public, legislature, and courts. Interdisciplinary NRC committees may be the best-equipped body to draw that line.¹⁰⁹

b. NRC Weaknesses

All regulatory peer review imposes costs on resource-strapped agencies, diverting time and money away from enforcement and other important activities.¹¹⁰ NRC studies are even more time consuming and costly than the

ing into intellectual ruts by making them justify the basic assumptions and approaches that can easily fade into the background over time").

107. Doremus & Tarlock, *Judgment*, *supra* note 9, at 32; BIPARTISAN POLICY CENTER, SCIENCE FOR POLICY PROJECT, FINAL REPORT 6-7, 23-24 (Aug. 5, 2009) (praising the NRC committee selection process as a model for achieving balanced, unbiased panels); *see also* Carden, *supra* note 9, at 169-70 (noting that environmental laws do not foster an interdisciplinary approach, and recommending a new process that "bridges traditional disciplinary divides").

108. *See* Doremus & Tarlock, *Judgment*, *supra* note 9, at 32 ("Appropriate outside review which generates a publicly available report can, however, make scientific, political, and even management judgments more transparent."); Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 10, 45 (describing this beneficial result from the Klamath NRC committee report); Shapiro & Guston, *supra* note 10, at 541 ("[M]aking the substantive results of the procedural control of regulatory peer review publicly available can render political rewards and punishments more effective because legislators, executive branch actors, the courts, and constituent groups who may want to challenge bureaucratic decisions will be able to cite findings by independent experts.").

109. *See* Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 45 (discussing NRC reports and suggesting that "perhaps the chief benefit" to regulatory peer review is forcing agencies to sharpen the delineation between the science and policy bases of their decisions); *id.* at 46 ("[O]ne would be hard-pressed to identify a better method [than regulatory peer review] for sharpening that line."); Wagner, *Science Charade*, *supra* note 18, at 1717 (stating that scientific expertise is needed to draw the line).

110. Doremus, *Science Plays Defense*, *supra* note 20, at 302 ("[C]ommittee reviews are time-consuming and resource-intensive."); Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 24 ("[R]egulatory peer review clearly imposes costs on agencies that are already operating under tight resource constraints."); Virelli, *supra* note 41, at 770 (noting that a primary cost of regulatory peer review is its potential to delay and ossify the agencies' decision-making

typical inquiry, generally ranging between six months and two years in duration and \$200,000 to more than \$1 million in cost, depending on the complexity of the issue.¹¹¹

In addition, a flipside to the NRC's political independence is its lack of accountability—a value traditionally favored in the administrative state.¹¹² Thus, relying too heavily on external reviewers may unwittingly abdicate policy decisions from partially accountable agency officials to wholly unaccountable outside advisors.¹¹³ Although NRC committee members purportedly limit their review to scientific matters, their own policy judgments may inevitably creep into the reports—just as the agency officials' policy choices seep into their nominally science-based decisions.¹¹⁴ While procedural mechanisms allow for at least some public oversight of agency decision making, it is more difficult for the public to trace NRC committee members' policy decisions because they deliberate in secret and are not subject to disclosure under FOIA or FACA.¹¹⁵

NRC reports also tend to fuel ongoing controversy instead of helping to resolve it. Because rigorous peer reviews almost always find some flaw in an agency decision and add to the uncertainty of that decision's validity, the high-profile NRC reports supply antiregulatory forces with additional ammunition to challenge an agency's decision.¹¹⁶ Instead of addressing the underlying policy and value disputes, NRC reports may simply provide stakeholders with new facts to argue their side. Thus, science advice may lead to further "political controversy rather than to political accord."¹¹⁷

processes); Wymyslo, *supra* note 52, at 154 ("An issue that is . . . particularly relevant [regarding regulatory peer review of ESA listing decisions] is the potentially increased time required to make agency decisions.").

111. COMMITTEE PROCESS, *supra* note 66, at 5; PROSPECTIVE SPONSORS, *supra* note 73.

112. See Lisa Schultz Bressman, *Beyond Accountability: Arbitrariness and Legitimacy in the Administrative State*, 78 N.Y.U. L. REV. 461, 469 (2003) (describing a "concern for accountability" as the "dominant" scholarly model to situate the administrative state in our constitutional structure).

113. Noah, *supra* note 31, at 1051–52 (citing MARK R. POWELL, SCIENCE AT EPA: INFORMATION IN THE REGULATORY PROCESS 4 (1999)); see also Shapiro & Guston, *supra* note 10, at 541 (expressing concerns that regulatory peer review may exacerbate technocracy).

114. See JASANOFF, *supra* note 32, at 229 ("[Science a]dvisory committees, we know from experience, rarely restrict their deliberations to purely technical issues. In fact, the experts themselves seem at times painfully aware that what they are doing is not 'science' in any ordinary sense, but a hybrid activity that combines elements of scientific evidence and reasoning with large doses of social and political judgment."); Doremus, *Science Plays Defense*, *supra* note 20, at 302 ("[A]ny review is as capable as the regulatory decision reviewed of hiding policy judgments, deliberately or not.").

115. Cf. Noah, *supra* note 31, at 1064 (expressing concern about secrecy in regulatory peer review).

116. See Bryant, *supra* note 19, at 202 ("[N]ew research often increases uncertainty and fuels the ongoing conflict."); Sunstein, *supra* note 67, at 2276–77 (noting that opponents of the EPA's arsenic standards used data from a related NRC report to challenge the agency's regulations).

117. *Id.*; see also Noah, *supra* note 31, at 1052 ("[G]enerally, reviewers can reveal uncer-

The next three Parts of this Comment recount recent case studies to assess, in practice, the strengths and weaknesses of NRC committees and other forms of regulatory peer review. There is no better place to begin than the Klamath Basin, where the 2002 NRC report embodied both the best and worst of peer review in environmental regulatory decision making.

II.

KLAMATH BASIN

The Klamath Basin is home to a long-simmering water dispute between agricultural irrigators, environmental advocates, downstream fishermen, and Native American tribes.¹¹⁸ After a high-profile standoff during an intense drought, a 2002 NRC report undermined the scientific basis of federal regulations that limited water diversions for farmers.¹¹⁹ The report generated widespread coverage in the national press, prompted “sound science” amendments to the ESA, and became “Exhibit Number One” for critics who believe federal agencies rely on “junk science” to justify their regulations.¹²⁰

The Klamath NRC report has been well aired in the legal and scientific literature,¹²¹ but it is important to recap here because it likely prompted further requests for NRC reviews from regulatory opponents. Professor Ruhl, who participated on the Klamath committee, identified the growing prominence of regulatory peer review as one of the most significant consequences of the Klamath story.¹²²

tainties, but only additional research can resolve them. [Thus, r]elying too heavily on external reviewers . . . can result in shifting problems rather than solving them . . .”) (internal citations omitted).

118. See Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 287.

119. See *infra* text accompanying notes 148–162.

120. Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 3–4.

121. See, e.g., Reed D. Benson, *Giving Suckers (and Salmon) an Even Break: Klamath Basin Water and the Endangered Species Act*, 15 TUL. ENVTL. L.J. 197 (2002); Carden, *supra* note 9; Michael S. Cooperman & Douglas F. Markle, *The Endangered Species Act and the National Research Council's Interim Judgment in Klamath Basin*, 28 FISHERIES 10 (2003); Doremus & Tarlock, *Clash of Cultures*, *supra* note 4; Doremus & Tarlock, *Judgment*, *supra* note 9; James K. Hein, Note, *The “Sound Science” Amendment to the Endangered Species Act: Why it Fails to Resolve the Klamath Basin Conflict*, 32 B.C. ENVTL. AFF. L. REV. 207 (2005); Sharon Levy, *Turbulence in the Klamath River Basin*, 53 BIOSCIENCE 315 (2003); Daniel J. McGarvey & Brett Marshall, *Making Sense of Scientists and “Sound Science”: Truth and Consequences for Endangered Species in the Klamath Basin and Beyond*, 32 ECOLOGY L.Q. 73 (2005); Ruhl, *Battle*, *supra* note 51; Ruhl, *Prescribing*, *supra* note 12; Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7; Robert F. Service, *“Combat Biology” on the Klamath*, 300 SCIENCE 36 (2003); Christine Swift, Comment, *Crisis in the Klamath: New Considerations for Managing Water under the Endangered Species Act*, 22 TEMP. ENVTL. L. & TECH. J. 65 (2003).

122. Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 3.

A. Deeply Polarized Basin

Covering roughly 12,000 square miles, the Klamath is a remote watershed with upper and lower basins that are geographically, biologically, and socially distinct.¹²³ The flat, arid, upper basin in southern Oregon features the large, shallow, turbid Klamath Lake that is home to the endangered freshwater sucker fish.¹²⁴ Vast tracts of irrigated agricultural land have dominated the region since the Bureau of Reclamation—a federal agency created to provide water and promote economic development in the western states—built a large network of dams and canals, known as the “Klamath Project,” more than a century ago.¹²⁵ By contrast, the steep, lower basin follows the main-stem Klamath River as it carves canyons through forested Northern California and drains into the Pacific Ocean within Redwood National Park.¹²⁶ The river provides vital habitat for several salmonid species, including a federally listed population of Coho salmon.¹²⁷ Scientists blame the salmon’s recent decline in the watershed on a series of upstream hydroelectric dams and low instream water flows, among other things.¹²⁸

The Klamath is a “deeply polarized region,” with tension between the upstream and downstream water users dating back several decades.¹²⁹ The conflict came to a head at the turn of the twenty-first century, when a severe drought in 2001 forced a collision between two federal policies: protecting endangered fish and providing water to western farmers.

B. Drought and the Endangered Species Act Force the Headgates Closed

Section 7 of the ESA requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of a listed species or result in adverse modification of critical habitat.¹³⁰ If an agency’s action may affect a listed species, it must consult with the FWS or National Marine Fisheries Service (NMFS).¹³¹ FWS or NMFS then typically issues a biological opinion (BiOp) that addresses whether the action is likely to jeopardize a listed species,

123. For a thorough, incisive look at the Klamath Basin controversy, see HOLLY DOREMUS & A. DAN TARLOCK, *WATER WAR IN THE KLAMATH BASIN: MACHO LAW, COMBAT BIOLOGY, AND DIRTY POLITICS* (2008) [hereinafter DOREMUS & TARLOCK, *WATER WAR*]; see also Ian Fein, Book Note, *Salmon, Science, and Subsidies*, 36 *ECOLOGY L.Q.* 775 (2009) (reviewing *WATER WAR IN THE KLAMATH BASIN*).

124. Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 289, 292–93.

125. See *id.* at 298–99.; *About Us*, U.S. BUREAU OF RECLAMATION, <http://www.usbr.gov/main/about> (last updated Feb. 7, 2011).

126. Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 289.

127. *Id.* at 289, 294.

128. DOREMUS & TARLOCK, *WATER WAR*, *supra* note 123, at 95.

129. Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 279.

130. 16 U.S.C. § 1536(a)(2) (2006).

131. NMFS is responsible for marine species, while FWS handles freshwater fish and all other species. Both agencies are involved in Klamath Basin and the Bay Delta water decisions because both areas have listed anadromous and freshwater fish.

and if so, what “reasonable and prudent alternatives” (RPAs) would allow the action to go forward with minimal effects.¹³² The statute mandates that the FWS and NMFS must use the best scientific information available when developing BiOps, though the precise purpose and effect of that requirement remain unclear.¹³³ BiOps are not legally binding, but in practice federal officials rarely depart from the wildlife agencies’ opinions.¹³⁴

In 2001, a federal district court held that the Bureau of Reclamation violated Section 7 of the ESA by operating the Klamath Project without FWS or NMFS consultation.¹³⁵ The court enjoined the Bureau from providing further irrigation deliveries whenever downstream flows fell below levels recommended by an Interior Department-commissioned report, which the court characterized as the “best science currently available.”¹³⁶

Soon thereafter, FWS and NMFS released BiOps concluding that irrigation operations would indeed jeopardize the continued existence of both the endangered suckers and threatened Coho.¹³⁷ The opinions included RPAs requiring adequate water levels both upstream and below, and the Bureau issued a corresponding operation plan for the upcoming year that left little water for irrigation.¹³⁸ Irrigators sought an injunction against the Bureau’s redesigned plan, arguing that the best available science did not support the agencies’ RPAs.¹³⁹ However, the court denied the injunction because the plaintiffs showed little more than a disagreement with the agencies’ scientific conclusions, which was insufficient to surpass the deferential “arbitrary [and] capricious” standard codified in the APA.¹⁴⁰

A severe drought struck in 2001.¹⁴¹ To maintain water levels required by the BiOp, federal officials—for the first time in history—closed the headgates

132. 16 U.S.C. § 1536(b)(3)(A).

133. 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(g)(8) (2009) (“In formulating its [B]iological [O]pinion, any reasonable and prudent alternatives, and any reasonable and prudent measures, the Service will use the best scientific and commercial data available”); see also Doremus, *Best Available Science*, *supra* note 4, at 406–07 (describing other ESA provisions that require the best available science); *id.* at 422–26 (suggesting the ESA’s “best available science” mandate may simply duplicate basic administrative law requirements the APA already imposes on agency decisions).

134. Doremus, *Best Available Science*, *supra* note 4, at 403–04; see also *Bennett v. Spear*, 520 U.S. 154, 170 (1997) (“The action agency is technically free to disregard the Biological Opinion and proceed with its proposed action, but it does so at its own peril”).

135. *Pac. Coast Fed’n of Fishermen’s Ass’ns v. U.S. Bureau of Reclamation (Pacific Coast I)*, 138 F. Supp. 2d 1228, 1242–43, 1247 (N.D. Cal. 2001).

136. *Id.* at 1249–50.

137. Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 320.

138. *Id.*

139. *Kandra v. United States*, 145 F. Supp. 2d 1192, 1199 (D. Or. 2001); Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 320.

140. *Kandra*, 145 F. Supp. 2d at 1210; see also Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 321.

141. Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 283 & n.8 (noting that the Klamath Basin received roughly half its normal annual rainfall).

of a reclamation project in favor of protecting fish.¹⁴² The closure withheld 90 percent of the water originally scheduled for delivery during the spring and summer, affecting some 1,400 farmers who plant approximately 210,000 acres.¹⁴³ Farmers responded angrily and, on four separate occasions, symbolically forced open the headgates only to watch the government shut them again.¹⁴⁴ The clash garnered national headlines, including reports of an “epic battle of farmer against fish” and *Wall Street Journal* editorials levying conspiratorial claims of “rural cleansing.”¹⁴⁵

The Pacific Legal Foundation petitioned to convene a “God Squad”—a rarely invoked panel of Cabinet Secretaries that can exempt a project from ESA regulations if the economic cost clearly outweighs the benefit of protecting a species.¹⁴⁶ However, Interior Secretary Gale Norton dismissed the petition on standing grounds.¹⁴⁷ Rather than openly overruling the ESA restrictions and risking political fallout for the decision, the Bush Administration turned instead to the NRC for an external review of the science behind the agency’s regulations.¹⁴⁸

C. Enter the NRC

In late summer 2001, the Interior and Commerce Secretaries requested an NRC review of the FWS and NMFS BiOps.¹⁴⁹ The occasion marked the first-ever NRC review of a discrete regulatory decision under the ESA.¹⁵⁰ The NRC

142. DOREMUS & TARLOCK, *WATER WAR*, *supra* note 123, at 1–2; Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 283.

143. Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 284. “Hundreds of farms dried to dust,” with irrigators’ direct financial losses from the dry summer estimated at between twenty-eight and thirty-five million dollars. *Id.* at 322; Ruhl, *Prescribing*, *supra* note 12, at 418.

144. Swift, *supra* note 121, at 2; *see also* Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 1; *Farmers Force Open Canal in Fight with U.S. Over Water*, N.Y. TIMES, July 6, 2001, at A10.

145. Hein, *supra* note 121, at 225 (quoting Sally Ruth Bourrie, *A Shortage of Water Pits Farmer Against Fish in Or.*, BOSTON GLOBE, Aug. 17, 2001, at A2) (internal quotation marks omitted); Editorial, *People Suck*, WALL ST. J., May 16, 2001, at A22; Kimberley A. Strassel, Editorial, *Rural Cleansing*, WALL ST. J., July 26, 2001, at A14. Given that the Klamath Project served only about 4,000 people, what some found most striking about the uproar was the considerable attention it received. Hein, *supra* note 121, at 225.

146. *See* 16 U.S.C. § 1536(e), (g)–(h) (2006); *see also* John Copeland Nagle, *Playing Noah*, 82 MINN. L. REV. 1171, 1172 & n.4 (1998) (describing the Endangered Species Committee’s characterization as the “God Squad”); Jared des Rosiers, Note, *The Exemption Process Under the Endangered Species Act: How the “God Squad” Works and Why*, 66 NOTRE DAME L. REV. 825 (1991).

147. Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 323–24; *see also* Douglas Jehl, *Norton Rejects Call to Have Panel Review Water Cutoff*, N.Y. TIMES, July 14, 2001, at A11.

148. *See* Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 342 (suggesting that Secretary Norton “cleverly chose” to seek the NRC review because immediately overruling the agency regulations “would have been seen as politics interfering with science”).

149. *See id.* at 324.

150. Ruhl, *Battle*, *supra* note 52, at 584; Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 3 (calling the Klamath Report the first NRC review “ever conducted of an agency

broke the study into two separate reports: The charge for the initial report was “quite narrow,” requiring that the committee review and evaluate the agencies’ BiOps and assess whether they were consistent with the best available science.¹⁵¹ The committee’s task for its second and final report went beyond the BiOps to “thoroughly address the scientific aspects related to the continued survival” of the salmon and suckers.¹⁵²

The NRC appointed a committee of twelve experts from a variety of disciplines.¹⁵³ The chairman, Professor William Lewis, had experience leading an NRC review of politically charged government science.¹⁵⁴ With a budget of over \$650,000, the committee made three field trips to the Klamath Basin and held at least one additional meeting.¹⁵⁵

1. The Klamath NRC Interim Report and the Ensuing Controversy

The NRC released its interim report in early 2002, only three months after its commission.¹⁵⁶ The committee found substantial scientific support for most of the agencies’ assertions in the BiOps, but it balked at the two most important and controversial findings, concluding there was “no sound scientific basis” for the RPAs about lake levels and river flows.¹⁵⁷ However, neither did the committee find scientific support for the Bureau of Reclamation’s proposal to reduce water levels.¹⁵⁸ Thus, the report essentially concluded there was not enough data to prove the need for changing water flows one way or the

decision of this magnitude under the ESA”).

151. KLAMATH INTERIM REPORT, *supra* note 77, at 10 (“The committee is not charged with . . . forecasting the economic consequences of continued implementation of flows specified in the biological opinion.”). See Ruhl, *Battle*, *supra* note 51, at 585 n.121.

152. COMM. ON ENDANGERED AND THREATENED FISHES IN THE KLAMATH RIVER BASIN, NAT’L RESEARCH COUNCIL, ENDANGERED AND THREATENED FISHES IN THE KLAMATH RIVER BASIN: CAUSES OF DECLINE AND STRATEGIES FOR RECOVERY 380 (2004) [hereinafter KLAMATH FINAL REPORT].

153. Doremus & Tarlock, *Judgment*, *supra* note 9, at 8. The committee members were William M. Lewis, Jr. (Committee Chair, University of Colorado, Boulder); Richard M. Adams (Oregon State University); Ellis B. Cowling (North Carolina State University); Eugene S. Helfman (University of Georgia); Charles D. D. Howard (Consulting Engineer, Victoria, British Columbia, Canada); Robert J. Huggett (Michigan State University); Nancy E. Langston (University of Wisconsin); Jeffrey F. Mount (University of California at Davis); Peter B. Moyle (University of California, Davis); Tammy J. Newcomb (Virginia Polytechnic Institute and State University); Michael L. Pace (Institute of Ecosystem Studies); and J. B. Ruhl (Florida State University). KLAMATH INTERIM REPORT, *supra* note 77, at v.

154. Doremus & Tarlock, *Judgment*, *supra* note 9, at 33 & n.137 (noting Professor Lewis’s chairing a committee that oversaw the Bureau of Reclamation’s study of potential environmental effects from operational changes to the Glen Canyon Dam).

155. Ruhl, *Battle*, *supra* note 52, at 601 n.202.

156. McGarvey & Marshall, *supra* note 121, at 79 n.29.

157. KLAMATH INTERIM REPORT, *supra* note 77, at 3–4; see also Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 326.

158. KLAMATH INTERIM REPORT, *supra* note 77, at 4, 20; Ruhl, *Battle*, *supra* note 51, at 587.

other.¹⁵⁹ But the committee's rhetoric—which was less cautious and nuanced than that of most NRC reports—provoked irrigators who insisted that the water restrictions were absolutely unnecessary.¹⁶⁰

The NRC's interim report “proved explosive” and “sparked a firestorm of controversy,” returning the Klamath to the front pages with stories criticizing the wildlife agencies for needlessly harming farmers.¹⁶¹ The report prompted congressional oversight hearings, where longtime ESA opponents revived their claims that ESA regulations lacked adequate scientific support.¹⁶² Lawmakers used the report to justify a series of proposed “sound science” ESA amendments that would have required intensive, NRC-like peer reviews of many agency regulations.¹⁶³

In the weeks following the interim report, the NRC review also provided political cover for the farmer-friendly Bureau of Reclamation to issue a ten-year operating plan that provided a generous amount of water to irrigators.¹⁶⁴ Environmental groups and fishing interests sought to enjoin the plan as inconsistent with the 2001 FWS and NMFS BiOps, but the Bureau cited the NRC report in opposition, and the court quickly rejected the plaintiffs' motion.¹⁶⁵

In 2002, FWS and NMFS responded by issuing new BiOps on the ten-year plan and, to a certain extent, held their ground by concluding that the project would still jeopardize the listed fish.¹⁶⁶ When it came to formulating RPAs, however, the agencies—chagrined by the NRC report—softened their demands on the Bureau.¹⁶⁷ With the new operating plan in place, two Cabinet

159. Hein, *supra* note 121, at 228.

160. See Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 326 (“While the NRC usually speaks in a cautious, nuanced voice, the Klamath committee's preliminary report minced no words.”); Hein, *supra* note 121, at 228.

161. See Carden, *supra* note 9, at 252–53, 255–56; Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 285, 326; Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 4. See also Editorial, *Fish Tales*, WALL ST. J., Feb. 27, 2002, at A20 (“[E]veryone else watching the Klamath charade knew long ago that [FWS and NMFS] had thrown over science for ideology.”).

162. Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 333 & n.307, 342; see also Carden, *supra* note 9, at 255 (“Congressmen condemned ‘sloppy science [that] ruins regional economies and personal livelihoods.’”); McGarvey & Marshall, *supra* note 121, at 80 (quoting several congressmen about the NRC report).

163. Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 333; Hein, *supra* note 121, at 208 & n.4, 237–45; see also McGarvey & Marshall, *supra* note 121, at 80 & n.175 (citing testimony in support of the bill that explicitly referenced the NRC report).

164. Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 326–28, 342.

165. *Id.* at 326, 332.

166. *Id.* at 328, 330.

167. The agency biologist charged with drafting the 2002 NMFS BiOp later sought whistleblower protection, alleging that improper political pressure softened the opinion without input from agency scientists. *Id.* at 330–31. The Office of Special Counsel declined to pursue the biologist's whistleblower claim, and in 2004 he resigned from NMFS after complaining that politics again trumped his scientific work on another BiOp. Doremus, *Integrity*, *supra* note 47, at 1607–09.

Secretaries and a U.S. Senator attended a high-profile ceremony to reopen the irrigation headgates.¹⁶⁸

Months later, one of the largest fish kills in U.S. history occurred on the lower stretch of the Klamath River, with more than 30,000 salmon dying in the warm, shallow waters.¹⁶⁹ The plaintiffs who had lost the earlier injunction request amended their complaint to include the fish kill, and the Ninth Circuit eventually enjoined the 2002 NMFS BiOp as arbitrary and capricious for failing to ensure adequate downstream flows to protect the salmon.¹⁷⁰

2. *The Klamath NRC Final Report*

Roughly two years after its interim report, the NRC Klamath committee released a more detailed and comprehensive final report. The committee reiterated its earlier conclusion that the headgate closure lacked grounding in sound science, but it also defended the wildlife agencies and insisted that professional judgment must play a role in their policy decisions.¹⁷¹ The committee distinguished its own purely scientific task from the policy choices that an agency must make, and acknowledged that, where information is lacking, an agency may need to adopt “practices for which the committee would find virtually no direct scientific support.”¹⁷²

The final report also made several broader recommendations for resolving the basin’s conflicts. The committee documented a variety of sources that contribute to the decline of listed species, and presented a range of steps for recovery, such as removing dams.¹⁷³ The report also criticized the agencies for not focusing on water users other than the Klamath Project and suggested specific research and monitoring for the basin.¹⁷⁴

D. Criticism of the Klamath NRC Committee

The Klamath committee’s work did not go unchallenged and, in fact, was the target of significant criticism.¹⁷⁵ An article in the journal *Science* noted that the interim NRC report sparked a “muted outcry” among fishery biologists who “contend[ed] that the report’s analyses were simplistic [and] its conclusions overdrawn.”¹⁷⁶ Two scientists authored a law journal article in *Ecology Law*

168. Hein, *supra* note 121, at 229.

169. *Id.*; Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 335.

170. *See* Pac. Coast Fed’n of Fishermen’s Ass’ns v. U.S. Bureau of Reclamation (*Pacific Coast II*), 426 F.3d 1082, 1089, 1091 (9th Cir. 2005).

171. KLAMATH FINAL REPORT, *supra* note 152, at 6–7, 9–10; *accord* Hein, *supra* note 121, at 233–34.

172. KLAMATH FINAL REPORT, *supra* note 152, at 35, 315.

173. *Id.* at 3–15; Doremus & Tarlock, *Judgment*, *supra* note 9, at 33.

174. KLAMATH FINAL REPORT, *supra* note 151, at 10–13; Hein, *supra* note 121, at 234.

175. *See* Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 326; Doremus & Tarlock, *Judgment*, *supra* note 9, at 10 (calling its conclusions “tenable [], but not incontestable”).

176. Service, *supra* note 121, at 36.

Quarterly faulting the report for inappropriately assigning the burden of proof to the wildlife agencies and neglecting to explain that there was no evidence establishing the 2001 BiOp was actually wrong.¹⁷⁷ Also, in a peer-reviewed paper in the scientific journal *Fisheries*, scientists at Oregon State University argued that the NRC interim report was plagued by multiple errors and should not be viewed as definitive; they lauded the 2001 FWS BiOp as “more rigorous, thorough, and defensible” than the NRC interim report.¹⁷⁸

The NRC committee chairman, Professor Lewis, responded to the criticisms by acknowledging that regulatory agencies must make policy choices that privilege the species they are charged with protecting, but he argued that agency decisions merit special scrutiny “[w]here the economic stakes are high.”¹⁷⁹ The chairman also fired back at the Oregon State scientists in particular, suggesting they grasped at anything in the report that could be portrayed as an error and, by casting doubt on the committee’s competence and honesty, revealed that their main purpose was to discredit the committee.¹⁸⁰ Professor Lewis did not acknowledge that many antiregulatory ESA opponents used the NRC interim report in exactly that manner to discredit the wildlife agencies’ work.

E. Taking Stock

In the end, the NRC’s final Klamath report added to the knowledge base and helped guide subsequent research in the basin. It even triggered a third NRC report in 2008 that focused specifically on river flows necessary for Coho salmon.¹⁸¹ However, the committee’s more lasting contribution might have been that it highlighted the need to define more clearly the role of science when the ESA, water law, and politics collide.¹⁸²

Looking to science as the sole arbiter of the Klamath dispute only deepened the cultural divide between polarized stakeholders in the Basin.¹⁸³ The NRC’s focus on the “soundness” of the agencies’ science resulted primarily in public misunderstanding and mistrust.¹⁸⁴ Members of the public did not learn about the legal validity of the underlying regulations, or

177. McGarvey & Marshall, *supra* note 121, at 79, 102, 104 (“[S]cientific peer review is most concerned with preventing Type I errors, while the proactive ESA seeks to prevent Type II error. This is why the FWS and the NRC Committee, upon analyzing the same data, reached opposite conclusions.”).

178. Cooperman & Markle, *supra* note 121, at 10, 17.

179. William M. Lewis, Jr., *Klamath Basin Fishes: Argument Is No Substitute for Evidence*, 28 *FISHERIES* 20, 21 (2003).

180. *Id.* at 24.

181. COMM. ON HYDROLOGY, ECOLOGY, AND FISHES OF THE KLAMATH RIVER, NAT’L RESEARCH COUNCIL, *HYDROLOGY, ECOLOGY, AND FISHES OF THE KLAMATH RIVER BASIN* (2008).

182. Carden, *supra* note 9, at 253.

183. Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 287.

184. Carden, *supra* note 9, at 255.

differences between scientific and judicial standards of proof, but instead heard from antiregulatory forces that cited the NRC report as proof of “junk science.”¹⁸⁵ Local scientists felt that the NRC report “undermined the credibility of much of the science being done in the region” and “fueled an outright anti-science sentiment.”¹⁸⁶

Members of the Klamath NRC committee continued to defend the substance of their work while acknowledging the less than ideal results. Professor Ruhl justified the higher evidentiary burden applied in the NRC reports because the committee’s charge never mentioned the deferential “arbitrary [and] capricious” legal standard under which a court would judge the agencies’ decisions.¹⁸⁷ However, he admitted the committee’s findings “were used and abused,” and Professor Lewis claimed the committee had “no control over the uses to which its report might be put.”¹⁸⁸

Committee member Jeffrey Mount, a University of California, Davis geologist, speculated that political forces may have framed the committee’s initial statement of task to achieve a desired result. “I hate it that I feel like we were manipulated for political reasons,” Professor Mount said.¹⁸⁹ Indeed, a *Washington Post* investigative series later reported that Vice President Dick Cheney “reached far down the chain of the command” and secretly helped engineer the Klamath NRC review to undercut the ESA regulations.¹⁹⁰ Driven by the political ramifications of the Klamath dispute, the Vice President rejected empanelling the God Squad to avoid putting the Administration on record as advocating the extinction of an endangered species.¹⁹¹ Instead, he “set in motion” the NRC review to scrutinize the work of agency scientists and “get science on the side of farmers.”¹⁹²

185. Carden, *supra* note 9, at 255–56.

186. Service, *supra* note 121, at 36.

187. Ruhl, *Battle*, *supra* note 52, at 585 (“[T]he statement of task did not ask the Klamath Committee to assess whether the biological opinions were ‘arbitrary and capricious.’”); Ruhl, *Prescribing*, *supra* note 12, at 418–19 (“[The committee] was not filling the shoes of a court on *judicial* review assessing whether the biological opinions were ‘arbitrary and capricious.’ Rather, [the committee was] asked, in effect, to subject a discrete agency decision to rigorous, independent, scientific *peer* review.”).

188. Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 3 n.7; McGarvey & Marshall, *supra* note 121, at 82 n.44 (quoting Levy, *supra* note 121, at 319).

189. Mike Taugher, *Farm Baron Gets High-Level Help*, *CONTRA COSTA TIMES*, Sept. 19, 2009 [hereinafter Taugher, *Farm Baron*].

190. Jo Becker & Barton Gellman, *Leaving No Tracks*, *WASH. POST*, June 27, 2007, at A1. The investigative series later earned the Pulitzer Prize for national reporting. *The 2008 Pulitzer Prize Winners, National Reporting*, THE PULITZER PRIZES, <http://www.pulitzer.org/citation/2008-National-Reporting> (last visited Mar. 10, 2011). The NRC denies that Cheney played any part in empanelling the Klamath review committee. DOREMUS & TARLOCK, *WATER WAR*, *supra* note 123, at 159–60. However, Becker and Gellman report that Cheney deliberately hid his role from others and “characteristically, . . . left no tracks.” Becker & Gellman, *supra*.

191. Becker and Gellman, *supra* note 190.

192. *Id.*

This political strategy may have proved influential. Although the Klamath marked the first-ever NRC review of a discrete regulatory decision under the ESA,¹⁹³ it was not the last.¹⁹⁴

III. POINT REYES

For the past several years, a public lands battle has played out in Northern California regarding the fate of a single oyster farmer in an estuary slated for wilderness protection. At its heart, the dispute is one of both policy (the competing values of local agriculture versus wilderness protection)¹⁹⁵ and law (how much discretion the Wilderness Act affords the National Park Service).¹⁹⁶ However, the public face of the controversy has become a battle over agency science, with charges of scientific misconduct and bad faith being levied against Park Service officials.

Like the Klamath, where a relatively small-stakes dispute received a remarkable amount of national attention, what started as a local conflict in a corner of coastal Marin County has become “a matter of public controversy.”¹⁹⁷ The national attention paid to this controversy is due in large part to the personal intervention of Senator Feinstein, who helped secure a NRC review of a Park Service report about the oyster farm’s environmental effects. The May 2009 NRC report concluded that park officials in several instances “selectively presented, over-interpreted, or misrepresented the available scientific information on potential impacts.”¹⁹⁸ The report, however, did not address the

193. Ruhl, *Battle*, *supra* note 51, at 584; Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 3 (calling it the first NRC review “ever conducted of an agency decision of this magnitude under the ESA”).

194. *See infra* Part IV.

195. Cong. Lynn Woolsey (D-Cal.), whose district encompasses the oyster farm, wrote: “The issue has sharply divided my district. . . . Some support the oyster farm as an example of clean sustainable agriculture that is good for the local economy, while others oppose an extension [of its occupancy], saying it would seriously undermine the Wilderness Act.” Debra Kahn, *Ag Interests, Enviros Spar over Calif. Wilderness Plan*, GREENWIRE (May 7, 2007), <http://www.nytimes.com/gwire/2009/05/07/07greenwire-ag-interests-enviros-spar-over-calif-wildernes-12208.html>.

196. *See* COMM. ON BEST PRACTICES FOR SHELLFISH MARICULTURE AND THE EFFECTS OF COMMERCIAL ACTIVITIES IN DRAKES ESTERO, NAT’L RESEARCH COUNCIL, SHELLFISH MARICULTURE IN DRAKES ESTERO, POINT REYES NATIONAL SEASHORE, CALIFORNIA 82 (2009) [hereinafter POINT REYES NRC REPORT] (“[O]ur committee concludes that this decision on [the] extension of the [occupancy] hinges on the legal interpretation of the legislative mandate . . .”).

197. *Id.* at 18; *see also* Julie Cart, *Oyster Farm Dispute Roils Marin County*, L.A. TIMES, Dec. 27, 2009, <http://articles.latimes.com/2009/dec/27/local/la-me-oyster27-2009dec27> (the oyster farmer and his allies have “attempted to derail the Senate confirmation of the new Park Service director, who once oversaw the region”). I first encountered this dispute in 2007 as a newspaper reporter for the *West Marin Citizen*. Professors Ruhl and Salzman recently mentioned the controversy in an administrative law article about historic baselines. *See* J.B. Ruhl & James Salzman, *Gaming the Past: The Theory and Practice of Historic Baselines in the Administrative State*, 64 VAND. L. REV. 1, 27–28, 44 (2011).

198. POINT REYES NRC REPORT, *supra* note 196, at 72–73.

underlying policy or legal disputes and their material impact on the Park Service conclusions, and thus simply stirred up more scientific controversy in the estuary's waters.

A. Drakes Estero

Drakes Estero sits on a spectacular stretch of coast within the Point Reyes National Seashore, approximately twenty-five miles northwest of San Francisco.¹⁹⁹ Surrounded by federal wilderness and historic cattle ranches, the Estero is a shallow, coastal marine lagoon that covers about 2,270 acres.²⁰⁰ It harbors a diverse array of wildlife, including ninety bird species, many of them endangered, and the largest seal colony on the California coast.²⁰¹ The estuary also boasts a rich cultural history. Coastal Miwok Indians foraged along its shores, and more than four centuries ago, explorer Sir Francis Drake—the estero's namesake—purportedly stepped ashore nearby.²⁰²

B. Conflict in a Potential Wilderness

Since the 1930s, an oyster farm has operated within the waters of Drakes Estero.²⁰³ After Congress established the Point Reyes National Seashore in 1962,²⁰⁴ the Park Service entered into a decade-long negotiation with the oyster farm owner, Charles Johnson.²⁰⁵ In 1972, Johnson sold his five acres of land to the Park Service but, as a condition of the sale, retained a reservation of use and occupancy that allowed him to operate his business for another forty years, until 2012.²⁰⁶ Reservations are deeded interests in real estate and, per Park Service policy, cannot be renewed beyond their expiration dates.²⁰⁷

199. *See id.* at 9.

200. *Id.* at 12.

201. Peter Fimrite, *Scientists Side with Drakes Bay Oyster Farmer*, S.F. CHRON., May 6, 2009, http://articles.sfgate.com/2009-05-06/news/17201770_1_oyster-population-park-service-s-handling-national-park-service [hereinafter Fimrite, *Scientists Side*]. About 20 percent of state's harbor seal population hauls-out on sandbanks in the estero during pupping season. POINT REYES NRC REPORT, *supra* note 196, at 4–5.

202. *See* POINT REYES NRC REPORT, *supra* note 196, at 20; Fimrite, *Scientists Side*, *supra* note 201; Carl Nolte, *Again a Safe Harbor: Tiny Cove Many Believe Sir Francis Drake Repaired to 422 Years Ago Suddenly Reappears*, S.F. CHRON., July 18, 2001, http://articles.sfgate.com/2001-07-18/news/17608888_1_drake-navigators-guild-drakes-estero-drake-s-new-albion.

203. POINT REYES NRC REPORT, *supra* note 196, at 13.

204. Point Reyes National Seashore Establishment Act, Pub. L. No. 87-657, 76 Stat. 538 (codified at 16 U.S.C. § 459c, *et seq.*). To preserve the peninsula's agricultural traditions, the Seashore included a large "pastoral zone" to accommodate lease agreements with existing ranchers. Drakes Estero and the oyster farm are not located within the pastoral zone. U.S. DEP'T OF THE INTERIOR, OFFICE OF INSPECTOR GEN., INVESTIGATIVE REPORT: POINT REYES NATIONAL SEASHORE 3–4 (July 2008) [hereinafter INSPECTOR GEN. REPORT].

205. INSPECTOR GEN. REPORT, *supra* note 204, at 3; POINT REYES NRC REPORT, *supra* note 196, at 12–13.

206. INSPECTOR GEN. REPORT, *supra* note 204, at 3; POINT REYES NRC REPORT, *supra* note 196, at 13.

207. INSPECTOR GEN. REPORT, *supra* note 204, at 3.

In 1976, Congress designated 25,000 acres of the Seashore for wilderness protection and identified another 8,000 acres—including Drakes Estero and adjacent lands—as “potential wilderness.”²⁰⁸ The Wilderness Act of 1964 prohibited commercial enterprises and motor vehicles from wilderness areas, which it defined as “an area where the earth and its community of life are untrammelled by man.”²⁰⁹ Congress did not define “potential wilderness,” though a congressional report accompanying the 1976 Point Reyes Wilderness Act asserted that potential wilderness areas “will be essentially managed as wilderness, to the extent possible, with the efforts to steadily continue to remove all obstacles to the eventual conversion of these lands and waters to wilderness status.”²¹⁰

Interior Department attorneys interpret the 1964 and 1976 Acts to require that Park Service officials actively seek to remove the oyster farm.²¹¹ Parts of Drakes Estero have received full wilderness status, but the acreage covered by the oyster farm remains only “potential wilderness” because of the nonconforming commercial activities and motorboat use.²¹² According to Interior Department attorneys, the Park Service lacks statutory authority to allow the oyster farm to remain after its reservation lapses in 2012: new legislation would be the only way to prolong its existence beyond that time.²¹³ Otherwise, when the reservation expires in 2012, the oyster farm will close and Drakes Estero will receive full wilderness status.

1. Allegations of Scientific Misconduct

In 2005, Johnson assigned the remaining seven years of his oyster farm reservation to a nearby cattle rancher and well-known figure in the local agriculture community, Kevin Lunny.²¹⁴ Prior to the transfer, Seashore officials

208. *Id.* at 4–5 (citing Pub. L. No. 94-544, Oct. 18, 1976). Today there are still only eleven marine wilderness areas in the United States. POINT REYES NRC REPORT, *supra* note 196, at 9. Drakes Estero is the only coastal area with congressional recognition as wilderness on the West Coast. Fimrite, *Scientists Side*, *supra* note 201.

209. 16 U.S.C. §§ 1131(c), 1133(c) (2006).

210. INSPECTOR GEN. REPORT, *supra* note 204, at 5 (citing H.R. REP. NO. 94-1680 (Sept. 24, 1976)). PRNS Management Policies define “potential wilderness” as an area that does not “qualify for immediate [wilderness] designation due to temporary, nonconforming, or incompatible conditions.” *Id.* (citing NPS Management Policies Manual, Section 6.2.2.1 (2001)).

211. POINT REYES NRC REPORT, *supra* note 196, at 108–10 (reprinting Memorandum from Ralph G. Mihan, Field Solicitor, U.S. Dep’t of the Interior, to Superintendent, Point Reyes Nat’l Seashore (Feb. 26, 2004)).

212. INSPECTOR GEN. REPORT, *supra* note 204, at 5.

213. *Id.* at 42; *see also* Leslie Kaufman, *Debate Flares on Limits of Nature and Commerce in Parks*, N.Y. TIMES, Nov. 1, 2009, <http://www.nytimes.com/2009/11/01/science/earth/01reyes.html>.

214. INSPECTOR GEN. REPORT, *supra* note 204, at 3; *see also* Daniel Hirsch, *Consider the Oyster*, N. BAY BOHEMIAN, July 15, 2009, <http://www.bohemian.com/bohemian/07.15.09/news-0928.html>. Lunny serves on the Board of Directors for Marin Organic, a local nonprofit that plays a significant political role in a county sometimes referred to as the “birthplace of the organic food movement.” *Things to Do in Point Reyes*, MARIN CONVENTION & VISITORS BUREAU,

informed Lunny of the 2012 expiration date.²¹⁵ Lunny renamed the operation Drakes Bay Oyster Company (Oyster Company) and expanded its production to approximately 460,000 pounds of shucked oysters and one million Manila clams each year; with thirty employees, it is one of the largest oyster farms in California.²¹⁶ Soon after taking over the operation, Lunny began generating public pressure on the Seashore to renew his operation beyond 2012.²¹⁷

Beginning in May 2006, local newspaper articles reported on various scientific studies suggesting the oyster farm may have a negligible effect on the Estero ecosystem.²¹⁸ In response to the articles and other inquiries about the upcoming expiration of the Oyster Company's reservation, the Seashore prepared a report entitled "Drakes Estero: A Sheltered Wilderness Estuary," which it published on its website.²¹⁹ Authored primarily by Seashore senior scientist Sarah Allen, the report claimed that the oyster farm damaged eelgrass beds, reduced the number of harbor seals, potentially hastened the spread of nonnative species, and increased sedimentation in the estuary.²²⁰

The Sheltered Wilderness report generated significant controversy. Corey Goodman, a neurobiologist and NAS member who lives part-time in western Marin, scrutinized the report and used existing Park Service data to refute many of its assertions.²²¹ Goodman filed federal ethics complaints against Park Service officials and publicly accused them of fabricating environmental problems to justify removing the Oyster Company in 2012.²²² He alleged that Park officials committed "scientific fraud" and engaged in a massive cover-up that included criminal actions of scientific misconduct.²²³

<http://www.visitmarin.org/index/experience-point-reyes/Things-to-do-in-point-reyes.html> (last visited Mar. 10, 2011) ("West Marin is considered by some to be the birthplace of the organic food movement in this country."); *History of Agriculture in Marin*, MARIN ORGANIC, <http://www.marinorganic.org/history.php> (last visited Mar. 10, 2011) ("[M]any of the nation's pioneering organic farms were founded here.").

215. National Park Service, Clarification of Law, Policy, and Science on Drakes Estero 5, Sept. 18, 2007 [hereinafter NPS Clarification], available at http://mmc.gov/drakes_estero/pdfs/clarification_nps_91807.pdf.

216. Fimrite, *Scientists Side*, *supra* note 201.

217. See Greg Cahill, *Putting the Oysters to Bed*, PAC. SUN, July 14, 2006, http://www.pacificsun.com/story_archives/oysters.html (referring to "Lunny's ongoing efforts to gain support for renewal").

218. INSPECTOR GEN. REPORT, *supra* note 204, at 7 (citing Peter Jamison, *Drakes Bay Oyster Company Has Little Impact on Estero*, PT. REYES LIGHT, May 16, 2006).

219. Drakes Estero: A Sheltered Wilderness, Point Reyes National Seashore, May 11, 2007 [hereinafter Sheltered Wilderness], available at http://mmc.gov/drakes_estero/pdfs/nps_swilderness_51107.pdf; see also INSPECTOR GEN. REPORT, *supra* note 204, at 7–11.

220. Sheltered Wilderness, *supra* note 219, at 10–16.

221. INSPECTOR GEN. REPORT, *supra* note 204, at 11; Fimrite, *Scientists Side*, *supra* note 201.

222. Cart, *supra* note 197.

223. Peter Fimrite, *Dispute Over Oysters in Drakes Bay Pits Harvester Against Park Service*, S.F. CHRON., Dec. 28, 2007, http://articles.sfgate.com/2007-12-28/bay-area/17273544_1_drakes-bay-national-park-service-park-supporters; Cart, *supra* note 197.

2. Senator Feinstein's Intervention and the Inspector General Report

Armed with Goodman's critiques, Oyster Company supporters appealed to Senator Feinstein, who heeded the request and has since "thrown her support behind the oyster farm," repeatedly intervening on its behalf.²²⁴ In July 2007, Senator Feinstein chaired a summit meeting with Goodman and top NPS officials, including then-regional director Jon Jarvis.²²⁵ As a result of the meeting, the Seashore promptly removed the "Sheltered Wilderness" report from its website and published a "Clarification of Law, Policy, and Science on Drakes Estero" only two months later.²²⁶ The clarification retracted several statements from the initial report and revised its description of the oyster farm's ecological impacts.²²⁷ Unsatisfied, Senator Feinstein then requested an independent NRC review of the Seashore's assertions to resolve the "highly publicized disputes" over the agency's science.²²⁸

Meanwhile, Lunny requested that the Interior Department investigate the actions of certain Seashore officials. The department's Inspector General interviewed seventy-eight individuals, searched Seashore offices with a Computer Crimes Unit, and reviewed over 1,100 documents and emails.²²⁹ Released in July 2008, the Inspector General report determined that Seashore officials overstated scientific data and "made concerted attempts" to counter Lunny's public portrayal of oyster farming as beneficial for the Estero.²³⁰ The report highlighted several missteps by Allen, such as deleting an important email that she should have released in response to multiple FOIA requests, and failing to correct her mischaracterizations of sedimentation research until after Senator Feinstein intervened.²³¹ However, the investigation found no evidence to support allegations that Seashore officials treated the Lunny family with disparity or planned to shut down the Oyster Company prior to the expiration of its reservation in 2012.²³²

C. The NRC Accepts a Senator's Request

After Senator Feinstein's request, the Park Service and NRC took several months to settle on a formal charge for the two-part committee study. The

224. Kaufman, *supra* note 213; Cart, *supra* note 197.

225. See INSPECTOR GEN. REPORT, *supra* note 204, at 17–18.

226. NPS Clarification, *supra* note 215; see also INSPECTOR GEN. REPORT, *supra* note 204, at 16.

227. See NPS Clarification, *supra* note 215, at 7 (acknowledging "several inconsistencies" in the Sheltered Wilderness Report); see also POINT REYES NRC REPORT, *supra* note 196, at 72–79 (comparing the Clarification document with earlier versions of the Sheltered Wilderness Report).

228. POINT REYES NRC REPORT, *supra* note 196, at 18–19.

229. INSPECTOR GEN. REPORT, *supra* note 204, at 5–6.

230. *Id.* at 2.

231. *Id.* at 2, 48.

232. *Id.* at 2.

statement of task for the committee's initial study was to "assess the scientific basis" for the Park Service's public presentations and Sheltered Wilderness report.²³³ The committee's second report would then move beyond the Drakes Estero conflict and address best practices for shellfish mariculture more generally.²³⁴ In carrying out its initial study, the committee was to address several questions:

- What is the body of scientific studies on the impact of the oyster farm on Drakes Estero, and what has it shown? What effects can reasonably be inferred from research conducted in similar ecosystems?
- What conclusions can be drawn from the body of scientific studies, and how do these conclusions compare with what the Park Service presented to the public? Have these conclusions affected Park Service decision making?
- Which subjects for future research are the most important to better understanding the ecological consequences of anthropogenic influences on the Estero, so as to inform Park Service decision making?²³⁵

The NRC appointed eleven members to the committee, chaired by Charles (Pete) Peterson, a marine sciences professor at the University of North Carolina at Chapel Hill.²³⁶ With a budget of roughly \$400,000, the committee held an initial meeting in Mill Valley, California, where it received oral and written input from key participants in the controversy.²³⁷ It then spent a second day touring Drakes Estero with Park Service and Oyster Company officials.²³⁸

1. The Point Reyes NRC Report

Released in May 2009, the initial NRC report found a "lack of strong scientific evidence" that oyster farming had "major adverse ecological effects" on the Estero.²³⁹ The committee acknowledged that oyster farming necessarily had some ecological consequences, and noted that the few scientific studies conducted in the estuary provided some support for concerns about nonnative

233. POINT REYES NRC REPORT, *supra* note 196, at 2.

234. *Id.* at 115.

235. *Id.* at 2.

236. The committee members were Charles (Pete) H. Peterson (University of North Carolina at Chapel Hill); Barry A. Costa-Pierce (University of Rhode Island, Narragansett); Brett R. Dumbauld (U.S. Department of Agriculture); Carolyn Friedman (University of Washington, Seattle); Eileen E. Hofmann (Old Dominion University); Hauke Kite-Powell (Woods Hole Oceanographic Institution); Donal T. Manahan (University of Southern California); Francis O'Beirn (Marine Institute); Robert T. Paine (University of Washington, Seattle); Paul Thompson (University of Aberdeen, Scotland); Robert Whitlatch (University of Connecticut). *Id.* at iv.

237. *Id.* at 19; *see also id.* at 116–17 (agenda of meeting).

238. *Id.* at 19, 117.

239. *Id.* at 6, 86.

species and localized impacts to eelgrass beds.²⁴⁰ However, the committee's review found insufficient data to reach any conclusions about impacts to harbor seals or other wildlife, and reported that oysters, which have a "beneficial" localized filtering effect, could enhance overall ecosystem services in the Estero.²⁴¹

Thus, the NRC committee concluded that the Sheltered Wilderness report interpreted existing science in a manner that "exaggerated the negative and overlooked potentially beneficial effects" of the oyster culture operation.²⁴² The committee found "several instances" where the Park Service "selectively presented, over-interpreted, or misrepresented" the available science on potential impacts.²⁴³ Although the committee largely endorsed the accuracy of the Park Service's September 2007 Clarification Statement, which closely approached the NRC's own conclusions, it found two major exceptions: first, the Park Service overinterpreted incomplete harbor seal disturbance data; and second, the Park Service did not recognize an ecological baseline where native oysters played a historical role in structuring the estuary's ecosystem.²⁴⁴

Despite its unfavorable conclusions about the Sheltered Wilderness Report, the NRC committee emphasized that any decision to extend the oyster farm's operation past 2012 was a legal and policy question, not a scientific one.²⁴⁵ The NRC report provided information that lawmakers could use when deciding whether to offer the Oyster Company a new reservation, but it was not to be viewed as a recommendation in either direction.²⁴⁶ The committee also noted that if the Interior Department's interpretation of its legal wilderness mandate stood, the Park Service would have no authority to offer the Oyster Company a new reservation absent further congressional action—no matter what the science said. "[T]here is no scientific answer to the question of whether to extend the [reservation] for shellfish farming," the committee wrote; the ultimate decision "necessarily requires value judgments and tradeoffs that can be informed, but not resolved, by science."²⁴⁷

2. *Media Coverage*

The Point Reyes NRC report generated considerable media coverage, most of which painted the committee's conclusions in adversarial terms and included contradictory interpretations from Park Service and Oyster Company

240. *Id.* at 2, 68–69.

241. *Id.* at 2, 68–69, 82.

242. *Id.* at 3, 73.

243. *Id.* at 72–73.

244. *Id.* at 3.

245. *Id.* at 82 ("[O]ur committee concludes that this decision on extension of the RUO hinges on the legal interpretation of the legislative mandate rather than a scientific analysis of the impacts of DBOC on the Drakes Estero ecosystem.").

246. *Id.* at 7.

247. *Id.* at 87.

supporters.²⁴⁸ Oyster farm advocates described the NRC report as an exoneration; in several interviews, Oyster Company owner Lunny suggested that the report “completely refute[d] all of the Park Service’s claims” and vindicated his business by giving it “a clean bill of health.”²⁴⁹ Park Service supporters countered that the report did not reach such conclusions. “Lack of evidence is not proof of no adverse effects,” said a member of the National Parks Conservation Association, echoing a statement in the NRC report that much of the press coverage overlooked.²⁵⁰

Media reports also latched onto allegations of misconduct, even though the NRC study did not undertake that inquiry.²⁵¹ Lunny claimed that the NRC and Inspector General reports proved that the Seashore “intentionally misrepresented science because of its policy goals.”²⁵² Park Service officials countered the allegation by stating that scientific disagreement “does not mean that one side is guilty of misconduct,” while the NRC committee chairman also asserted that deliberate misconduct was not a concern.²⁵³

Park Service officials held firm that they would not extend the oyster farm’s operation past 2012, which—they reiterated—was “a policy and law issue, not a science issue.”²⁵⁴ They apologized for mistakes in the initial report, but defended their overall interpretations of the available data. “[The NRC committee] didn’t say our research was wrong. They just said it was incomplete,” said Jarvis, then the Park Service regional director.²⁵⁵ Overall, Jarvis characterized the NRC report as an imperfect but potentially helpful

248. See, e.g., Fimrite, *Scientists Side*, *supra* note 201 (reporting that oyster farm supporters “claimed victory,” and that the report is “seen as vindication for the oyster company”). A *New York Times* article six months later tamped down the rhetoric and described the NRC’s findings in less adversarial, and more accurate and nuanced, terms. Kaufman, *supra* note 213 (“[The NRC] found insufficient data to determine whether the seals or other wildlife were being significantly harmed.”).

249. Rob Rogers, *Report: Point Reyes Oyster Farm Poses No Danger to Estero*, MARIN INDEP. J., May 5, 2009 [hereinafter Rogers, *No Danger*] (“It’s a dozen of the world’s experts in estuarine ecology telling the nation that there is no harm here.”); Fimrite, *Scientists Side*, *supra* note 201; Kahn, *supra* note 195; see also Carl Marziali, *The Case for Fish and Oyster Farming*, UNIV. S. CAL. NEWS, May 17, 2009, available at http://uscnews.usc.edu/science_technology/all_about_fish_and_oyster_farming.html (quoting two of the NRC committee members, and claiming that the report “exonerates an oyster farm from charges it harmed the environment”).

250. Rogers, *No Danger*, *supra* note 249; POINT REYES NRC REPORT, *supra* note 196, at 86 (“Importantly from a management perspective, lack of evidence of major adverse effects is not the same as proof of no adverse effects.”).

251. Compare Fimrite, *Scientists Side*, *supra* note 201 (“While the report did not specifically accuse anyone of misconduct, it raised serious questions about governmental misuse of scientific data.”), with *Current Level of Oyster Farming Unlikely to Have Substantial Impact on Drakes Estero Ecosystem, Near San Francisco, U.S.*, SCI. DAILY, May 5, 2009, <http://www.sciencedaily.com/releases/2009/05/090505124759.htm> (“The study was not an inquiry into potential scientific misconduct and made no such determinations.”).

252. Rogers, *No Danger*, *supra* note 249.

253. Fimrite, *Scientists Side*, *supra* note 201.

254. *Id.*

255. *Id.*

document: "We agree with some conclusions, disagree with some and say we need more research, too."²⁵⁶

D. Scientific Dispute Lingers in the Aftermath

A month after the report's release, a Park Service science advisor sent formal comments to the National Academies challenging "errors of fact and logic, inappropriate references to law and regulation, and misuse of style" in the NRC report.²⁵⁷ Specifically, the Park Service disputed the committee's undocumented claims about the historical extent of native oysters in the Estero.²⁵⁸ Both a Park Service historian and an archeologist later produced a "critical review" that challenged the NRC's assertions about native oysters.²⁵⁹ The Park Service also argued that the NRC report mischaracterized the agency's legal limitations with regard to the Marine Mammal Protection Act (MMPA), the Oyster Company reservation, and the statutory definition of "wilderness."²⁶⁰ Further, the Park Service accused the committee of relying on value-based judgments when it characterized certain ecological conditions as "beneficial" or "enhance[d]."²⁶¹

In response to the NRC's conclusion that the Seashore lacked evidence of the oyster farm's impact on harbor seals, Park Service supporters petitioned for a review by the Marine Mammal Commission (MMC), an independent science advisory board that operates under the MMPA.²⁶² The MMC discussed the scope of the study and makeup of the review panel with stakeholders—communications which it documented on its website—and agreed to analyze the causes of seal disturbance in the estuary.²⁶³ It held public hearings in spring

256. Rogers, *No Danger*, *supra* note 249.

257. See Comments Submitted by Dr. John G. Dennis, June 16, 2009 [hereinafter Dennis Comments], available at http://mmc.gov/drakes_estero/pdfs/comm_dennis_nas_rpt.pdf. For another scientific critique of the Point Reyes NRC Report, see Letter from John P. Kelly, Dir. of Conservation Sci., Audubon Canyon Ranch, to Charles Peterson, Chairman of Point Reyes NRC Comm. (May 27, 2009) (taking issue with the NRC report's characterization of Kelly's studies on shorebird impacts in Drakes Estero), available at http://mmc.gov/drakes_estero/pdfs/ltr_kelly_nas_52709.pdf.

258. Dennis Comments, *supra* note 257, at 1.

259. Timothy Babalis, *Critical Review: A Historical Perspective on the National Research Council's Report "Shellfish Mariculture in Drakes Estero,"* MARINE MAMMAL COMMISSION (Aug. 11, 2009), http://mmc.gov/drakes_estero/pdfs/babalis_oysters_081109fl.pdf; Mark O. Rudo, *Little Archeological Evidence of the Olympia Oyster (Ostrea lurida) at Drakes Estero, Point Reyes National Seashore, California,* MARINE MAMMAL COMMISSION (Sept. 4, 2009), http://mmc.gov/drakes_estero/pdfs/rudo_09_oysters_arch.pdf.

260. Dennis Comments, *supra* note 257, at 3–5.

261. *Id.* at 6.

262. Letter from Neal Desai, Nat'l Parks Conservation Ass'n, and Gordon Bennett, Sierra Club Marin Group, to Tim Ragen, Exec. Dir., Marine Mammal Comm. (June 9, 2009), available at http://mmc.gov/drakes_estero/pdfs/ltr_dbennet_mmc_60909.pdf.

263. See *Selected Background Documents Pertaining to Drake's Estero Review*, MARINE MAMMAL COMM'N, http://mmc.gov/drakes_estero/de_docs_12210.html (revised July 29, 2010) [hereinafter *Background Documents*].

2010,²⁶⁴ but had yet to issue its Drakes Estero report by December 2010. Thus, rather than resolving the science over the oyster farm's impacts, the NRC report triggered more conflict and yet another government-sponsored review.

E. Congress Reacts

The same day the NRC released its report, Senator Feinstein sent a letter to Interior Secretary Ken Salazar saying she found it "troubling and unacceptable" that the Park Service exaggerated the oyster farm's ecological effects.²⁶⁵ She focused extensively on the NRC's findings regarding native oysters, and wrote that removing the Oyster Company in 2012 might eliminate "an important part of the ecosystem as it existed long before the park was established."²⁶⁶ She said the NRC report did not present "any compelling ecological reason for refusing to renew" the reservation, and that she looked forward to working with Secretary Salazar to "negotiate a solution" to the conflict.²⁶⁷

1. Promoting a Legislative Rider

One month later, Senator Feinstein attached a rider to the Senate Interior Department appropriations bill that would extend the Oyster Company's reservation to 2022.²⁶⁸ Park Service supporters roundly criticized Senator Feinstein's use of the NRC review to justify the political maneuver and to support agricultural economic interests at the expense of the environment, arguing that the peer review report had "nothing to do with the Wilderness Act."²⁶⁹ The head of the Public Employees for Environmental Responsibility compared Senator Feinstein's use of the review to Republican tactics employed

264. *Review of Harbor Seal and Human Interactions in Drake's Estero, California: Terms of Reference*, MARINE MAMMAL COMM'N (Jan. 19, 2010), http://mmc.gov/drakes_estero/terms_reference_11910.pdf. For comments on the draft "terms of reference" and letters about members of the review panel, see *Background Documents*, *supra* note 263.

265. Letter from Sen. Dianne Feinstein, to Sec'y Ken Salazar, U.S. Dep't of the Interior (May 5, 2009), available at http://mmc.gov/drakes_estero/pdfs/ltr_salazar_50509.pdf.

266. *Id.*

267. *Id.*

268. See Peter Fimrite, *Feinstein Move Backs Oyster Farm*, S.F. CHRON., June 25, 2009, http://articles.sfgate.com/2009-06-25/bay-area/17209171_1_oyster-drakes-bay-wilderness-area [hereinafter Fimrite, *Feinstein Move*]; Amy Littlefield, *Legislation Would Extend Oyster Operation in Bay Area National Park*, L.A. TIMES, June 24, 2009, <http://articles.latimes.com/2009/jun/24/local/me-oyster24>.

269. Rob Rogers, *Feinstein Backs Extension of Drakes Bay Oyster Permit*, MARIN INDEP. J., May 7, 2009 (quoting Gordon Bennett, a local Sierra Club chapter leader); see also Martin Griffin, Op-Ed., *Feinstein Seeks to Benefit Drakes Oyster Farm*, S.F. CHRON., Sept. 23, 2009, http://articles.sfgate.com/2009-09-23/opinion/17207388_1_farm-rider-national-parks ("The scientific studies that Feinstein ordered on Drakes Estero do not justify this rider. This is a political act.").

during the Bush Administration and suggested that she was misusing the NRC by “setting up a scientific straw man” and “dragging it into a permit dispute.”²⁷⁰

National environmental groups and an Interior Department attorney expressed concern that the rider would establish a dangerous “precedent” for extending commercial uses in protected public lands nationwide.²⁷¹ “It’s the beginning of the end of wilderness,” a local environmental advocate told the *New York Times*.²⁷² Another Seashore supporter complained that the rider would simply prolong the controversy for another decade: “Rather than heal a rift, this legislation arms everyone with howitzers.”²⁷³

Senator Feinstein had unsuccessfully proposed a similar rider the previous year, but in 2009 she used the NRC report to justify her maneuver and defend herself from critics.²⁷⁴ Indeed, the NRC report appeared to help sway other lawmakers: Congresswoman Lynn Woolsey (D-Cal.), whose district encompasses the Seashore, had opposed Senator Feinstein’s rider in 2008 but supported it in 2009.²⁷⁵

However, the report did not convince enough lawmakers to earn automatic extension of the oyster farm reservation. After receiving a letter from the head of the California Coastal Commission detailing the Oyster Company’s recent history of regulatory violations, Senator Jeff Bingaman (D-N.M.)—chairman of the Energy and Natural Resources Committee—objected to the measure and forced Senator Feinstein to accept a compromise.²⁷⁶ In the end, Congress eventually approved a rider granting Secretary Salazar discretion to

270. Kurt Repanshek, *National Research Council Blasts Park Service Report on Oyster Farming at Point Reyes National Seashore*, NAT’L PARKS TRAVELER (May 07, 2009, 6:44 AM) <http://www.nationalparkstraveler.com/2009/05/national-research-council-report-blasts-park-service-report-oyster-farming-point-reyes-natio> (quoting Peter Ruch, executive director of the Public Employees for Environmental Responsibility).

271. See Letter from Ron Sundergill, Nat’l Parks Conservation Assoc., et al., to Members of Cong. (April 28, 2009) (on file with author); INSPECTOR GEN. REPORT, *supra* note 204, at 42; Kaufman, *supra* note 213 (noting “environmental groups worry that the provision could set a precedent for hundreds of other private leaseholders in the national parks looking to extend their stay,” and providing specific examples from Wisconsin and Southern California); see also Dennis Rodoni, *Parks for the People – Not Profit*, HIGH COUNTRY NEWS, Aug. 26, 2009, <http://www.hcn.org/wotr/parks-for-the-people-not-profit> (“[Senator Feinstein’s] unilateral effort is both an invitation to and a roadmap for other commercial ventures to ‘work the system’ in order to get their own special deals in our national parks.”).

272. Kaufman, *supra* note 213.

273. *Id.*

274. Kahn, *supra* note 195; see also Feinstein, *Why Review*, *supra* note 5 (“The [NRC] concluded that keeping oysters in Drakes Estero could actually have positive environmental effects. . . . In response to this clarification, I decided to help extend the oyster farm’s permit for 10 years, which would save 30 jobs.”).

275. Hirsch, *supra* note 214; Kahn, *supra* note 195.

276. See Letter from Peter Douglas, Exec. Dir., Cal. Coastal Comm’n., to Sen. Jeff Bingaman, Chair, Sen. Energy & Natural Res. Comm. (Sept. 17, 2009), available at http://mmc.gov/drakes_estero/pdfs/ltr_dou_Bing_91709.pdf; Rob Rogers, *Feinstein Backs Down on Point Reyes Oyster Farm*, MARIN INDEP. J., Oct. 5, 2009, http://www.marinij.com/westmarin/ci_13493282 [hereinafter Rogers, *Feinstein Backs Down*].

extend the Oyster Company's operation in Drakes Estero for another ten years.²⁷⁷ Salazar has indicated his intention to delegate the decision to the Park Service Director, who is now Jon Jarvis.²⁷⁸ In fall 2010, the Park Service initiated an environmental review under the National Environmental Policy Act to inform its decision.²⁷⁹

2. *Encumbering a Nominee's Confirmation*

Controversy surrounding the Drakes Estero science spilled over into Jarvis's confirmation as director of the Park Service. President Barack Obama nominated Jarvis to head the agency only two months after the NRC released its report, and the Senate confirmed him two months later. But in the intervening period, Oyster Company supporters "attempted to derail" the confirmation.²⁸⁰ Goodman, for example, sent a letter to Secretary Salazar claiming that Jarvis "steadfastly defend[ed] the use of distorted science by his subordinate[s]."²⁸¹

A local Point Reyes journalist, who editorialized in favor of the Oyster Company, wrote an article in *The Nation* claiming that Jarvis "demonstrated contempt for truth, transparency and scientific integrity" and "misled federal investigators, deceived the public[,] and undermined the scientific process to defend his subordinates' wrongdoing."²⁸² She argued that Jarvis's nomination would "defeat the hope that in the Obama era science would be driven by facts—not by politics."²⁸³ Her article sparked an exchange on *The Nation's* website about the proper role of science, policy, and law—featuring comments from another former Park Service regional director as well as the executive director of the Sierra Club.²⁸⁴

277. Pub. L. No. 111-88 § 124, 123 Stat. 2932; see also Kaufman, *supra* note 213.

278. Rogers, *Feinstein Backs Down*, *supra* note 276. As a regional director, Jarvis supported ending the oyster farm's operations in 2012; but he stopped discussing the Drakes Estero matter publicly after it encumbered his confirmation to head the agency. See Kaufman, *supra* note 213 ("Jarvis declined to be interviewed about Drakes Bay. Aides at the park service said he saw no benefit in discussing the issue with reporters.").

279. See Notice of Intent to Prepare an Environmental Impact Statement, 75 Fed. Reg. 65373 (Oct. 22, 2010).

280. Cart, *supra* note 197.

281. Kaufman, *supra* note 213.

282. Tess Elliott, *Scientific Integrity Lost on America's Parks*, NATION, Sept. 15, 2009, <http://www.thenation.com/article/scientific-integrity-lost-americas-parks>.

283. *Id.*

284. Web Letters, *Scientific Integrity Lost on America's Parks*, NATION, <http://www.thenation.com/article/Scientific-Integrity-Lost-Americas-Parks/web-letters>. Commenting upon the debate, Robert Amberger, former NPS Alaska Regional Director, wrote:

Science is not the end-all, nor should it be. That is why science must also be tempered by reasoned judgment coupled with the rule of law. The oyster farm case is an eloquent example of that. Congress deemed this area worthy of wilderness protection for the broad national interest and designated it as such, regardless of the scientific inquiry or scientific disputes that might later emerge. Clouding this issue as something more intentionally misconstrues the intent of Congress, and the legal responsibilities of

The chairman of the Point Reyes NRC committee, Charles Peterson, expressed support for Jarvis's nomination and suggested "those claiming scientific fraud or misconduct by [the Park Service] . . . are simply wrong."²⁸⁵ The committee chairman's endorsement prompted the local journalist to claim that Peterson had a conflict of interest because he tried to curry favor with the Park Service. Now, neither NAS nor Park Service officials will speak with the local Point Reyes newspaper, deeming its reporting "both wrong and irresponsible."²⁸⁶

E. Taking Stock

All told, the reviews by the Inspector General, NRC, and MMC have cost taxpayers millions of dollars and thousands of hours of federal employee work;²⁸⁷ yet it remains unclear what they have added to the public discourse that was not already available in the Park Service's September 2007 clarification report. If anything, the NRC committee's involvement in Point Reyes seems to have simply spurred additional controversy about conflicts of interest and the historic baseline of native oysters.²⁸⁸

Several commentators noted the futility of empanelling a NRC scientific study that did not inform the underlying legal and policy dispute.²⁸⁹ Indeed, a former state environmental official in California criticized the media coverage of the NRC report as "senseless" and "irrational" because it "misses the point"

Mr. Jarvis to carry out the law. [Point Reyes journalist Tess] Elliott portrays this issue as exclusively a scientific one. In reality, she defends a narrow commercial interest, using science as a subterfuge and conveniently forgets that the issue is truly a legal one.

285. Tess Elliott, *Park Ducks Charges, NAS Disavows Note*, PT. REYES LIGHT, Feb. 4, 2010, at 1.

286. *Id.*

287. Cart, *supra* note 197. The Inspector General investigation alone consumed roughly 5,000 hours of federal employee work. Ashley Archibald, *Chief's Oyster Call Was Fishy*, UNION DEMOCRAT, Feb. 12, 2010, <http://www.uniondemocrat.com/2010021299152/News/Local-News/Chiefs-oyster-call-was-fishy> (quoting Jarvis about the Inspector General investigation).

288. As this Comment was going to press, the Interior Department's Office of the Solicitor issued a report in response to further allegations about misconduct by Park Service scientists in Drakes Estero. The report identified some mistakes and mishandling of research, but found "no criminal violation or scientific misconduct." Memorandum from Gavin M. Frost, Attorney-Advisor, U.S. Dep't of the Interior, to Will Shafroth, Acting Assistant Sec'y for Fish and Wildlife and Parks (March 22, 2011) (on file with author); Felicity Barringer, *A Park, an Oyster Farm and Science*, GREEN: A BLOG ABOUT ENERGY AND THE ENVIRONMENT, <http://green.blogs.nytimes.com/2011/03/24/a-park-an-oyster-farm-and-science/?hp> (Mar. 24, 2011, 08:30 EST). Senator Feinstein publicly criticized the report for not going far enough. Peter Fimrite, *Sen. Feinstein Hits Drakes Bay Oyster Farm Report*, S.F. CHRON., Mar. 24, 2011, <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2011/03/24/BAVH111E1.DTL&feed=rss.news>.

289. See Rogers, *No Danger*, *supra* note 249 (noting the NRC report is "unlikely to quell the long-simmering feud"). The *New York Times* described the underlying dispute as part of an old debate: Are the national parks primarily for preserving untouched wilderness, or for preserving the human imprint on the land too? Kaufman, *supra* note 213.

about wilderness protection.²⁹⁰ Another local resident wrote that the “thick fog of controversy” hanging over the Drakes Estero science “obscured the larger issues of how and for whom these public lands should be managed.”²⁹¹

Lunny, for his part, has said he is willing to engage in the policy debate, but that the underlying science is crucial in order to frame the conversation.²⁹² With 2012 rapidly approaching, Lunny remains optimistic: “[Secretary Salazar] truly understands that environmental protection and food production are not mutually exclusive. We’re still confident that the right choice will be made.”²⁹³

IV.

BAY DELTA

The Bay Delta NRC review echoes both the Klamath and Point Reyes case studies. Senator Feinstein requested the Delta NRC study in a similar—though more overtly political—manner as she did in Point Reyes, again siding with agricultural economic interests over federal environmental agencies. Additionally, the factual background of the Delta dispute shares “striking parallels” with the Klamath.²⁹⁴ The primary difference among the case studies is that the Delta, which potentially controls the spigot for more than twenty-five million California residents, carries the greatest stakes.²⁹⁵ Professor Mount, a Bay Delta expert who served on the Klamath NRC committee, testified before the Delta NRC committee members that they faced perhaps the “thorniest water environmental issue in the West.”²⁹⁶

Senator Feinstein justified the Delta NRC review as a means to help resolve the dispute, which at the time featured more than a dozen lawsuits challenging agency BiOps that limited water pumping in favor of protecting endangered fish.²⁹⁷ She suggested the NRC was the only body respected

290. Huey Johnson, Op-Ed., *Oyster Farm Doesn't Belong at Point Reyes*, S.F. CHRON., May 11, 2009, <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2009/05/11/ed1117gtvn.dtl>.

291. Rodoni, *supra* note 271.

292. Kelly Zito, *Park Service Skewed Data on Oyster Farm*, S.F. CHRON., July 24, 2008, http://articles.sfgate.com/2008-07-24/news/17171034_1_shucked-oysters-national-park-service-west-marin (“We’re hoping if people understand the truth of the science and what the impacts are, we can discuss openly and productively any chances to have the community keep this oyster farm.”).

293. Rogers, *Feinstein Backs Down*, *supra* note 276.

294. See Taugher, *Farm Baron*, *supra* note 189; see also DOREMUS & TARLOCK, *WATER WAR*, *supra* note 123, at 19, 169, 188–89, 206, 210–11 (referencing parallels to the Bay Delta in a book about the Klamath dispute). In fact, the Klamath actually connects to the Delta system through the diversion of the Trinity River, a major Klamath tributary. DOREMUS & TARLOCK, *WATER WAR*, *supra* note 123, at 210.

295. See, e.g., DOREMUS & TARLOCK, *WATER WAR*, *supra* note 123, at 210 (“If the Klamath is a Verdi tragedy, the Bay Delta is a Wagnerian one.”).

296. Samantha Young, *National Science Panel Convenes on Calif. Delta*, ASSOCIATED PRESS, Jan. 25, 2010.

297. See *infra* notes 349–350.

enough by all sides to defuse the scientific and political standoff.²⁹⁸ However, although the initial NRC report largely endorsed the agencies' science, a federal judge nonetheless dismissed the NRC's findings and enjoined enforcement of the BiOps' water restrictions.²⁹⁹ At the same time, two NRC committee members either left or were forced off the second phase of the Delta study because of perceived bias.³⁰⁰ Thus, just as occurred in the Klamath and Point Reyes reviews, the Delta NRC review failed to provide expected benefits, and instead may have simply added fuel to the underlying fire.

A. An Invaded Ecosystem and Water Supply Hub

The Bay Delta is a biologically diverse estuary that also serves as the central hub for distributing California's water supply.³⁰¹ Water in the wet, northern half of the state drains from the Sierra Nevada Mountain snowpack into the Sacramento and San Joaquin Rivers, which flow to the Delta. Massive state and federal pumps then siphon large amounts of Delta water to feed the Central Valley Project and State Water Project; the two projects together provide irrigation to more than one million acres of Central Valley farmland and drinking water to more than twenty-five million people in the drier, southern parts of the state.³⁰² In addition, many municipalities in Northern California divert fresh river water that would otherwise flow into the Delta.³⁰³ An estimated half of the water that once flowed through the Delta to San Francisco Bay now goes elsewhere, making it perhaps "the most invaded estuary in the world."³⁰⁴

The Delta's ecosystem is even more complex than its byzantine water-supply system. Outgoing freshwater meets tidal inflow from the San Francisco Bay to form a brackish estuary.³⁰⁵ It is home to more than 120 species of fish and serves as a critical passageway for some of the largest salmon-spawning runs on the West Coast.³⁰⁶ Operation of the Central Valley and State Water Project pumps has substantially altered the ecosystem and hydrology of the Delta, reversing its flow in some areas and contributing to a steep decline of

298. See Feinstein Letter to Salazar and Locke, *supra* note 3.

299. See *infra* Part IV.D.2.

300. See *infra* Part IV.D.1.

301. COMM. ON SUSTAINABLE WATER AND ENVTL. MGMT. IN THE CAL. BAY-DELTA, NAT'L RESEARCH COUNCIL, A SCIENTIFIC ASSESSMENT OF ALTERNATIVES FOR REDUCING WATER MANAGEMENT EFFECTS ON THREATENED AND ENDANGERED FISHES IN CALIFORNIA'S BAY DELTA 1 (2010) [hereinafter BAY DELTA NRC REPORT].

302. Matt Jenkins, *Breakdown: 'The Cadillac of California Irrigation Districts' Has More Than a Tiny Fish to Blame for its Troubles*, HIGH COUNTRY NEWS, Apr. 21, 2010, <http://www.hcn.org/issues/42.1/breakdown>.

303. Young, *supra* note 296.

304. *Id.* (quoting Professor Mount).

305. BAY DELTA NRC REPORT, *supra* note 301, at 8.

306. Jenkins, *supra* note 302.

some fish species.³⁰⁷ Federal wildlife agencies currently list five Delta fish populations as threatened or endangered: two runs of Chinook salmon, Central Valley steelhead, green sturgeon, and the Delta smelt.³⁰⁸

B. Struggling to Protect Endangered Species and Meet Agricultural Needs

In the late 1990s, the state and federal governments attempted to address the water problems through cooperative efforts like the CALFED Bay-Delta Authority, which emphasized independent and ongoing regulatory peer review as a way to defuse some of the conflict among different water constituencies.³⁰⁹ However, CALFED proved largely ineffectual: pumping intensified, and the fisheries depleted further.³¹⁰ Beginning around 2001, several Delta species fell into a sharp decline: a trend that may well be a harbinger for a collapse of the entire Delta ecosystem.³¹¹ Despite the efforts of hundreds of scientists, however, pinpointing the primary cause of the recent decline has been difficult because of the Delta's size and complexity.³¹²

1. Agencies Mandate Unpopular Water Restrictions

Given the perilous state of the Delta species, operation of the Central Valley and State Water Projects requires ESA Section 7 consultation with the FWS and NMFS.³¹³ Because of their large impact on the estuary and the state's overall water supply, the resulting BiOps are highly contested among environmental advocates and irrigation users. In 2004 and 2005, FWS and NMFS issued BiOps concluding that current and projected Delta pumping would not jeopardize Delta smelt or several salmon and steelhead runs.³¹⁴

307. BAY DELTA NRC REPORT, *supra* note 301, at 1; Weiser, *Prompts Fight*, *supra* note 5. In June 2010, an advocacy group named it the second most imperiled watershed in the nation. See AMERICAN RIVERS, AMERICA'S MOST ENDANGERED RIVERS 5 (2010 ed.), <http://www.americanrivers.org/assets/pdfs/mer-2010/americas-most-endangered-rivers-2010.pdf>.

308. See BAY DELTA NRC REPORT, *supra* note 301, at 8, 10.

309. See Doremus & Tarlock, *Judgment*, *supra* note 9, at 5; see also Katherine L. Jacobs et al., *CALFED: An Experiment in Science and Decisionmaking*, 45 ENVIRONMENT 30, 33–35 (2003) (for background of science conflict in Delta); Kim A. Taylor & Anne Short, *Integrating Scientific Knowledge Into Large-Scale Restoration Programs: The CALFED Bay-Delta Program Experience*, 12 ENVTL. SCI. & POL'Y 674 (2009) (exploring ways science was and was not integrated into CALFED's management actions).

310. Professor Doremus served on the CALFED review panel for three years before concluding that the committee's limited impact on agency attitudes and actions did not justify the time and effort. Doremus & Tarlock, *Judgment*, *supra* note 9, at 35 n.141.

311. Matt Weiser, *Steady Flow of Conflicting Views Marks Delta Debate in Davis*, SACRAMENTO BEE, Jan. 27, 2010, <http://www.sacbee.com/1268/story/2492329.html> [hereinafter Weiser, *Steady Flow*].

312. *Id.*

313. BAY DELTA NRC REPORT, *supra* note 301, at 8–10, 13–16; see also *supra* Part II.B for an explanation of the ESA Section 7 statutory framework.

314. See *Pac. Coast Fed'n of Fishermen's Ass'ns v. Gutierrez*, 606 F. Supp. 2d 1122, 1128 (E.D. Cal. 2008) (NMFS BiOp); *Nat'l Res. Defense Council v. Kempthorne (NRDC)*, 506 F. Supp. 2d 322, 328 (E.D. Cal. 2007) (FWS BiOp). In a parallel to the NMFS biologist

Environmental groups challenged both BiOps, and U.S. District Court Judge Oliver Wanger found them inadequate to prevent extinction of the listed fish.³¹⁵ He faulted the agencies for failing to consider critical threats to the species' survival and deemed their BiOps arbitrary and capricious.³¹⁶

In 2008 and 2009, FWS and NMFS issued new BiOps that imposed pumping restrictions and reduced the amount of available water to avoid jeopardizing the listed fish.³¹⁷ For example, reasonable and prudent alternatives (RPAs) limited pumping during certain times of the year to protect fish in key stages of their life cycles. Expecting a battle, the agencies subjected the BiOps to an unusually high degree of scientific scrutiny before their release, including an exhaustive review by five independent panels.³¹⁸

Undeterred, farmers, water districts, and other opponents filed no fewer than thirteen lawsuits against the subsequent BiOps.³¹⁹ The lawsuits questioned the underlying science and argued that pumping is not the main threat to the fish, but rather other stressors such as "ocean conditions, pollution, and invasive species."³²⁰ They further claimed that the water restrictions inflicted significant harm on the millions of Californians who rely on the Delta water projects, without providing any meaningful benefits to the listed fish.³²¹ Critics noted that fish populations had not rebounded since the pumping restrictions went into effect³²²: in 2009, salmon runs collapsed so badly that federal regulators shut down the state's commercial salmon fishery for the second consecutive year.³²³

2. Political Opposition Builds

The BiOps and pumping restrictions sparked widespread anger in California's Central Valley, where nearly 300,000 acres of farmland went dry

whistleblower's claims in the Klamath, *see supra* note 167, newspapers reported that an earlier draft of the Delta smelt BiOp "reached a jeopardy conclusion." Doremus, *Science Plays Defense*, *supra* note 20, at 289 (citing Bettina Boxall, *More Delta Water May Head South*, L.A. TIMES, Oct. 23, 2004, at B6).

315. *Gutierrez*, 606 F. Supp. 2d at 1173 ("[T]he BiOp's conclusion that Project operations under the 2004 OCAP will not jeopardize the CV steelhead survival and recovery is arbitrary, capricious, and not in accordance with the law . . ."); *NRDC*, 506 F. Supp. 2d at 387 ("The Delta smelt is undisputedly in jeopardy as to its survival and recovery.").

316. *See Gutierrez*, 606 F. Supp. 2d at 1193; *NRDC*, 506 F. Supp. 2d at 367-70 (citing FWS's failure to consider information about threats from climate change).

317. *See BAY DELTA NRC REPORT*, *supra* note 301, at 1.

318. Weiser, *Prompts Fight*, *supra* note 5; *see also* Editorial, *Feinstein's Unnecessary Opinion*, S.F. CHRON., Sept. 23, 2009, http://articles.sfgate.com/2009-09-23/opinion/17207446_1_opinion-water-fact [hereinafter Editorial, *Unnecessary Opinion*].

319. *See Feinstein*, *Why Review*, *supra* note 5.

320. *See Complaint* at ¶¶ 8-9, *Consol. Salmon Cases*, No. 1:09-CV-1625 (E.D. Cal. Oct. 29, 2009), 2009 WL 4086497.

321. *See, e.g., id.* at ¶¶ 3, 12-14.

322. *See BAY DELTA NRC REPORT*, *supra* note 301, at 48.

323. *See Consol. Salmonid Cases*, 713 F. Supp.2d 1116, 1154 (E.D. Cal. 2010).

and unemployment in some towns reached 40 percent.³²⁴ As it did in the Klamath in 2001, the national media turned its attention to the conflict. Fox News host Sean Hannity filmed his cable television show on location in Fresno County, where he and others attacked the Obama administration for favoring “a two-inch minnow” over Central Valley farmers.³²⁵ Signs along the interstate declared that “Congress created [the] Dust Bowl.”³²⁶

Lost in much of the discourse, however, were two key reasons for the region’s woes. First, the downturn in the housing and construction industry likely impacted the Valley economy by a substantially greater magnitude than did the reduced water imports.³²⁷ Second, an ongoing drought played a larger role in the agricultural water cutbacks than did the BiOps: the state’s top water regulator said ESA restrictions accounted for only 25 percent of the reduced Delta exports, while an independent report put the number as low as 15 percent.³²⁸

Regardless, the pumping restrictions became a popular political target during the down economy. California Governor Arnold Schwarzenegger and several Central Valley lawmakers rallied with farmworkers and called for the Obama administration to lift the restrictions.³²⁹ The governor sent a letter to the Interior and Commerce Secretaries requesting reconsideration of the BiOps, but Secretaries Salazar and Locke rejected the request on the grounds that the ESA only permits reconsultation when new scientific information becomes available.³³⁰ A week later, Senator Feinstein sent another letter to the secretaries, seeking to produce that new scientific information.³³¹

3. Senator Feinstein Intervenes for a Wealthy Donor

Senator Feinstein’s letter to Secretaries Salazar and Locke referred to the Central Valley water situation as “untenable” and “dire.”³³² She wrote that the severe consequences of the pumping restrictions warranted an independent review of the underlying science, and suggested that the NRC was “the only

324. Feinstein, *Why Review*, *supra* note 5; Weiser, *Prompts Fight*, *supra* note 5.

325. Jenkins, *supra* note 302. Before a throng of flag-waving supporters, Hannity held up a poster-size photo of a smelt and said “No water for farmers, because of this fish.” *Id.*

326. *Id.* (emphasis omitted).

327. See Mike Taugher, *Fewer Job Losses Linked to Delta, Drought*, CONTRA COSTA TIMES, Sept. 29, 2010, http://www.contracostatimes.com/top-stories/ci_16208283; see also EBERHARDT SCHOOL OF BUS., BUS. FORECASTING CTR., UNEMPLOYMENT IN THE SAN JOAQUIN VALLEY IN 2009: FISH OR FORECLOSURE? (2009), available at [http://forecast.pacific.edu/articles/PacificBFC_Fish or Foreclosure.pdf](http://forecast.pacific.edu/articles/PacificBFC_Fish%20or%20Foreclosure.pdf).

328. Jenkins, *supra* note 302.

329. See Young, *supra* note 296.

330. See Collin Sullivan, *Sen. Feinstein Urges Outside Review of Calif. Water Restrictions*, GREENWIRE (Sept. 23, 2009), <http://www.nytimes.com/gwire/2009/09/23/23greenwire-sen-feinstein-demands-outside-review-of-calif-75517.html> [hereinafter Sullivan, *Feinstein Urges*].

331. Feinstein Letter to Salazar and Locke, *supra* note 3.

332. *Id.*

body whose views will be respected by all the relevant parties as a truly independent voice.”³³³ She also noted that she had included funding in the Interior Department appropriations bill specifically for the study.³³⁴

Senator Feinstein authored the letter at the behest of a wealthy agricultural grower and frequent political donor, Stewart Resnick, who had asked her to side with agribusiness in the Delta dispute.³³⁵ The week before Senator Feinstein’s letter, Resnick complained to her in a letter of his own about the wildlife agencies’ “sloppy science” in their BiOps, which he noted did “not meet applicable peer review standards.”³³⁶ Resnick included in his letter a proposed timeline and statement of task for a Delta NRC committee and requested that Senator Feinstein secure necessary funding for the review.³³⁷ Within a week, she forwarded Resnick’s letter to two Cabinet secretaries, set aside \$750,000 in taxpayer dollars for the study, and, under her own letterhead, urged the administration to see it through.³³⁸

Media reports quickly picked up on the role of Resnick—a Beverly Hills billionaire, one of the state’s biggest water users, and a major player behind one of the groups that sued the wildlife agencies over the adequacy of their BiOps.³³⁹ The press focused in particular on Resnick’s significant political donations and close ties to Senator Feinstein.³⁴⁰

a. Regulatory Supporters Cry Foul

Newspaper editorial boards roundly condemned Senator Feinstein’s NRC request on behalf of a wealthy campaign donor and powerful agricultural player. A *San Francisco Chronicle* editorial—appearing on the same day as an Op-Ed criticizing Senator Feinstein’s Point Reyes legislative rider—suggested that the only reason for her to waste \$750,000 in taxpayer money on another scientific review of the BiOps was that a “Beverly Hills billionaire [] is scrounging for a way to pump more water out of the Delta.”³⁴¹ The *Sacramento*

333. *Id.*

334. *Id.*

335. *Id.*; Lance Williams, *Feinstein Heeded Donor, Sought Delta Study*, SACRAMENTO BEE, Dec. 7, 2009, at A4.

336. Letter from Stewart Resnick, President and CEO, Roll Int’l Corp., to Dianne Feinstein, U.S. Senator (Sept. 4, 2009) (on file with author).

337. *Id.*

338. Feinstein Letter to Salazar and Locke, *supra* note 3.

339. See, e.g., Taugher, *Farm Baron*, *supra* note 189; Williams, *supra* note 335. Resnick’s Paramount Farms includes 118,000 acres of heavily irrigated California orchards; he obtained a large ownership share in a controversial water bank that has sold some of its stored water back to the state at a premium during dry years. Williams, *supra* note 335.

340. Resnick once hosted a cocktail party in Senator Feinstein’s honor at his Beverly Hills mansion, and he entertained her at a New Year’s party at his second home in Aspen, Colorado. See Williams, *supra* note 335 (noting that Resnick had written Feinstein multiple campaign checks totaling almost \$30,000, and together with his wife and company executives had donated nearly \$4 million to candidates and political committees).

341. Editorial, *Unnecessary Opinion*, *supra* note 318; see also Editorial, *The Science of*

Bee opined “it would behoove Feinstein, and the state she represents,” if she spent as much time with “dry-docked salmon fishermen[sic]” as she did with corporate farmers.³⁴²

Environmental and fishing groups also attacked Senator Feinstein’s advocacy on behalf of an interested party who was involved in a pending lawsuit challenging the BiOps. They suggested that the NRC review was a flyspecking exercise—identifying every small criticism, regardless of whether it had a discernible impact on the regulatory decision—to expose flaws that might provide leverage in swaying the court or public opinion.³⁴³ Delta science and policy experts further criticized the empanelling as a redundant and potentially counterproductive waste of resources.³⁴⁴ Professor Mount, who admitted that he felt the Klamath committee had been “manipulated for political reasons,” was particularly critical of the Delta NRC review.³⁴⁵ He stated that it was “not a wise use” of the NAS to empanel a NRC study simply because “people of great influence” do not like the rules.³⁴⁶ “We are setting a bad precedent that will stretch well beyond the Delta,” Professor Mount warned.³⁴⁷

b. Senator Feinstein Fights Back

Senator Feinstein fiercely defended herself against criticism regarding the NRC review. She authored multiple Op-Eds in response to the editorials, and defended forwarding Resnick’s letter to the Cabinet secretaries as a routine and “basic component of constituent service” that had nothing to do with political leanings or relationships.³⁴⁸ Feinstein acknowledged having known Mr.

Water Limits, S.F. CHRON., March 20, 2010, http://articles.sfgate.com/2010-03-20/opinion/18840364_1_water-deliveries-valley-water-agencies-central-valley [hereinafter Editorial, *Water Limits*] (suggesting Feinstein “ordered up” the NRC report for begging farm leaders, although prior scientific studies had clearly established a need to preserve water for the fish).

342. Editorial, *Senator Needs to Balance Interests*, SACRAMENTO BEE, Dec. 14, 2009, available at 2009 WLNR 25148384.

343. Sullivan, *Feinstein Urges*, *supra* note 330 (quoting Glen Spain of the Pacific Coast Federation of Fishermen’s Associations: “[G]oing back and getting a second or third or fourth opinion is just an effort to get new answers” and “more leverage in court”); Taugher, *Farm Baron*, *supra* note 189 (indicating a critique that the NRC review’s purpose is to expose any flaws that can be used to challenge the BiOps “in court, or the court of public opinion”).

344. See Weiser, *Prompts Fight*, *supra* note 5 (quoting an EPA biologist, and Professors Mount and Doremus). An EPA fishery biologist suggested that convening another science panel would either take Delta experts away from important ongoing work, or take substantial time and effort to bring outside scientists up to speed on such a complex issue. Taugher, *Farm Baron*, *supra* note 189.

345. Taugher, *Farm Baron*, *supra* note 189.

346. Weiser, *Prompts Fight*, *supra* note 58.

347. *Id.*

348. Dianne Feinstein, Op-Ed., *Viewpoints: Review of Delta Science is Appropriate*, SACRAMENTO BEE, Dec. 11, 2009 [hereinafter Feinstein, *Viewpoints*], available at 2009 WLNR 24980109; Feinstein, *Why Review*, *supra* note 5. Responding to later critiques, she said she had been “crucified by editorial boards up and down the state” and personally called the *Sacramento*

Resnick and his wife for many years, but asserted that “if I did not think the review was in the best interests of California, I would not advocate for it. Period.”³⁴⁹

She justified the NRC review based on economic reasons and the pending lawsuits, saying it would be difficult to pursue litigation against the BiOps if “the most credible scientific body in the nation” substantiated them.³⁵⁰ She questioned why anyone would be afraid of a NRC review, and asserted that there was no predetermined outcome: the committee could “uphold the pumping restrictions” or “determine that they are not based on the best available science.”³⁵¹

The agricultural industry also defended Senator Feinstein’s request. “Why is this controversial?” asked the CEO of an agricultural trade group.³⁵² He went on to state, “What hogwash. . . . Obama pledged that his administration would embrace the fullest degree of transparency and reliance on sound science.”³⁵³ Industry players also suggested that ESA regulations with large economic impacts ought to be held to a higher standard than the traditional deference afforded to agency decisions. “If you’re taking actions that have a significant economic effect on employment numbers and people’s lives,” one of Resnick’s employees told the press, “you ought to make very certain that you’re right.”³⁵⁴

c. Agencies Concede

Within three weeks of Senator Feinstein’s letter, Secretaries Salazar and Locke responded that they share a “commitment to ensuring that difficult and important environmental decisions are backed by strong science.”³⁵⁵ They noted that the BiOps had already benefited from independent scientific review, and expressed confidence in the soundness of the mitigation alternatives suggested in the RPAs.³⁵⁶ But, “given the unique importance of these matters,” the Secretaries said they would not object to an additional NRC study.³⁵⁷

Bee editorial page editor to defend herself. Stuart Leavenworth, Column, *Feinstein Says She’s No Westlands ‘Shill,’ But . . .*, SACRAMENTO BEE, March 7, 2010, available at <http://salmonwaternow.org/wp-content/uploads/2010/03/Feinstein-says-shes-no-Westlands-shill.pdf>.

349. Feinstein, *Viewpoints*, *supra* note 348.

350. *Id.* (“My reason for seeking the study is simple and clear. The Valley is in the midst of a devastating economic crisis.”). She claimed that Central Valley farmers told her the NRC “is the only scientific body whose opinion they will respect.” Feinstein, *Why Review*, *supra* note 5.

351. Feinstein, *Viewpoints*, *supra* note 348.

352. Tom Nassif, Op-Ed., *Another View: Farm Operator’s Request of Feinstein is Overblown*, SACRAMENTO BEE, Dec. 27, 2009 available at 2009 WLNR 25965465.

353. *Id.*

354. Weiser, *Prompts Fight*, *supra* note 5.

355. Letter from Sec’y Ken Salazar, U.S. Dep’t of the Interior, and Sec’y Gary Locke, U.S. Dep’t of Commerce, to Sen. Dianne Feinstein (Sept. 30, 2009) [hereinafter Letter from Salazar and Locke] (on file with author).

356. *Id.*

357. *Id.*

Their acquiescence to Senator Feinstein's letter, so shortly after denying Governor Schwarzenegger's request, highlights her influence. In fact, only the week before Senator Feinstein's letter, the Deputy Interior Secretary had "expressed reservations about the NRC process," including a concern that it might "politiciz[e] the science."³⁵⁸ Nevertheless, once the chair of the Interior Department's appropriations committee weighed in, the reservations quickly disappeared from public view.

C. *The NRC Steps into the Fray*

Heeding Senator Feinstein's and the Secretaries' request, the NRC agreed to undertake two separate reports over the course of two years. The formal statements of task were "little changed" from the list of proposed questions that Resnick originally sent Senator Feinstein.³⁵⁹ However, they did reflect recommendations from Secretaries Salazar and Locke about three areas where the review could be particularly helpful.³⁶⁰

The first report, to be prepared in only a few months, would address the scientific questions, assumptions, and conclusions underlying the RPAs in the two BiOps. Specifically:

- Are there any other RPAs that might provide equal or greater protection for listed species while posing smaller impacts to other water users?
- Are there provisions in the two BiOps that might benefit one listed species while causing negative impacts on another?
- And, to the extent that time permits this consideration, how might other stressors—such as pesticides, invasive species, and ammonia discharges from sewage treatment plants—affect listed species in the Delta?³⁶¹

The second report, due in late 2011, will seek to guide broader, long-term Delta policies.³⁶² It will identify and rank the factors—including those not related to water pumping—that are contributing to the fishery decline.³⁶³ And it will examine how to incorporate science into Delta management and restoration programs.³⁶⁴

The NRC appointed fifteen members to the Delta review committee and named as its chairman Robert Huggett, a marine scientist from the College of William & Mary.³⁶⁵ With an overall budget of \$1.5 million, the committee met

358. See Letter from Stewart Resnick, *supra* note 336.

359. Weiser, *Prompts Fight*, *supra* note 5.

360. See Letter from Salazar and Locke, *supra* note 355.

361. BAY DELTA NRC REPORT, *supra* note 301, at 2, 59.

362. *Id.* at vii–viii.

363. *Id.* at 60.

364. *Id.*

365. The original committee members were Robert Huggett (College of William and Mary); James J. Anderson (University of Washington); Michael Campana (Oregon State University);

at the University of California, Davis campus for five days in January 2010: the first three meetings were open to the public, and the last two occurred in closed session.³⁶⁶ The committee met amid media reports questioning the propriety of the NRC review; “there’s been too much news generated about our activities and we haven’t even started,” one NRC staff member complained.³⁶⁷

Beyond the unflattering media coverage, the NRC meetings featured other questionable atmospherics that reinforced antiregulatory sentiments. The Pacific Legal Foundation used the occasion to announce a lawsuit challenging the ESA smelt regulations as unconstitutional.³⁶⁸ Additionally, the NRC meetings opened with an address by Congressman Jim Costa (D-Cal.).³⁶⁹ A conservative Democrat, Costa told the committee the fish protections were based on “flawed science” and caused “real, and awful” social and economic devastation.³⁷⁰ “Without water you can’t grow food and you don’t have jobs,” he added.³⁷¹

The political speeches also hindered the NRC committee’s scientific information gathering. Though the agenda allotted Congressman Costa only twenty minutes to speak to the committee, he took nearly an hour.³⁷² To accommodate the delay, the next speaker—Professor Mount, a well-recognized scientific expert on the Delta—had to cut his hour-long presentation in half.³⁷³ Professor Mount shared with committee members his reflections on the Klamath NRC review process, and expressed concern that the purely scientific NRC was not the right body to review the “somewhat political” BiOps.³⁷⁴ He warned the Delta committee to keep in mind that “political and legal realities ensure that this review will have a powerful effect.”³⁷⁵

Other witnesses who testified at the public meetings included an economist who works for Resnick and a scientist hired by the law firm representing the Metropolitan Water District in a suit challenging the BiOps.

Thomas Dunne (U.C. Santa Barbara); Albert Giorgi (BioAnalysts, Inc.); Patricia Glibert (University of Maryland); Christine Klein (University of Florida); Samuel N. Luoma (U.S. Geological Survey); Michael J. McGuire; Thomas Miller (University of Maryland); Jayantha Obeysekera (S. Fla. Water Management District); Max J. Pfeffer (Cornell University); Denise J. Reed (University of New Orleans); Kenneth A. Rose (Louisiana State University); Desiree D. Tullos (Oregon State University). *Id.* at 65–69.

366. BAY DELTA NRC REPORT, *supra* note 301, at 12.

367. Matt Weiser, *Delta Environmental Review Begins Amid Skepticism*, SACRAMENTO BEE, Jan. 25, 2010 [hereinafter Weiser, *Amid Skepticism*], available at 2010 WLNR 1561630.

368. The group had already lost a similar lawsuit brought under the Commerce Clause. *Id.*

369. *Id.*

370. *Id.*

371. Young, *supra* note 296.

372. Weiser, *Amid Skepticism*, *supra* note 367.

373. *Id.*

374. *See id.*

375. *Id.* Professor Mount said he thought the committee could make the greatest difference by defining a middle ground between those who want to return the Delta to a “pristine state,” and those who “want to take all the water they can get.” *Id.*

Some witnesses joked about the pending litigation hanging over the proceedings. “I’m the only one in this lineup who isn’t suing or being sued by someone else in the room,” said a general manager of the Contra Costa Water District.³⁷⁶

1. Senator Feinstein’s Stealth Attempt to Draft a Bill

After the NRC committee meetings ended, but while the internal deliberations were pending, news leaked that Senator Feinstein had drafted legislation to override the BiOps.³⁷⁷ Her office refused to release details of the proposal, but the *Los Angeles Times* obtained a copy and reported it would reduce ESA restrictions on Delta water pumping for two years.³⁷⁸ The proposal took the form of an emergency water supply amendment to a fast-moving jobs bill.³⁷⁹

Senator Feinstein faced an uproar from other congressional Democrats.³⁸⁰ Congressman George Miller (D-Martinez) argued that lawmakers should not step into the fray until they had seen the NRC report, which Senator Feinstein requested in the first place.³⁸¹ Indeed, Senator Feinstein’s amendment—which came only a month before the NRC report was due—seemed to betray her earlier statements defending the study. California Assemblyman Jared Huffman, a major player in California water politics, called Senator Feinstein’s move “by any stretch an attempt to legislate science and an end run around the Endangered Species Act.”³⁸² In the face of such strong opposition, Senator Feinstein quietly withdrew the proposed amendment.

2. The Delta NRC Initial Report

The Delta NRC committee released its initial report in March 2010. The report focused primarily on the water-pumping RPAs, which it found “scientifically reasonable” and “scientifically justified.”³⁸³ The committee concluded that it did not have sufficient evidence to express confidence in any alternative RPAs that might provide equal or greater species protection while

376. Weiser, *Steady Flow*, *supra* note 311.

377. Bettina Boxall, *Feinstein Seeks to Ease Curbs on Water Delivery to Farms*, L.A. TIMES, Feb. 12, 2010, <http://articles.latimes.com/2010/feb/12/local/la-me-feinstein-delta12-2010feb12> [hereinafter Boxall, *Ease Curbs*]; see also Editorial, *Feinstein’s Play Threatens to Roil the Water World*, SACRAMENTO BEE, Feb. 14, 2010, available at 2010 WLNR 3109288.

378. Boxall, *Ease Curbs*, *supra* note 377.

379. *See id.*

380. Michael Doyle, *11 Western Democrats Object to Feinstein Water Delivery Plan*, MCCLATCHY NEWSPAPERS, Feb. 18, 2010, <http://www.mcclatchydc.com/2010/02/18/86201/11-western-democrats-object-to.html>.

381. *Id.*

382. See Boxall, *Ease Curbs*, *supra* note 377.

383. BAY DELTA NRC REPORT, *supra* note 301, at 1, 3, 5. The report found a habitat management RPA to be conceptually weak and “not fully justified,” but that provision garnered little controversy because it did not affect water use. *Id.* at 4.

giving farmers more water.³⁸⁴ The report also emphasized that slowing or reversing the fish species' declines will take some time, and that it was unrealistic to expect immediate results—especially with fish populations that are already so low.³⁸⁵ However, the committee acknowledged “substantial uncertainty” regarding precisely how much water must remain to protect fish, and called for careful monitoring and adjustments as knowledge improves.³⁸⁶

The report was not entirely positive about all aspects of the BiOps. It found the lack of an integrated analysis tying the various RPAs together to be a “serious scientific deficiency,” and suggested that FWS and NMFS could do a better job coordinating their BiOps to evaluate the aggregate effects of individual actions.³⁸⁷ However, the committee recognized that this flaw might be a result of practical limitations in the ESA's species-by-species approach, and that improvements were likely beyond the agencies' legal obligations under the statute.³⁸⁸

In an unsurprising but politically important finding, the report concluded that other stressors in the Delta—such as agricultural runoff, fishing, disease, ocean conditions, and climate change—have potentially large and undercharacterized adverse effects on the listed fish.³⁸⁹ The committee promised to explore those stressors more thoroughly in its second report, but it also explicitly noted that addressing the issue was likely outside the agencies' regulatory authority, and thus any discussion in the report should have no bearing on whether the BiOps are legally adequate.³⁹⁰

Perhaps chastened by Professor Mount's remarks about the Klamath, the Delta NRC committee went out of its way to clarify the statutory backdrop and assert that its findings should have no legal effect. “Nothing in this report should be interpreted as a legal judgment as to whether the agencies have met their legal requirements under the ESA,” the committee wrote in bold letters.³⁹¹ The report might reach different conclusions than the BiOps, the committee noted, but “that would not be a *legal* justification for deeming them inadequate.”³⁹² Further, the Delta committee included as a “useful reference” an entire section describing the deferential “arbitrary [and] capricious” legal standard of the APA.³⁹³ It also spent nearly four pages explaining the statutory context of the ESA Section 7 consultation and “best available science”

384. *See id.* at 6.

385. *Id.* at 3, 48.

386. *Id.* at 3–5.

387. *Id.* at 6–7, 49.

388. *Id.* at 6–7.

389. *Id.* at 6, 33.

390. *Id.* at 6, 13.

391. *Id.* at 2.

392. *Id.* at 13.

393. *Id.* (citing 5 U.S.C. § 706(2)(A)); *Trout Unlimited v. Lohn*, 559 F.3d 946 (9th Cir. 2009); *Aluminum Co. of Am. v. Bonneville Power Admin.*, 175 F.3d 1156 (9th Cir. 1999).

mandate.³⁹⁴ “While this committee’s review is scientific, and not legal, the committee nonetheless recognizes the importance of the legal context within which its evaluation takes place.”³⁹⁵

3. *Mixed Reactions to the Report*

Public reaction to the report may have been tempered somewhat by heavy spring rains that came a few weeks before the report’s release and allowed the wildlife agencies to lift some of the pumping restrictions.³⁹⁶ Even so, the report attracted a significant amount of media attention. Much of the coverage latched onto the “scientifically justified” language sprinkled throughout the report.³⁹⁷ Like in previous cases, much of the press characterized the NRC committee’s conclusions in adversarial terms—though this time in favor of the environmental regulations.³⁹⁸

Many articles characterized the results as more nuanced, however, reflected by some stakeholders’ opinions that the study was a “mixed bag.”³⁹⁹ The *San Francisco Chronicle* described “important caveats” and “concessions to the [agricultural] side” that “should soften the sting.”⁴⁰⁰ Another reporter noted that the report’s nuanced findings may provide ammunition for opponents of water restrictions.⁴⁰¹

The agricultural industry and water users appeared conflicted by the report. One of Resnick’s representatives from Paramount Farms said he was disappointed and surprised that the committee did not provide any short-term fixes.⁴⁰² But the general manager of a large Central Valley water district was

394. BAY DELTA NRC REPORT, *supra* note 301, at 27–30.

395. *Id.* at 13.

396. See Editorial, *Water Limits*, *supra* note 341 (“[T]he Obama administration this past week ordered the faucets opened, an action eased by an especially wet winter.”).

397. See, e.g., Justin Berton, *Study Backs Efforts to Save Delta Fish*, S.F. CHRON., March 20, 2010, <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2010/03/19/bamj1cignnd.dti>; Bettina Boxall, *Scientists Side with Smelt, Salmon Protections*, L.A. TIMES, March 19, 2010, <http://articles.latimes.com/2010/mar/19/local/la-me-water-academy19-2010mar19> [hereinafter Boxall, *Scientists Side*]; Matt Weiser & Michael Doyle, *Science Panel Says Delta Pumping Restrictions Are Justified in California*, SACRAMENTO BEE, Mar. 20, 2010, <http://www.sacbee.com/2010/03/20/2620825/science-panel-says-delta-pumping.html>.

398. See, e.g., Berton, *supra* note 397 (“Score one for the fish.”); Editorial, *Water Limits*, *supra* note 341 (“[The NRC] waded into California’s water wars and sided with salmon and smelt in a politically loaded showdown with Central Valley farmers.”); Weiser & Doyle, *supra* note 397 (the report “deal[t] a blow” to southern California water interests, who had hoped the review would “punch holes” in the BiOps).

399. Berton, *supra* note 397; Editorial, *Delta Dying a Death of Unyielding Spin*, SACRAMENTO BEE, March 26, 2010 [hereinafter Editorial, *Delta Dying*], available at 2010 WLNR 6294169 (“Cut through the fog and you’ll find . . . a much more nuanced bottom line.”).

400. Editorial, *Water Limits*, *supra* note 341.

401. Michael Doyle, *Water Restrictions Need More Study, Report Says*, SACRAMENTO BEE, March 19, 2010, http://www.sacbee.com/2010/03/18/2618363/water-restrictions-need-more-study.html?storylink=lingospot_related_articles.

402. Weiser & Doyle, *supra* note 397.

“thrilled” with the report’s conclusions about other stressors.⁴⁰³ Congressman Devin Nunes (R-Tulare) dismissed the NRC report as a “gimmick” and vowed to continue pursuing legislation that would waive the ESA restrictions altogether.⁴⁰⁴

Senator Feinstein characterized the need to integrate the two BiOps as the report’s “key conclusion.”⁴⁰⁵ She also noted that nothing in the report indicated a need to enforce more rigorous pumping restrictions, and said the agencies should implement the BiOps by lessening the restrictions wherever possible.⁴⁰⁶ In early May, the Obama Administration announced a new task force that would work toward consolidating the FWS and NMFS BiOps in the Delta.⁴⁰⁷

D. Further Fallout in the Aftermath

Contrary to Senator Feinstein’s purported rationale for requesting the review, the NRC report did not engender acceptance or agreement among conflicting stakeholders. None of the plaintiffs challenging the BiOps dropped their lawsuits after the NRC committee found the key water provisions scientifically justified. Instead, the report became “fodder for more conflict” and simply “the latest front” in the Delta’s long-running water war.⁴⁰⁸

In fact, the NRC report may have intensified the debate by providing all sides with new evidence to marshal for their cause. The committee’s conclusions were “Rorschach-like,” allowing advocates to infer from it their own priorities.⁴⁰⁹ “Anybody can take this document and find things in it that they would like,” said the general manager of a Central Valley water agency.⁴¹⁰

1. Delta Committee Members Resign

Two months after the initial report’s release, a member of the NRC committee published her own peer-reviewed research pointing to ammonia

403. Bettina Boxall, *Scientists’ Report Only Intensifies Delta Debate*, L.A. TIMES, March 20, 2010, <http://articles.latimes.com/2010/mar/20/local/la-me-water-delta20-2010mar20> [hereinafter Boxall, *Intensifies Debate*].

404. *Id.*

405. Berton, *supra* note 397.

406. Weiser & Doyle, *supra* note 397.

407. Michael Doyle, *New U.S. Panel Aims to Unify Smelt, Salmon Protection*, SACRAMENTO BEE, May 4, 2010, <http://www.sacbee.com/2010/05/04/2724644/new-us-panel-aims-to-unify-smelt.html>.

408. Weiser, *Steady Flow*, *supra* note 311; Weiser, *Prompts Fight*, *supra* note 5.

409. Weiser & Doyle, *supra* note 397.

410. Boxall, *Intensifies Debate*, *supra* note 403 (“Any hope that [the NRC committee] would end the brawl over [the Delta] evaporated as warring factions each found ammunition in [the] report.”); *see also* Editorial, *Delta Dying*, *supra* note 399 (“The report was barely released before various interests and politicians rushed to reinterpret its core findings.”); Primary Source, Opinion, Ken Salazar: *Water a “Ticking Time Bomb” for California*, L.A. TIMES, March 22, 2010, <http://www.latimes.com/news/opinion/la-oe-w-salazar-water-ps22-2010mar22,0,3929978>. story (“[E]verybody is claiming [the NRC report] supports their point of view because it’s kind of vague.”).

from Sacramento sewage as the primary culprit in the Delta's demise.⁴¹¹ The NRC knew of Professor Patricia Glibert's research and intention to publish her work; she had discussed her preliminary conclusions with other committee members at the initial closed-door meeting in order to air potential conflicts of interest.⁴¹² However, NAS officials appeared surprised by the "very strong conclusions" in her final paper, which was funded largely by Delta water exporters.⁴¹³ The officials noted that it reached "both scientific and policy conclusions" that were central to the NRC committee's charge and went beyond what they thought to be the scope of her research.⁴¹⁴ Thus, the NAS quickly asked Glibert to resign from the committee out of concern for a perceived bias.

The "forced resignation" prompted a second committee member, Michael McGuire, to resign as well.⁴¹⁵ In his resignation letter, McGuire revealed that he and Professor Glibert had pressed for stronger language in the initial NRC report about other stressors as the predominant factor in fish declines.⁴¹⁶ He said they agreed to tone down the language because the committee was under a "terribly short deadline" and other members promised them that their views would get a "full airing" during development of the second report.⁴¹⁷ However, McGuire criticized the "fixed points of view" of many of the remaining committee members, and resigned in protest after the "stilling of [Professor Glibert's] important alternative voice."⁴¹⁸

In a letter to Secretaries Salazar and Locke, NAS officials defended their request that Professor Glibert resign to preserve the "integrity, independence, and objectivity" of the organization, "and thus the usefulness and value of the committee's results."⁴¹⁹ The NAS vowed to "maintain the committee's expertise and balance" by replacing both Glibert and McGuire,⁴²⁰ and it named three new members to the Delta NRC committee about a month later.⁴²¹

411. Mike Taugher, *Scientist Forced to Resign from Delta Panel Following Controversial Research*, CONTRA COSTA TIMES, May 21, 2010.

412. See Letter from Michael McGuire to Stephen Parker, Dir., NRC Water Sci. and Tech. Bd. (May 21, 2010) [hereinafter McGuire Letter] (on file with author).

413. Letter from Stephen Parker, Dir., NRC Water Sci. and Tech. Bd., to Sec'y Ken Salazar, U.S. Dep't of the Interior, and Sec'y Gary Locke, U.S. Dep't of Commerce (May 25, 2010) [hereinafter Parker Letter] (on file with author); see also Mike Taugher, *Delta Decline Linked to Sacramento Sewage Treatment in New Study*, CONTRA COSTA TIMES, May 17, 2010.

414. *Id.*

415. McGuire Letter, *supra* note 412.

416. *Id.*

417. *Id.*

418. *Id.*

419. Parker Letter, *supra* note 413.

420. *Id.*

421. See NAT'L ACAD. OF SCIS., SUSTAINABLE WATER AND ENVIRONMENTAL MANAGEMENT IN THE CALIFORNIA BAY-DELTA, COMMITTEE MEMBERSHIP INFORMATION, <http://www8.nationalacademies.org/cp/CommitteeView.aspx?key=49175>. The new members were John P. Connolly (National Academy of Engineering), Stephen G. Monismith (Stanford University), and Hans W. Paerl (University of North Carolina, Chapel Hill).

2. A Court Enjoins the Agencies' BiOps

Around the same time that Professor Glibert resigned, Judge Wanger issued a pair of rulings that enjoined application of the Delta water restrictions. The decisions had a Goldilocks quality: Judge Wanger's earlier rejection of the no-jeopardy BiOps as too lenient prompted modifications to the water restrictions, but his new rulings found that the wildlife agencies were too strict in their revised jeopardy BiOps.⁴²² Judge Wanger referred to the salmon-based water restrictions as "scientifically unreasonable" and the "product of guesstimations" that did not properly account for the "draconian" impacts to water users.⁴²³ The smelt-based Delta outflow requirements had "some support in the record," he noted, but the agency did not justify the precise prescriptions with the best available science.⁴²⁴

Judge Wanger's rulings actually disproved Senator Feinstein's assertion that it would be difficult to pursue litigation against BiOps largely substantiated by the NRC. The NRC report found the flow requirements "scientifically reasonable," but Judge Wanger highlighted additional language in the report referring to "substantial uncertainty" and "legitimate questions" about the proper flow amount.⁴²⁵ He found the "equivocal conclusion[s]" in the NRC report to be "in no way inconsistent with a finding that the BiOp failed to utilize the best available scienc[ce]."⁴²⁶

E. Anticipating the Final Report

In July 2010, the newly revamped NRC committee began holding meetings for the second stage of its study, which will spend about twenty months examining other Delta stressors and potential alternatives to pumping restrictions.⁴²⁷ Professor Glibert presented her research about sewage discharges to her former committee colleagues, but not without lingering controversy.⁴²⁸ A senior research scientist with the U.S. Geological Survey testified before Professor Glibert and forcefully questioned her findings, which he called "one-dimensional" and "ecologically naïve."⁴²⁹ "I feel obligated to tell you I don't accept [her] conclusion," the Geological Survey scientist told

422. See Mike Taucher, *Judge Reverses Stance on Delta Rules*, CONTRA COSTA TIMES, May 18, 2010 ("A federal judge who invalidated permits on California's dams and Delta pumps two years ago because they were too lenient to protect endangered salmon on Tuesday ruled that new conditions may be too strict.")

423. Consol. Salmonid Cases, 713 F. Supp. 2d 1116, 1170-71 (E.D. Cal. 2010).

424. Consol. Delta Smelt Cases, 717 F. Supp. 2d 1021, 1071 (E.D. Cal. 2010).

425. *Id.* at 1043 (citing BAY DELTA NRC REPORT, *supra* note 301).

426. *Id.*

427. Alex Breitler, *Scientists Might Miss the Boat on Plans for Delta Canal or Tunnel*, STOCKTON RECORD, July 14, 2010, available at 2010 WLNR 14104221; BAY DELTA NRC REPORT, *supra* note 301, at vii-viii, 60.

428. Breitler, *supra* note 427.

429. *Id.*

the NRC committee, “and neither does anyone else I’ve spoken to who knows the Delta.”⁴³⁰

Meanwhile, some observers questioned how the timing of the NRC’s second report would coincide with development of the Bay Delta Conservation Plan (BDCP)—an ambitious, multiyear regional recovery plan currently being developed under Section 10 of the ESA.⁴³¹ The NRC intended to coordinate its study to inform the BDCP process, but the second report was not due until November 2011—a year after the BDCP’s scheduled completion.⁴³² For this reason, state and federal officials urged NRC committee members to complete their second report faster than originally scheduled.⁴³³

NRC officials responded by establishing a third study committee, comprising mostly the same members, to issue yet another report in April 2011 focused specifically on the science behind the BDCP.⁴³⁴ In December 2010 the new committee held a public meeting in San Francisco, where members of the press reported that the committee saw “gaping holes” and “woefully incomplete” science in the plan.⁴³⁵ However, in an Op-Ed campaigning for the BDCP the following week, Secretary Salazar suggested that early scientific analysis of the recovery plan “offers cause to be optimistic.”⁴³⁶

V.

REASSESSING THE ROLE OF NRC REVIEWS

The Klamath, Point Reyes, and Delta NRC reports clearly provided some benefit by informing the public and policymakers about their respective regulatory disputes. But the reviews also imposed substantial costs—both financially and politically. Given the frequency with which lawmakers are

430. *Id.*

431. Weiser, *Prompts Fight*, *supra* note 5 (“The academy review won’t be done until 2012, a year after expected completion of the [BDCP]. This could cause the plan to be scrapped or redrawn . . .”).

432. *Id.*; BAY DELTA NRC REPORT, *supra* note 301, at 60.

433. Breitler, *supra* note 427; Colin Sullivan, *Elite Science Panel Wades into Calif. Water War*, GREENWIRE (Aug. 2, 2010), <http://www.nytimes.com/gwire/2010/08/02/02greenwire-elite-science-panel-wades-into-calif-water-war-50639.html> (“[S]tate and federal bureaucrats in Sacramento . . . asked the scientists to act faster than their charter stipulates to add their analysis of the [BDCP].”).

434. Mike Taugher, *Panel Calls Delta Recovery Plan Woefully Incomplete*, CONTRA COSTA TIMES, Dec. 8, 2010, http://www.contracostatimes.com/news/ci_16810796?source=rss&nclink_check=1 [hereinafter Taugher, *Woefully Incomplete*]; Matt Weiser, *National Academy of Sciences Continues Examination of Delta*, SACRAMENTO BEE, Nov. 29, 2010, http://www.sacbee.com/2010/11/29/3219384/national-academy-of-sciences-continues.html#mi_rss=Latest%20News;Project%20Information,Review%20of%20California's%20Draft%20Bay%20Delta%20Conservation%20Plan, NAT’L RESEARCH COUNCIL, <http://www8.nationalacademies.org/cp/projectview.aspx?key=49289>.

435. Taugher, *Woefully Incomplete*, *supra* note 434.

436. Ken Salazar & David J. Hayes, Op-Ed., *Viewpoints: State Faces Pivotal Point in Water Future*, SACRAMENTO BEE, Dec. 16, 2010, <http://www.sacbee.com/2010/12/16/3261116/state-faces-pivotal-point-in-water.html>.

bringing the NRC into environmental regulatory disputes, it is important to reassess how well the committees line up with the intended role of regulatory peer review.

This Part will apply lessons learned from the three case studies, along with existing literature about regulatory peer review, to assess whether the NRC's benefits outweigh its costs.⁴³⁷ Building on that analysis, Part VI will then recommend steps to retain or increase the benefits of NRC reviews, while eliminating or reducing the costs.

A. The Theoretical Benefits and Practical Limitations of Peer Review

1. Assuring Quality Control

Often the chief rationale for subjecting agency decisions to regulatory peer review is the quality control function provided in the scientific research context. However, the primary concern in the regulatory context is typically not that the agencies rely on flawed scientific studies, but rather that they overstate what the given science supports.⁴³⁸ Regulatory peer review, then, is seen as a tool to expose the science charade.

All three case studies examined allegations that agencies oversold the science behind their regulatory or policy decisions. In each case, the NRC report helped reveal just how far the scientific support extended before the agencies' policy choices came into play. In the Bay Delta, the NRC found that existing science "justified" the major water restrictions.⁴³⁹ In the Klamath and Point Reyes, however, the NRC exposed instances where the agencies misrepresented the scope of the underlying science.⁴⁴⁰ Indeed, beyond these case studies, NRC reports often delineate scientific uncertainties and encourage agencies to make their resulting policy choices more explicit.⁴⁴¹

437. See McGarity, *Sound Science*, *supra* note 25, at 934 ("The critical question is whether the benefits of the better decisions . . . outweigh the costs that such additional procedures will impose.").

438. See *id.* (finding "little evidence" that agencies rely on flawed scientific studies); Policansky, *supra* note 4, at 617 ("Too often, decision makers will cite science as a basis for their decisions when it is not. . . . What [NRC] scientists can and should do is to ensure that science is understood and not misrepresented.").

439. See *supra* text accompanying note 383.

440. Professor Ruhl suggested that had the Klamath NRC committee not conducted its review, no one would have revealed the lack of scientific support for the agencies' positions. Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 44–45. This was not the case in Point Reyes, where the National Seashore had already acknowledged its own misrepresentations in a subsequent clarification report.

441. See Policansky, *supra* note 4, at 611; Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 46 (quoting the NRC Platte River Basin Committee: "these judgments should be made transparent [and clearly explain the agency's] evaluation of the scientific data and its use of nonscientific factors to reach a final decision"). See generally Wagner, *Science Charade*, *supra* note 18 (describing NRC advice to the EPA about risk assessments).

NRC committees, more than other forms of regulatory peer review, appear particularly well equipped to identify the line between an agency's science and policy judgments.⁴⁴² The independent and interdisciplinary committees can help break the political, legal, and institutional incentives that Professor Wagner identified as contributing to the science charade.⁴⁴³ Careful balancing of NRC committee membership ensures that no one favored policy outcome will dominate deliberations. And the committees' interdisciplinary makeup—including scientists from different fields, as well as attorneys and other professionals—may avoid the institutional or disciplinary biases that otherwise influence agency decision making.⁴⁴⁴

This line-drawing role of regulatory peer review serves an important administrative law function by increasing the transparency of agency decisions, which in turn makes agencies more accountable for their policy choices. In the Klamath and Point Reyes, for example, the agencies could no longer point to science alone to justify their positions. They had to rely more on their policy choices and legal mandates, which in turn enabled greater legislative oversight through the proposal of new laws. This theoretically allowed voters to express their political support or displeasure with the executive's policy choices or the legislature's laws.

By elevating the importance of science, however, NRC reports may perpetuate a science charade of their own. Data gaps are inevitable in environmental regulation, so using them to critique agency decisions may improperly shift blame. Further, focusing too much on the science behind an agency's decision may cause the public to overlook the underlying policy choices regulatory peer review is intended to expose.⁴⁴⁵ For example, lost in the coverage of the Klamath NRC review was the committee's acknowledgment that the regulatory decision to close the floodgates may have been justified on policy grounds, even though it was not justified by science alone.⁴⁴⁶ A more direct assertion in the Point Reyes NRC report—about the primary role of law and value judgments, not science in the pending policy decision—received some greater attention. But many press reports still portrayed the dispute as a

442. See *supra* text accompanying notes 108–109.

443. See Wagner, *Science Charade*, *supra* note 18, at 1640.

444. See Doremus, *Science Plays Defense*, *supra* note 20, at 280–81 (“Disciplinary training also plays a role, both directly and indirectly, in the exercise of judgment.”); Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 23 (“Most biologists who work for the FWS or NOAA, one could reasonably imagine, care personally about conserving wildlife—that is why they became wildlife biologists and have devoted their careers to working in an agency dedicated to wildlife conservation.”).

445. See generally Daniel Sarewitz, *How Science Makes Environmental Controversies Worse*, 7 ENVTL. SCI. & POL’Y 385 (2004); see also Wagner, *Science Charade*, *supra* note 18, at 1700 (“Extensive peer review does little to counteract the science charade . . . and may even lend it added legitimacy by implicitly classifying [certain policy decisions] as largely, if not exclusively, a scientific enterprise . . .”).

446. Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 7–8, 10.

scientific one about the oyster farm's environmental effects in the estuary, rather than a legal and political one about the mandates of federal wilderness protection. Thus, identifying gaps in the underlying data has only limited import for assuring the quality of an agency's environmental regulatory decision.

Further, just as agencies overstate the scientific justifications of their decisions, supporters of regulatory peer review likely oversell the quality-control benefits of NRC reports too.⁴⁴⁷ The NRC can help identify existing data gaps and uncertainties, but it cannot close those gaps because it does not conduct its own research.⁴⁴⁸ And the agencies may not have the time or resources to fill the data gaps identified by the NRC. Moreover, even though the NRC has a unique ability to convene top-quality committee members, expertise does not make their reports infallible; both the Klamath and Point Reyes NRC reports garnered subsequent scientific critiques. Committee members may be experts in their respective fields, but they are often new to the particular regulatory situation at issue and may misunderstand important details.⁴⁴⁹

2. Legitimizing Decisions to Restrain the Costs of Controversy

Senator Feinstein justified bringing the NRC into the Delta because it was the only body respected enough to help resolve the controversy and, possibly, to confer legitimacy on the agency's decisions.⁴⁵⁰ In the past, NRC reports that endorsed agency decisions often served that legitimizing function.⁴⁵¹ But putting aside the question whether a favorable NRC report *should* be seen as a "stamp of approval" or the last word on an issue,⁴⁵² it appears that recent NRC reports instead serve more of a "delegitimizing function"—commissioned with the aim of eroding public confidence in agency decisions.

Many commentators have speculated about possible political motives behind the Klamath NRC report.⁴⁵³ Regardless, its result "tended to delegitimize the wildlife agencies' scientific work ethic [and] undermined public support for endangered species protection."⁴⁵⁴ The political motives in

447. *Id.* at 37; Ruhl, *Prescribing*, *supra* note 12, at 420–22; *see also* Noah, *supra* note 31, at 1046 (citing JASANOFF, *supra* note 32, at 62).

448. *See supra* text accompanying note 89.

449. *See* Doremus & Tarlock, *Judgment*, *supra* note 9, at 34–35 (“[O]utside reviews may by their very nature carry more credibility than they deserve.”).

450. *See supra* text accompanying note 350.

451. *See* Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 325 (referring to NRC reports that supported the EPA's position on arsenic drinking water standards and acknowledged the reality of global climate change).

452. Many commentators answer that question in the negative. *See* Noah, *supra* note 31, at 1045–46; *see also* Doremus & Tarlock, *Judgment*, *supra* note 9, at 35.

453. *See, e.g.*, *supra* text accompanying notes 189–190.

454. Carden, *supra* note 9, at 257; *id.* at 255 (“Regardless of political *intent*, the palpable *effect* of the Report's focus on the 'soundness' of the science underlying the wildlife agencies'

Point Reyes were a little more apparent because, there, the National Seashore had already issued its own clarification report several months before the NRC contract was complete, and the Interior Department Inspector General conducted his own investigation of the situation.⁴⁵⁵ Thus, the purpose of the NRC review was not to legitimize the agency's actions via objective, nonpartisan advice, but rather to delegitimize them further in the public's eye.

Even in the Delta, the mostly favorable NRC report did not confer the legitimacy that Senator Feinstein and other peer-review proponents asserted it would. Senator Feinstein suggested Central Valley farmers would respect the NRC's findings, and that it would be difficult to pursue a lawsuit challenging the BiOp in the face of a favorable NRC report.⁴⁵⁶ But reactions from the agricultural community, and Judge Wanger's subsequent rulings, proved just the contrary. Because peer review inevitably reveals uncertainties, which regulatory opponents can drag into the courtroom and manipulate for political reasons, NRC reports may serve to delegitimize agency environmental regulations and fuel ongoing controversy rather than lead to acceptance or accord.⁴⁵⁷

3. *Improving Political Oversight While Maintaining Independence*

As a tool of congressional oversight, even the threat of intrusive regulatory peer review may encourage more political accountability within administrative agencies. A lawmaker or political official who commissions the NRC to review an agency decision is, in a sense, responding to a fire alarm pulled by an interested constituent group.⁴⁵⁸ From this perspective, Senator Feinstein's intervention on behalf of an oyster farmer in Point Reyes and an agricultural-water user in the Delta are examples of proper channels of accountability in the administrative state. On the other hand, appropriating hundreds of thousands of taxpayers' dollars to help the cause of individual agricultural stakeholders and a wealthy political donor arguably undermines the political process.

Furthermore, a primary reason why NRC reports are deemed so credible is the organization's touted independence from government influence. However, the three case studies highlight that, in practice, the NRC is not as politically independent as it holds itself out to be. A certain degree of "political meddling" appeared in each case. In the Klamath, reports linger that Vice President

recommendations has been public misunderstanding and mistrust.").

455. See *supra* text accompanying notes 226–228; INSPECTOR GEN. REPORT, *supra* note 210.

456. See *supra* note 350.

457. See Bryant, *supra* note 19, at 202.

458. See Lisa Schultz Bressman, *Procedures as Politics in Administrative Law*, 107 COLUM. L. REV. 1749, 1751–52 (2007) (describing the concept of "'fire-alarm' oversight"); see also Shapiro & Guston, *supra* note 10, at 542 (characterizing the peer reviewers as pulling an alarm so that "political principals can investigate").

Cheney helped orchestrate the NRC review as part of a broader effort to curry political favor in an important electoral swing state.⁴⁵⁹ In both Point Reyes and the Delta, Senator Feinstein used her political sway to all but singlehandedly secure NRC reviews for agricultural economic interests. Correspondence and telephone logs obtained under FOIA show that she “repeatedly interceded” in the Point Reyes dispute, frequently contacting officials at Park Service and Interior Department headquarters on the oyster farmer’s behalf.⁴⁶⁰ Acting on behalf of a political donor in the Delta, Senator Feinstein strong-armed Secretaries Salazar and Locke into supporting a review that their deputies opposed, and only weeks after the Secretaries had refused a similar request from Governor Schwarzenegger.⁴⁶¹

Senator Feinstein’s outsized influence stemmed in large part from her role as chair of the Senate subcommittee that oversees Interior Department appropriations.⁴⁶² In a sense, she held the purse strings for the entire department, which explains not only why Interior officials were so responsive to her requests, but also how she could so quickly manifest hundreds of thousands of federal dollars for particular studies.⁴⁶³ Administrative law scholars have noted how legislative structures disproportionately vest oversight authority in appropriations committees and, even more so, in committee chairs.⁴⁶⁴ Indeed, Senator Feinstein is not the only lawmaker who has taken advantage of an appropriations committee chairmanship to secure NRC review of environmental regulatory decision with which she disagreed.⁴⁶⁵

While the source of funding likely does not affect the integrity of the NRC’s review or its committee’s conclusions, it does play a significant role in

459. See *supra* text accompanying notes 190–192. President George W. Bush lost the state of Oregon by less than a percentage point in the 2000 election. Tom Hamburger, *Water Saga Illuminated: Rove’s Methods*, WALL ST. J., July 30, 2003, at A4.

460. Cart, *supra* note 197.

461. See *supra* text accompanying notes 355–358.

462. See Press Release, Sen. Dianne Feinstein, Senate Approves FY 2010 Interior-Environment Appropriations Bill Conference Report (Oct. 29, 2009), http://www.feinstein.senate.gov/public/index.cfm?FuseAction=NewsRoom.PressReleases&ContentRecord_id=a69e9e68-5056-8059-76fe-0222c64c9d74&Region_id=&Issue_id=

463. See *supra* text accompanying note 334.

464. See, e.g., J.R. DeShazo & Jody Freeman, *The Congressional Competition to Control Delegated Power*, 81 TEX. L. REV. 1443, 1490 (2003) (“Members of appropriations committees also exert considerable influence over agencies.”); *id.* at 1489 (quoting President Woodrow Wilson’s description of the legislative process as “government by the chairmen of the standing committees of Congress”); see also Stephen G. Calabresi & Nicholas Terrell, *The Fatally Flawed Theory of the Unbundled Executive*, 93 MINN. L. REV. 1696, 1700 (2009) (describing, as an alternative to unitary executive control, congressional oversight by “appropriations committees and their chairs who represent particular, small, idiosyncratic congressional districts and states and who tend to be captured by special-interest groups”).

465. In 2001, former Senate appropriations committee chair Ted Stevens (R-Alaska) took actions strikingly similar to Senator Feinstein’s. Unhappy with the agency’s conclusion that a commercial fishery plan jeopardized the listed Stellar sea lion in a court-ordered NMFS BiOp, Senator Stevens attached a rider to an appropriations bill that suspended implementation of the opinion and required a NRC review. Bryant, *supra* note 19, at 185.

determining which studies the NRC conducts in the first place. The NRC retains ultimate authority over whether to take on a study, but its staff is beholden to funding sources to support their work. And although the NRC receives some funding from foundations and private sources, the largest source by far is the federal government.⁴⁶⁶ This creates a powerful incentive for the institution to grant requests for reports from influential lawmakers; it is unclear how often—if ever—the NRC declines such congressional requests.

Because the NRC relies on federal funding, and typically responds to congressional or agency requests instead of developing report topics on their own, politics may inevitably play a role in posing the questions that the NRC seeks to answer. Further, as Professor Mount noted when reflecting on the Klamath NRC study, political forces might frame a statement of task to achieve desired results.⁴⁶⁷ Indeed, some found it “plausible” that Bush Administration officials carefully worded the Klamath NRC committee’s initial charge to produce a foregone conclusion.⁴⁶⁸

Unfortunately, the NRC is not particularly transparent about how it settles on a final statement of task, which leaves the public guessing about whether politics played any role in framing the questions. The NRC asserts that it “works with the government sponsor” to develop a study charge, and will reformulate it if necessary.⁴⁶⁹ However, although the final Delta committee statement of task reflected some input from Secretaries Salazar and Locke, it remained “little changed” from the initial list of study questions forwarded by Senator Feinstein on behalf of an interested stakeholder.⁴⁷⁰ Meanwhile, the NRC took more than seven months to settle on a final statement of task for the Point Reyes NRC report, yet never explained why it took so long, who argued for what changes, or how these factors may or may not have affected the study’s final scope. By contrast, the MMC posted on its website its initial draft of the Point Reyes study charge (or “terms of reference”), as well as annotated comments from several different stakeholders.⁴⁷¹

All three case studies reveal that politics play a role in framing regulatory peer review, even if the study itself is rigidly independent. However, in the Delta at least, even the NRC review process was not free from politics. For example, the NRC asserts that government sponsors do not control meeting agendas.⁴⁷² But the Delta NRC committee agenda gave the first speaking

466. It is difficult to calculate the individual annual budget of the NRC as compared to the NAS. In 1996–1997 federal sources of NAS funding equaled \$144 million, as compared to about \$27 million from nonfederal grants, contracts, and other contributions. Dwyer, *supra* note 68, at 7–8.

467. See *supra* text accompanying note 189.

468. Carden, *supra* note 9, at 255.

469. See *supra* text accompanying notes 72–77.

470. See *supra* text accompanying notes 359–360.

471. See *Background Documents*, *supra* note 263.

472. See *supra* note 91.

opportunity to a lawmaker who opposed the regulations and who used the political platform to crowd out testimony from regional scientific experts.⁴⁷³

Ultimately, political influence in NRC reviews threatens to undercut the organization's unique credibility and independence. Although regulatory peer review might seem most useful in areas of political controversy, it also runs the risk of being swept into the fray and ultimately appearing as little more than a political tool. Senator Feinstein's actions on behalf of a wealthy donor in the Delta made the NRC committee's study look like an overtly political act. NRC staff members lamented that the resulting media coverage called into question the review's legitimacy before it even began. "[T]here is always political pressure," the Delta NRC committee chairman later admitted.⁴⁷⁴

4. Broadening the Scope of Deliberation

Regulatory peer review can provide new information to guide agency decision making and research.⁴⁷⁵ The Klamath NRC report, for example, highlighted existing data gaps and triggered, for the first time, meetings focusing on the science of both the upper and lower basins.⁴⁷⁶ In Point Reyes, Park Service officials agreed that the NRC report would be a valuable guide for future scientific research—in fact, it already prompted a long-overdue MMC study of harbor seals in Drakes Estero. In the Delta as well, the Obama Administration quickly approved a task force to explore the report's recommendation about coordinating the FWS and NMFS BiOps, and the April 2011 NRC report will likely have a strong influence on the upcoming BDCP.

Another benefit of regulatory peer review—and interdisciplinary NRC committees in particular—is the ability to uncover new solutions to an environmental problem. This can be particularly useful in the ESA context, where much of the regulatory work follows the statute's narrow, species-by-species approach. Thus, some credit the Klamath NRC committee's final report for bringing a refreshingly broad view toward resolving the basin's environmental problems.⁴⁷⁷ In many respects, it is still too early to judge the Delta NRC committee's efficacy, but its second and third reports may provide a useful, holistic perspective for the BDCP and future management efforts.

NRC committees often earn praise for their carefully balanced composition and group consensus model.⁴⁷⁸ In ensuring representation of a

473. See *supra* text accompanying notes 369–373.

474. Sullivan, *Elite Science Panel*, *supra* note 433.

475. See McGarity, *Resisting Regulation*, *supra* note 27, at 1158; see also Policansky, *supra* note 4, at 616 (noting many newspaper editorials and articles praised the 1996 Pacific Northwest salmon NRC report as a starting point for additional analysis).

476. See Doremus & Tarlock, *Judgment*, *supra* note 9, at 33.

477. See *id.* at 32–33 (noting that the Klamath NRC committee included representatives from disciplines like limnology, whereas a typical BiOp peer review would likely include only a few fishery experts).

478. See, e.g., BIPARTISAN POLICY CENTER, *supra* note 107, at 6–7, 23–24 (praising the

wide range of disciplines, however, the NRC committees may miss out on a breadth of perspectives within a particular field.⁴⁷⁹ Indeed, Professor McGuire's resignation letter described the Delta NRC committee as a group of partisans with "fixed points of view."⁴⁸⁰ Thus, for a truly balanced review, some commentators have suggested that the NRC limit the number of disciplines represented but include at least two or three members from each field on the panel.⁴⁸¹

NRC committees produce written reports that have the potential to improve public understanding and, thus, political participation and deliberation on an issue. However, both the nature and cost of the reports pose significant impediments to widespread public use. Because the reports are relatively technical in nature, they will likely only appeal to well-educated researchers or directly interested members of the public. Further, although electronic copies are sometimes available free of charge on the NAS website, the reports often cost as much as thirty or forty dollars—likely well outside the price range of most of the public.

The technical nature and high cost of availability, then, heighten the role of the press as an intermediary that will determine what effect NRC reports have on public opinion or the underlying controversy. NRC reports often generate substantial media coverage. However, given the press's scientific illiteracy and predilection for conflict, it is unclear whether media coverage can truly educate the public about the NRC reports as an informative resource. As seen in the three case studies, members of the press generally described the reports in adversarial terms and allowed stakeholders on either side to spin the results. Some of that may have stemmed from the timing of the reports, which—instead of coming earlier in the decision-making process—all appeared post-hoc and thus invited comparison to the agencies' earlier regulatory stance.

Thus, the post-hoc, adjudicatory nature of the recent NRC reviews significantly constrains their ability to help formulate agency policies and regulations. Previous commentators have argued that regulatory peer review is far more effective and productive when it serves a "brainstorming" function earlier in the decision-making process, rather than an adversarial one toward the end.⁴⁸² Examples of particularly useful NRC reviews also occurred earlier

NRC committee selection process as a model for achieving balanced, unbiased panels); GAO, FEDERAL ADVISORY COMMITTEES, *supra* note 36, at 42 (same).

479. See Doremus, *Best Available Science*, *supra* note 4, at 448 n.290.

480. See McGuire Letter, *supra* note 412 ("If having a strong point of view on the critical factors affecting fish survival in the Delta was a reason not to be on the committee, then many of the Committee members should not have been asked to be part of the Committee in the first place.").

481. Doremus, *Best Available Science*, *supra* note 4, at 448 n.290.

482. See Noah, *supra* note 31, at 1060; see also Dwyer, *supra* note 68, at 14 ("[Q]uestions should be asked at the earliest stage of a problem to allow scientists to offer guidance well in advance of actual decision-making.").

in the process and provided answers to more forward-looking questions.⁴⁸³ Thus, recent reviews stray from the organization's stated mission of advising agencies, and instead tend to review their decisions after the fact, arming regulatory opponents for challenges in Congress or in the courts.

In Point Reyes, for example, the NRC study served no deliberative function for the Park Service, which had already stated its belief that it had no legal discretion to extend the Oyster Company's operation.⁴⁸⁴ The NRC committee also acknowledged that additional scientific information would not affect the agency's decision absent further direction from Congress.⁴⁸⁵ Thus, in hindsight, the report's commission seems deliberately intended to justify Senator Feinstein's second attempt at a rider and to achieve her desired policy outcome.

Similarly, in the Klamath and the Delta, the NRC's review of final BiOps occurred too late in the process to help the agencies repair mistakes or reduce uncertainties. Instead, the NRC committees functioned more as a "science court," brought in at the end of the process to resolve the adversaries' conflicting positions on issues that transcended science.⁴⁸⁶ In fact, both sets of BiOps had already been challenged in "regular" court.⁴⁸⁷ Senator Feinstein cited these pending lawsuits to justify the Delta NRC study, and used legal language to describe the report's possible outcomes,⁴⁸⁸ even though the reports had no legally binding effect.

The NRC's role as a de facto science court poses several administrative law problems further explored in the sections below. For one, it raises the evidentiary burden on agencies above the statutory standard delineated in the APA. It also may unintentionally hand over policy discretion to unaccountable committee members. Moreover, it has the potential to exacerbate conflict, contrary to NRC's purported goal of helping to resolve it. Professor Shapiro suggests that if post-hoc regulatory peer review is an example of fire-alarm oversight, then an earlier review would be more like a fire inspection.⁴⁸⁹ In some instances, however, post-hoc reviews do not even resemble a fire alarm—but rather a dry bundle of kindling, tossed onto a smoldering regulatory dispute to help fuel the controversy.

483. See, e.g., Policansky, *supra* note 4, at 614–16 (referring to NRC reports on science and the ESA, as well as salmon declines in the Pacific Northwest).

484. See *supra* text accompanying notes 211–213.

485. See *supra* text accompanying notes 245–247.

486. Noah, *supra* note 31, at 1077–78 (describing problems with post-hoc regulatory peer review).

487. See *supra* text accompanying notes 139–140; Feinstein, *Viewpoints*, *supra* note 348.

488. *Id.* (asserting that the committee "could very well uphold the pumping restrictions . . . or it could determine that they are not based on the *best available science*") (emphasis added).

489. Shapiro & Guston, *supra* note 10, at 542.

B. Empirical Costs of NRC Review

1. Diverting Resources

Though all forms of regulatory peer review impose costs,⁴⁹⁰ NRC studies are especially rigorous and, thus, even more resource intensive.⁴⁹¹ Taken together, NRC reviews in the three case studies cost roughly two million dollars in taxpayer funds. They also likely diverted agency resources through attendance of staff at NRC meetings and through providing the committee with information and materials. An EPA fishery biologist opposed the Delta NRC review precisely because it would take regional experts away from other important work.⁴⁹²

No one advocates for less-intensive NRC studies, as that would defeat the benefits of a thorough regulatory peer review.⁴⁹³ But at the same time, almost everyone acknowledges that it would be far too costly to apply such a rigorous level of review to all regulatory decisions.⁴⁹⁴ So the question becomes: When and how frequently should the NRC reviews be employed? Deciding whether the NRC reports' substantial costs are worthwhile likely depends on how often agencies overstate the scientific support behind their regulatory decisions. Professor Ruhl—generally a proponent of regulatory peer review—admitted that there is little data regarding the extent of the problem, whether the benefits of detecting those instances would justify the costs, or whether it would even matter from the standpoint of reaching sound policy decisions.⁴⁹⁵

In fact, environmental regulatory agencies typically fare well in most NRC reviews: of seven NRC studies of specific ESA decisions, including the Delta, the Klamath report is the only one that fundamentally disagreed with the regulatory action taken.⁴⁹⁶ True, the Point Reyes NRC report found that Seashore officials had misrepresented some science.⁴⁹⁷ But that does not necessarily justify the \$400,000 price tag for the review, because the agency already acknowledged those misrepresentations in an earlier clarification report and the scientific statements had no bearing on the agency's policy choices.⁴⁹⁸

490. See *supra* text accompanying note 110.

491. See Doremus, *Best Available Science*, *supra* note 4, at 447.

492. Taugher, *Farm Baron*, *supra* note 189.

493. Professor Ruhl "strongly doubts" that a less intense peer review would have revealed the gaps in agency reasoning that the NRC committee did. Ruhl, *Prescribing*, *supra* note 12, at 421.

494. See, e.g., Doremus, *Best Available Science*, *supra* note 4, at 447–48 & n.289 (calling it "absurd" and infeasible to convene NRC-like reviews for all ESA regulatory decisions); Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 11 (recommending randomized regulatory peer review).

495. Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 7–8.

496. See Doremus & Tarlock, *Judgment*, *supra* note 9, at 23 n.101.

497. See *supra* text accompanying notes 242–243.

498. See *supra* text accompanying notes 226–227, 237.

Regulatory peer review proponents might argue that legitimizing an agency decision, or identifying gaps in knowledge for future research, also justify the studies' costs. But those resources come at the expense of other scientific endeavors. If one relies too heavily on science to resolve regulatory questions, scientific resources will be spent reducing uncertainties pertinent to a particular dispute between two parties, rather than researching and addressing larger societal problems.⁴⁹⁹

The trend of NRC committees producing one initial report within a few months, and then spending at least another year on a broader study, also poses potential resource allocation problems. First, the incredibly short deadline for the first report may compromise the quality of the committee's work. The Klamath committee's interim report, produced in only three months and using language far less nuanced than that of most NRC publications, engendered significant criticism in the scientific literature.⁵⁰⁰ Similarly, McGuire's resignation letter from the Delta NRC committee referred to the "terribly short deadline" that prevented him and Professor Glibert from pressing for stronger language about the importance of other stressors in the Delta.⁵⁰¹

Second, the lengthy year-plus timelines for NRC committees' second reports may cause foot dragging by agency decision makers. Agency officials may hesitate to take further regulatory actions out of fear that such actions will conflict with a later NRC report. Some Delta stakeholders raised this concern about the timing of the second NRC study in the context of the BDCP, prompting the agencies to commission and fast-track a third NRC report specific to the recovery plan.⁵⁰²

2. Evading Accountability

A major concern in administrative law is preserving accountability over policy decisions delegated to executive agencies by Congress. This concern is heightened in the regulatory peer review context, where relying on external reviewers may unintentionally abdicate policy decisions from partially accountable agency officials to wholly unaccountable outside experts.⁵⁰³ In any research discipline, people tend to conform their analysis to previously formed conclusions. Thus, NRC committee members' policy judgments may inevitably seep into the organization's scientific reviews. Further, under the guise of "expertise," some science advisors consider it within their realm to serve as policy advocates.⁵⁰⁴ Lacking humility, a former NAS president once suggested

499. See Sarewitz, *supra* note 445, at 399 ("The opportunity cost may be huge.").

500. See *supra* text accompanying notes 175–178.

501. McGuire Letter, *supra* note 412.

502. See *supra* text accompanying notes 431–434.

503. See Noah, *supra* note 31, at 1051–52 (citing Powell, *supra* note 113, at n.70).

504. See Wagner, *Science Charade*, *supra* note 18, at 1700 (citing JASANOFF, *supra* note 32, at 237).

that science-policy decisions should be left to the “knowledgeable wise men” of science.⁵⁰⁵

The dual resignations from the Delta committee highlight two potential accountability problems in the NRC selection process. First, they show the difficulty of filling a committee with experts who are knowledgeable, but also disinterested. Because scientific experts come to an NRC committee with particular research agendas and publication histories, they may interpret relevant information through the lens of conclusions derived from their personal work.⁵⁰⁶ Professor Glibert’s research clearly gave her some authority on other stressors in the estuary, but it also may have resulted in a perceived bias for the task at hand. McGuire’s subsequent caustic resignation letter also alleged that the committee comprised not disinterested experts, but rather a group of divided partisans with “fixed points of view.”⁵⁰⁷

Second, Professor Glibert’s resignation highlights the lack of transparency around NRC committee selection, which is “inevitably a critical step” in the overall review.⁵⁰⁸ According to McGuire’s letter, Professor Glibert disclosed her research and preliminary findings to the rest of the NRC committee in its initial closed-door discussion of potential conflicts. This information was not shared with the public, however, and—given its relevance—is notably absent from her public biography included in NRC materials.⁵⁰⁹ The NRC invites public comment on provisional committee members, but does not make those comments publicly available. By contrast, the MMC published on its website comments in favor and against proposed Point Reyes panel members.⁵¹⁰ Without more transparency and information at the NRC, many commentators are left wondering what exactly about Professor Glibert’s research prompted her forced resignation—its strong conclusions, its funding sources, or its unwanted publicity?

Along these lines, NRC committees—like many other science advisory boards—lack the type of administrative procedural safeguards that typically affords the public an opportunity to participate in and voice its concerns about agency decisions.⁵¹¹ Regulatory peer review conducted earlier in the agency’s decision-making process fits more comfortably within the conventional APA notice-and-comment framework, as it allows both the agency and members of

505. *See id.* at 1672.

506. In Point Reyes, near the same time as the NRC report’s release, two committee members appeared together in a publication trumpeting the “enormous” potential for oyster mariculture. Marziali, *supra* note 249.

507. *See McGuire Letter, supra* note 412 (“If having a strong point of view on the critical factors affecting fish survival in the Delta was a reason not to be on the committee, then many of the Committee members should not have been asked to be part of the Committee in the first place.”).

508. *See Doremus, Science Plays Defense, supra* note 20, at 303.

509. *See, e.g., BAY DELTA NRC REPORT, supra* note 301, at 66.

510. *See Background Documents, supra* note 263.

511. Wagner, *Science Charade, supra* note 18, at 1701.

the public to respond to aspects of the report they disagree with or dislike.⁵¹² The problem of unaccountable policy intrusion is heightened in post-hoc regulatory peer review, however, which effectively asks scientists to resolve policy questions in the absence of meaningful dialogue.⁵¹³

In the Klamath, several commentators voiced concerns about committee members' policy choices intruding into the NRC report. Even irrigators commented that the NRC's interim report "appear[ed] to be more a political assessment instead of an objective look at the science."⁵¹⁴ Professors Doremus and Tarlock discerned a policy preference in the Klamath committee chairman, and possibly other members, to protect against and rein in overregulation.⁵¹⁵ In a published defense of the report, the committee chair wrote that agency science merited special attention "[w]here the economic stakes are high."⁵¹⁶ This ignores the special legal context of the ESA, however, which expressly prohibits economic cost considerations in many regulatory decisions made under the statute.⁵¹⁷

The Klamath committee also criticized FWS and NMFS for focusing their ESA regulatory efforts on consultation proceedings with the Bureau of Reclamation for the Klamath Project,⁵¹⁸ rather than on direct enforcement measures against possible threats to the fish elsewhere in the Basin. The committee believed that regulating the federal irrigation project alone was inequitable and would prove ineffective.⁵¹⁹ But those kinds of enforcement decisions traditionally fall within the executive's prosecutorial discretion, and—even with the benefit of hindsight—the agencies had reasonable grounds to believe that targeting their efforts on the Basin's largest diverter of water would yield the greatest conservation return.⁵²⁰

512. Doremus & Tarlock, *Judgment*, *supra* note 9, at 35 ("Just as the authors of [scientific] journal articles have the opportunity to respond to negative reviews, regulatory agencies should have the opportunity to respond to external reviews. Reviews of regulatory decisions should move the conversation forward, not automatically supply the final word."); *see also* Wymyslo, *supra* note 52, at 137 (recommending that regulatory peer review of ESA listing decisions occur prior to the public comment period).

513. Noah, *supra* note 31, at 1077–78.

514. Carden, *supra* note 9, at 255 n.628 (citing *Klamath Basin Report Riddled With Errors*, *OSU Researchers Say*, U.S. WATER NEWS ONLINE, Nov. 2002).

515. Doremus & Tarlock, *Judgment*, *supra* note 9, at 16.

516. *Id.* at 16 (citing Lewis, *supra* note 180).

517. *See* Tennessee Valley Auth. v. Hill, 437 U.S. 153, 184 (1978) ("The plain intent of Congress in enacting [the ESA] was to halt and reverse the trend toward species extinction, *whatever the cost*. This is reflected not only in the stated policies of the Act, but in literally every section of the statute.") (emphasis added); Arizona Cattle Growers Ass'n v. Salazar, 606 F.3d 1160, 1173 (9th Cir. 2010) ("Congress has directed the FWS to list species, and thus impose a regulatory burden, without consideration of the costs of doing so." (citing 16 U.S.C. § 1533(a))).

518. Doremus & Tarlock, *Judgment*, *supra* note 9, at 12–13.

519. *Id.* at 12.

520. *Id.* at 13.

Perhaps aware of the criticism directed at the Klamath report, the Point Reyes and Delta committees did a better job of patrolling their own policy judgments and explicitly stating that their scientific conclusions were distinct from underlying policy decisions. In Point Reyes, however, committee members may have unwittingly revealed their policy biases by using value-laden words such as “beneficial” or “enhance” when characterizing certain ecological changes.⁵²¹

3. *Straying from Statutory Mandates and Authority*

Related to the accountability concern is another fundamental principle of administrative law: agencies only have the power delegated to them by Congress.⁵²² However, actual NRC reviews may stray from the specific legal framework underlying an agency’s decision, even though sponsoring government agencies help negotiate the studies’ statements of task. For example, NRC reports often recommend steps that fall outside the sponsoring agencies’ statutory authority.⁵²³ In Point Reyes, the NRC committee contemplated construction of a collaborative interpretive center if the Seashore extended the Oyster Company’s operation beyond 2012, even though Park Service officials steadfastly maintained that the agency lacked such authority.⁵²⁴ Similarly, the report mentioned the possibility of restoring native oysters to the estuary, without analyzing whether that would be consistent with the Park Service’s mandate under the Wilderness Act.⁵²⁵ The Delta report also included several recommendations that likely fell outside the agencies’ legal authority or mandate, such as integrating the RPAs and coordinating the two BiOps.⁵²⁶ Yet to its credit, the committee included a disclaimer when it did so.

Just as NRC committees recommend actions outside of existing statutory mandates, they also impose on agencies a more rigorous review than the deferential “arbitrary [and] capricious” standard codified in the APA.⁵²⁷ By conducting a peer review akin to that of an academic research setting, NRC committees raise the agencies’ evidentiary burden.⁵²⁸ The Supreme Court in

521. See *supra* text accompanying note 261.

522. See Administrative Procedure Act, 5 U.S.C. § 706(2)(C) (2006) (directing that a court shall set aside an agency action “in excess of statutory jurisdiction, authority, or limitations”).

523. A NRC report reviewing a Steller sea lion BiOp assumed without analysis that its adaptive management recommendations would comply with the ESA. See Bryant, *supra* note 19, at 207–08. The NOAA general counsel cautioned it would be unacceptable to “experiment Steller sea lions into jeopardy,” and other members of the Fishery Council agreed that it would be “contrary to the mandates of the ESA.” *Id.* at 192.

524. POINT REYES NRC REPORT, *supra* note 196, at 82–83; Dennis Comments, *supra* note 257, at 4.

525. POINT REYES NRC REPORT, *supra* note 196 at 83.

526. BAY DELTA NRC REPORT, *supra* note 301, at 6–7.

527. See 5 U.S.C. § 706.

528. Shapiro & Guston, *supra* note 10, 542 n.17 (citing Jasanoff’s distinction between regulatory science and academic science, and noting that “[i]f regulatory peer reviewers are

Daubert created peer review evidentiary rules for expert science testimony in the courtroom;⁵²⁹ NRC reviews improperly extend a similar requirement to specific agency regulatory decisions.

The heightened evidentiary burden is particularly consequential in the context of precautionary environmental statutes like the ESA, where the standard of review and burden of proof are frequently determinative factors.⁵³⁰ Environmental advocates are concerned about false negatives and underregulation: they want agencies to apply the precautionary principle and enforce regulatory protections even if the supporting science is less than certain.⁵³¹ But regulatory opponents, like research scientists, are more concerned about false positives: they expect agencies to meet the high degree of confidence required by research norms before imposing any restrictions.⁵³²

The Klamath NRC review highlights the problematic result of applying rigorous scientific research standards to agency regulatory decisions.⁵³³ As a member of the NRC committee, Professor Ruhl “saw first hand” the difference standards can make.⁵³⁴ He acknowledged that the BiOps likely would have withstood a legal challenge under arbitrary and capricious review, and that numerous commentators complained to the committee that the NRC interim report improperly placed the burden of proof on the agencies.⁵³⁵ But Professor Ruhl defended the higher scrutiny applied by the committee because the statement of task required it to apply the scientific peer review standard, not “whatever legal burden of proof applies under the ESA.”⁵³⁶

inculcated in the norms of academic science, they may apply inappropriate standards to the evaluation of the product of regulatory science”).

529. *Daubert v. Merrell Dow Pharm.*, 509 U.S. 579, 590–95 (1993).

530. See Carden, *supra* note 9, at 253–54.

531. See Doremus & Tarlock, *Judgment*, *supra* note 9, at 17.

532. See *id.*; Ruhl, *Battle*, *supra* note 52, at 559–60. Professor Ruhl takes the analysis one step further and recognizes three distinct “methodologies” or burdens of proof: (1) Scientific Method (requiring a high level of confidence before taking regulatory action); (2) Precautionary Principle Method (taking conservation action unless confident of no harm); and (3) Professional Judgment Method (leaving discretion to agency officials). *Id.* Notably, Professor Ruhl believes the Professional Judgment Method is the appropriate core standard for certain environmental regulatory decisions. *Id.* at 599. For positive analyses of Professor Ruhl’s methodology distinctions, see Carden, *supra* note 9, at 217–22, and Doremus, *Best Available Science*, *supra* note 4, at 439.

533. McGarvey & Marshall, *supra* note 121, at 104. (“[The different standards of review explain] why the FWS and the NRC committee, upon analyzing the same data, reached opposite conclusions.”)

534. Ruhl, *Battle*, *supra* note 52, at 585.

535. *Id.* at 587–88 (“[I]t does suggest the peer review filter can be considerably finer than the judicial review filter.”); *id.* at 591; see also McGarvey & Marshall, *supra* note 121, at 105 (“Critics of the Interim Report contend that the NRC Committee should have applied the ‘precautionary principle.’”).

536. Ruhl, *Battle*, *supra* note 52, at 585, 592 (noting that the “statement of task did not ask the Klamath Committee to assess whether the [BiOps] were ‘arbitrary and capricious’”); Ruhl, *Prescribing*, *supra* note 12, at 418–19 (“[The committee] was not filling the shoes of a court on judicial review assessing whether the biological opinions were ‘arbitrary and capricious.’ Rather,

Many commentators warn against applying research norms in environmental regulatory settings because the economic costs of overregulation are often reversible, whereas the environmental costs of underregulation can be permanent.⁵³⁷ A NRC report published in 1995 expressed concern that when research standards are followed in ESA decision making, they often lead to a systematic bias against protecting species.⁵³⁸ Professor Ruhl himself wrote that research standards threatened to “strangle the ESA to death,” and said in a press interview about the Delta NRC review that if every ESA decision had to withstand such rigorous peer review, the ESA “would grind to a complete halt.”⁵³⁹

The higher standard of review seemed to be one of the primary reasons that Senator Feinstein empanelled the Delta NRC review.⁵⁴⁰ Echoing the chairman of the Klamath NRC committee, Senator Feinstein and other agricultural stakeholders suggested that regulatory decisions with large economic effects ought to be held to a higher standard of review.⁵⁴¹ They did not acknowledge, however, that the actual economic impact of the Delta BiOp water restrictions was hotly contested, nor that the ESA prohibits cost considerations in many of its regulations.

Perhaps aware of the criticism levied at the Klamath committee, the Delta NRC report applied a slightly more deferential standard.⁵⁴² It used phrases like

we were asked, in effect, to subject a discrete agency decision to rigorous, independent, scientific peer review.”). Others argued that the statement of task did not require the committee to apply research standards, and that its decision to do so reflected a bias on its part against overregulation. See Doremus & Tarlock, *Judgment*, *supra* note 9, at 16.

537. See, e.g., Doremus, *Science Plays Defense*, *supra* note 20, at 264; see also Carden, *supra* note 9, at 253 (arguing the NRC’s much higher burden of proof is “generally inappropriate in the species conservation context”); McGarvey & Marshall, *supra* note 121, at 75 (arguing research standards of confidence are “fundamentally incongruous” with the ESA).

538. McGarvey & Marshall, *supra* note 121, at 110 (quoting NAT’L RESEARCH COUNCIL, SCIENCE AND THE ENDANGERED SPECIES ACT (1995)).

539. Ruhl, *Battle*, *supra* note 52, at 590; Taugher, *Farm Baron*, *supra* note 189.

540. The evidentiary standard in the Point Reyes NRC report was less controversial because it reviewed a Park Service science report instead of an agency regulatory decision. But even there, given references in subsequent press coverage to a “clean bill of health,” the report may not have adequately explained that the lack of evidence of major adverse ecological effects did not prove the absence of those effects. And the report did not provide much context about wilderness protection laws, wherein false negatives are likely a greater concern than false positives.

541. Doremus & Tarlock, *Judgment*, *supra* note 9, at 16 (citing Lewis, *supra* note 179); Feinstein, *Viewpoints*, *supra* note 348; Weiser, *Prompts Fight*, *supra* note 5.

542. The Steller sea lion NRC review also applied a more deferential standard. In the face of scientific uncertainty, the underlying agency BiOp adopted a precautionary strategy regulating fishery management. Bryant, *supra* note 19, at 183. Senator Stevens argued that the burden should be on the agency to prove that fisheries caused the decline, and helped pass the rider directing the NRC to conduct a review. *Id.* at 185. The 2003 NRC report found little support for localized fishery depletion as the primary factor inhibiting sea lion recovery, but—with insufficient evidence to rule it out—endorsed the fishery restrictions as a “reasonable response.” *Id.* at 186 (citing NAT’L RESEARCH COUNCIL, THE DECLINE OF THE STELLER SEA LION IN ALASKAN WATERS: UNTANGLING FOOD WEBS AND FISHING NETS 8 (2003)).

“scientifically justified” and “scientifically reasonable”—much more appropriate in the regulatory context than in research norms—and deferred to the agency when it could not find sufficient evidence to express confidence in alternative RPAs. The Delta NRC committee also went out of its way to include a lengthy section describing the APA “arbitrary and capricious” standard. Thus, even if the committee applied research norms in its own review, it explicitly recognized “the importance of the legal context within which its evaluation takes place.”⁵⁴³

The Klamath NRC reports, unfortunately, did not contain a similar disclaimer. Professor Ruhl later asserted that the Klamath committee was not “filling the shoes of a court on judicial review,” but the strongly worded interim report seemed almost naive about its practical effects.⁵⁴⁴ As discussed previously, post-hoc regulatory peer review functions as a science court in some ways. This exacerbates the problem of heightened review standards by upsetting the traditional deferential approach exercised during judicial review of agency decisions in administrative law. True, that deferential approach is one cause of the science charade identified by Professor Wagner. However, when individual lawmakers intervene to empanel NRC studies of specific regulatory decisions, it is as if they are unilaterally amending APA Section 706 in particular cases for political reasons. Congress or the courts—not individual lawmakers, or unaccountable experts—are the institutions best situated to identify and apply the appropriate standard of review.⁵⁴⁵

4. Providing Ammunition to Regulatory Opponents

The higher “scientific research” standard of review will inevitably identify flaws and uncertainties in agencies’ regulatory decisions because they are based on limited information.⁵⁴⁶ Indeed, scientific research often aims at finding false positives, weaknesses, or gaps in others’ work, rather than supporting their primary thrust; thus, regulatory peer review will often devolve into a flyspecking exercise.⁵⁴⁷ Even if a NRC report largely endorses an agency

543. BAY DELTA NRC REPORT, *supra* note 301, at 13.

544. Ruhl, *Battle*, *supra* note 52, at 585.

545. See McGarvey & Marshall, *supra* note 121, at 105 (suggesting that society should choose through the political process how to assign the burden of proof).

546. See McGarity, *Resisting Regulation*, *supra* note 27, at 1191 (“In the messy world of regulatory science where perfection is impossible, the scientists on [a review] panel can be relied upon to identify one or more aspects of virtually any study that could stand improvement.”).

547. See Doremus & Tarlock, *Judgment*, *supra* note 9, at 34; see also McGarity, *Sound Science*, *supra* note 25, at 921–26 (describing a “corpuscular approach” where opponents pick apart a scientific study based on only one flaw). In addition, interested parties can often seek to shore up their case by overwhelming the peer review panel with information supporting their side. See Doremus & Tarlock, *Judgment*, *supra* note 9, at 34 n.140 (describing a similar “trivial data overload” created by a consulting firm hired by water users that sought to overwhelm the Platte River NRC committee with detailed criticisms of the regulatory agency’s conclusions regarding the Platte’s channel dynamics).

decision as scientifically sound, it will almost always identify areas that could be improved.⁵⁴⁸ The primary conclusion of the Delta NRC report, for example, was that the BiOps' most controversial RPAs were "scientifically justified."⁵⁴⁹ But the report also noted some areas of uncertainty, which opponents highlighted in subsequent press reports and Judge Wanger cited in his order enjoining the smelt BiOp.⁵⁵⁰

Heightening the problem in all three case studies were the underlying, highly charged political controversies; adversarial media coverage and pending litigation all but guaranteed that various stakeholders would seek to spin the reports to their advantage. Flaws identified in rigorous NRC reports give antiregulatory forces additional grounds upon which to challenge an agency action, making judicial review more likely.⁵⁵¹ Regulatory peer review then seems to function almost as a pretrial discovery process run by expert, taxpayer-funded consultants. Any negative comments in the reports will make agency rules more vulnerable to suit and to reversal at trial, which suggests regulatory peer review potentially should occur earlier in the agency's decision-making process.⁵⁵²

The Klamath BiOps, for instance, had survived an earlier preliminary injunction challenge, and Professor Ruhl thinks it is "almost certain" that a court would have upheld the BiOps absent the NRC report's findings.⁵⁵³ Yet the higher standard of review applied by the NRC committee revealed flaws in agency decision making that conventional judicial review likely would not have detected or, possibly, would not have deemed arbitrary and capricious.

In the Delta, meanwhile, Senator Feinstein requested the NRC report on behalf of a litigant and explicitly cited the pending litigation to help justify the NRC review.⁵⁵⁴ She suggested that a positive report would all but moot the lawsuits; however, there is no indication that any plaintiff ever intended to drop its suit based on the NRC's views. And although the report likely did not affect the outcome of Judge Wanger's recent rulings, he did notably cite some of the report's more nuanced findings to support enjoining the BiOps.⁵⁵⁵

548. See, e.g., Policansky, *supra* note 4, at 614 (describing a NRC report on wetland delineation that concluded the federal regulatory system was generally scientifically sound and effective, but through reforms could become more efficient, uniform, credible, and accurate).

549. See *supra* text accompanying note 383.

550. See *supra* text accompanying notes 403, 422–424.

551. Shapiro & Guston, *supra* note 10, at 547.

552. Noah, *supra* note 31, at 1065, 1067; see also Wymyslo, *supra* note 52, at 152 ("[B]ecause the existing peer review for [ESA] listing decisions occurs after a listing has been proposed . . . agencies are more inclined to view comments as potential lawsuits and treat dissent as a hostile objection to agency expertise.").

553. Ruhl, *Prescribing*, *supra* note 12, at 419 & n.77.

554. An expert hired by a plaintiff's attorney testified at the NRC hearing, making the post-hoc regulatory peer review look even more like a science court. See Weiser, *Steady Flow*, *supra* note 311.

555. See *supra* text accompanying notes 423–426.

Regulatory peer review also provides stakeholders with ammunition to wage their battles in the court of public opinion. The NRC actively promotes media coverage of its committee reports to broaden their reach.⁵⁵⁶ But the American public is “overwhelmingly scientifically illiterate,” which leaves the reports vulnerable to manipulation and misrepresentation in the press.⁵⁵⁷ The high price tag on the reports’ dissemination exacerbates this problem by heightening public reliance on the press as an intermediary.

Overall, the importance of rhetoric and media communication in the environmental policy arena has increased in recent years.⁵⁵⁸ And the NRC may unintentionally lend its imprimatur to regulatory opponents by echoing their “sound science” language. The NRC website states its commitment to providing advice based on “sound scientific evidence.”⁵⁵⁹ The initial Klamath NRC report also used the “sound science” phrase and did a particularly poor job patrolling its use of language. One commentator criticized the Klamath committee’s lack of media savvy and “apparent apathy” toward its broad, nonscientific audience, blaming the committee for “couching its conclusions in relatively facile language” and omitting much of the fundamental technical details of its review.⁵⁶⁰ Regulatory opponents cleverly cited language in the Klamath report to allege that the agencies engaged in “junk science.”⁵⁶¹ The resulting media coverage and political rhetoric likely had a lasting impact on the public’s perception of scientific integrity in implementing the ESA.⁵⁶²

The Point Reyes report, notably, did not use the “sound science” phrase and instead noted a “lack of strong scientific evidence.”⁵⁶³ However, Oyster Company supporters used the NRC’s criticisms to portray the report as a “vindication” and “clean bill of health,” and most of the resulting press coverage overlooked a key statement in the report that a lack of evidence showing significant ecological impacts does not prove that there are no effects.⁵⁶⁴ Oyster Company supporters also used the report to wage a public campaign against the new Park Service Director’s confirmation, which grew so

556. COMMITTEE PROCESS, *supra* note 66, at 15 (describing the National Academies’ media outreach efforts for NRC reports); *see also* Policansky, *supra* note 4, at 614 (describing a NRC wetlands delineation report that was frequently mentioned in newspaper editorials and news stories).

557. *See* Carden, *supra* note 9, at 175–76.

558. *See generally* Holly Doremus, *The Rhetoric and Reality of Nature Protection: Toward a New Discourse*, 57 WASH. & LEE L. REV. 11 (2000); *see also* Doremus, *Integrity*, *supra* note 47, at 1609–10 (describing a young public relations officer at NASA who effectively silenced outspoken climate scientist James Hansen).

559. *Welcome to the NRC*, *supra* note 56.

560. McGarvey & Marshall, *supra* note 121, at 111; *id.* at 83 (“The statements ‘I am not certain’ and ‘I am less than 95% certain, but more than 50% certain’ convey two very different messages. . . . [T]he [Klamath] NRC committee adopted the first approach . . .”).

561. *See supra* text accompanying note 120.

562. Carden, *supra* note 9, at 255–56.

563. *See supra* text accompanying note 239.

564. *See supra* text accompanying notes 248–250.

contentious that both the Seashore and NAS instituted gag orders to prevent officials from speaking with the local newspaper.⁵⁶⁵ The Delta NRC committee seemed particularly careful with its language, employing a more deferential “scientifically justified” phrase. But regulatory opponents still highlighted some of the report’s more critical findings in their press interviews, and Judge Wanger cited the report’s more nuanced uncertainties in his rulings enjoining the smelt BiOp.⁵⁶⁶

Regulatory peer review provides ammunition for antiregulatory pursuits in the legislative arena as well. In the Klamath and Point Reyes, lawmakers used the NRC reports to press for legislative amendments and riders that would gut ESA restrictions and existing wilderness protections. The Klamath NRC report provided fuel for ESA amendments and hostile congressional hearings, and Senator Feinstein used the Point Reyes report to justify her appropriations rider, which sought to extend the Oyster Company’s operation in potential wilderness. In the Delta, strangely, Senator Feinstein drafted an amendment to loosen water restrictions *before* the NRC had completed its review, but backed off when critics suggested that she wait for the report’s results.⁵⁶⁷ Senator Feinstein’s actions suggest that the NRC review was merely a pretext for promoting her political interests.

5. Fueling the Underlying Dispute

Because regulatory peer review provides ammunition to regulatory opponents, it often fuels ongoing controversy rather than addressing the underlying dispute. Several commentators have discussed how an increased emphasis on scientific information—gathered in part to resolve political disputes—often actually intensifies political controversy and gridlock.⁵⁶⁸ Because scientific evidence is almost always equivocal—especially in environmental disputes—it supplies contesting parties with their own interpretations and likely escalates the controversy by allowing all sides to selectively reinforce their beliefs.⁵⁶⁹ People almost always interpret mixed evidence as supporting their own preconceived view and refuting that of their opponents, which causes positions on both sides to ossify.⁵⁷⁰

565. See *supra* text accompanying notes 280–286.

566. See *supra* text accompanying notes 383, 397–407, 423–426.

567. See *supra* text accompanying notes 377–382.

568. See, e.g., Sarewitz, *supra* note 445, at 386; see also Doremus & Tarlock, *Judgment, supra* note 9, at 5 (citing CALFED as a failed example of reliance on required science-based regulatory decisions as a means to alleviate environmental conflicts).

569. See Bryant, *supra* note 19, at 205 (“Even as the parties pointed to science as the only hope for addressing the controversy, they used [the Steller sea lion NRC report] strategically within the legal-political management framework to advance their interests. . . . [S]cience alone cannot be a decisive factor, particularly in the ESA context, because it cannot force a political consensus.”).

570. Doremus & Tarlock, *Clash of Cultures, supra* note 4, at 343.

Indeed, instead of helping defuse the regulatory controversies or forging a consensus in any of the three case studies, the NRC reports uncovered additional uncertainties that stakeholders used to advance their policy preferences. In the Klamath, the NRC report never suggested that closing the irrigation headgates had been a poor policy decision. And yet, the report “sparked a firestorm” of controversy among regulatory opponents who cited it as purported evidence that the wildlife agencies used junk science in their decisions.⁵⁷¹ The report further polarized the region, and instead of providing “the last word” on the matter, the document itself became the subject of scientific scrutiny—prompting an exchange in *Fisheries* and an article in *Science*.⁵⁷² Professor Ruhl acknowledged that the clarity the NRC committee intended to add to the situation might have been “lost in the circus-like battle.”⁵⁷³

Similarly, the Point Reyes NRC report did not quiet the raucous dispute between wilderness advocates and Oyster Company supporters. Rather, it raised the decibel level by instigating yet another round of fighting over the historical presence of native oysters, as well as opening a new battlefield at the MMC.

The Delta report also provided both sides with sound bites that they used to spin the results. Judge Wanger’s rulings ensure that the battle over the BiOps will not end any time soon, and the high-profile resignations from the NRC committee may well cast a controversial cloud over the second and third NRC reports on the BDCP and other stressors in the watershed.

Even beyond the three case studies offered here, NRC reports have a poor track record in helping defuse controversial regulatory disputes. NRC staff member David Policansky analyzed four committee reports that helped agency decision making in some cases, “but never provided a complete resolution of the problem.”⁵⁷⁴ For example, a NRC study commissioned in a dispute over potential impacts from ocean acoustic measurements concluded that there was no statistically significant evidence of harm to marine mammals, but that a real effect might have been overlooked as a result of limited data.⁵⁷⁵ Different disciplines interpreted the results to fit their preconceived biases: oceanographers viewed the report as a green light and endorsement of safety, while biologists saw it as an affirmation of potential harm.⁵⁷⁶ Similarly, in a controversy concerning a Steller sea lion BiOp, “many hoped that the prestige

571. See *supra* text accompanying notes 120, 161.

572. See *supra* text accompanying notes 175–180.

573. Ruhl, *Battle*, *supra* note 52, at 603.

574. Policansky, *supra* note 4, at 610 (noting that scientific uncertainty aggravated the controversies).

575. Doremus, *Science Plays Defense*, *supra* note 20, at 281; Sarewtiz, *supra* note 445, at 390.

576. Doremus, *Science Plays Defense*, *supra* note 20, at 281; Sarewtiz, *supra* note 445, at 390.

and high profile” of the NRC would resolve the debate, but in the end it “did not offer the hoped-for holy grail of scientific certainty.”⁵⁷⁷ Instead, each side interpreted the remaining uncertainty in ways that supported its preferred policy outcome.⁵⁷⁸

In addition to providing self-reinforcing evidence to both sides, regulatory peer review may perpetuate and intensify the underlying controversies because it encourages arguments over science instead of addressing the actual value disputes. Most natural resource conflicts boil down to disagreements over values and priorities. Accordingly, unless an NRC report reveals that all competing goals can be achieved—an unlikely, if not impossible, outcome—it may reinforce the underlying conflict.⁵⁷⁹

Policansky noted that water resource controversies, in particular, are often couched in scientific terms when they are truly policy disputes. Thus, by focusing only on the scientific debate, NRC reports may serve to obscure and aggravate the actual conflict.⁵⁸⁰ In one example, Policansky suggested that the scientific debate about wetland delineation was really just a surrogate for concerns about federal regulation of private land, and thus the NRC report had a very limited effect on the root issue.⁵⁸¹ He concluded that NRC reports are most effective when they address the value judgments outright;⁵⁸² notably, none of the committees in the three discussed case studies did so.

In reality, the dispute in Point Reyes was not about the known ecological effects of the oyster farm, but rather about the competing values between local food production and wilderness protection. The NRC report explicitly noted that the decision about the oyster farm’s fate hinged on a value judgment—not a scientific one—but that point was largely lost in the subsequent media coverage.⁵⁸³ Senator Feinstein darkened the scientific smokescreen by continuing to cite the lack of evidence of ecological effects to support her legislative rider, yet never directly addressing the policy choice of reducing wilderness protections for a commercial operation.

The disputes in the Klamath and Delta, meanwhile, are about the degree to which we should strive to protect endangered fish at the expense of human consumptive water use. Complicating the issue are the inevitable complexities involved in both water systems and species conservation, which present multiple overlapping variables and values that are untestable and unanswerable

577. Bryant, *supra* note 19, at 186–87.

578. *Id.* at 187 (“[S]takeholders found ways to spin its results to their advantage.”).

579. Doremus & Tarlock, *Judgment, supra* note 9, at 6; *see also* Sarewitz, *supra* note 445, at 386.

580. Policansky, *supra* note 4, at 610 (“[T]he fundamental issues in dispute are based on differing values rather than on differing interpretations of science.”); *id.* at 616–17.

581. *Id.* at 613–14, 617.

582. *Id.* at 616–17 (pointing to a NRC salmon report that emphasized the complexity of the problem and the importance of public values in choosing courses of action).

583. *See supra* text accompanying notes 247–250.

by science.⁵⁸⁴ The NRC reports analyzed the existing scientific information on which the wildlife agencies based their water restrictions, but the peer review committees were not equipped to address the underlying value judgments truly at the heart of the matter.

Thus, by emphasizing the scientific uncertainties—at the expense of the policy and value differences—involved in a regulatory decision, NRC reviews tend to perpetuate and exacerbate the underlying controversy. The reports provide new ammunition to both sides, which ossifies their opposing viewpoints as opposed to finding middle ground.

C. The Final Calculus

Most commentators do not dispute that regulatory peer review has a positive role to play in advising and improving environmental decision making within federal agencies.⁵⁸⁵ But an assessment of recent NRC case studies reveals that the costs of peer review eclipse many of the purported benefits. True, the NRC reports identified areas for future research and improved the agencies' accountability by helping locate the line between their science and policy judgments. But those advantages did not necessarily warrant the total two million dollar price tag. Further, the post-hoc reviews raised the agencies' evidentiary burdens, handed over policy discretion to unaccountable experts, and armed regulatory opponents with scientific critiques. Ultimately, the NRC committees unwittingly served as political tools wielded by influential lawmakers to delegitimize agencies' environmental decisions on behalf of agricultural interests.

VI.

RECOMMENDATIONS

Drawing from the three case studies as well as other literature, this Part identifies several ways that agencies can maximize the positive impacts of outside reviews while minimizing the negatives. Notably, the NRC and federal agencies can carry out most of these recommendations without additional action from Congress.

A. Establishing Prerequisites to Empanelling

The first question, of course, is which agency decisions should undergo regulatory peer review—a question all the more important for resource-intensive NRC reviews. Notwithstanding the frequency with which they are currently being used, virtually all commentators agree that NRC committees

584. See Policansky, *supra* note 4, at 617.

585. See, e.g., Noah, *supra* note 31, at 1036 (“[E]ssentially everyone applauds the idea of using independent peer review in the regulatory process.”).

must be deployed sparingly.⁵⁸⁶ Thus, the NRC should reserve its role for situations where it is most likely to provide concrete improvements. Professor Ruhl compared the task of assigning regulatory peer review in environmental law to writing a prescription for the right dose.⁵⁸⁷ That clever analogy raises three subsequent questions: Who writes the prescription? For which symptoms? And at what point?

Who should have the authority to write NRC study prescriptions? Currently, this decision is a joint effort between NRC study sponsors—lawmakers or agency officials who request NRC studies—and the NRC Executive Committee—which ultimately decides whether to initiate a study. Because study sponsors reveal an inherent bias in choosing when they favor peer review,⁵⁸⁸ however, the power to empanel a NRC committee should be spread among multiple interests, and certainly not held by a single lawmaker. When fielding congressional requests, the NRC should require a threshold number of bipartisan legislators to ensure the review would serve multiple constituencies, instead of a single lawmaker's desired political goals.

Under the existing study process, the NRC Executive Committee functions as a gatekeeper to improvident reviews, and on occasion, it has turned down studies it believed inappropriately framed. But given that NRC staff has a vested interest in receiving funding for government-sponsored studies, it remains unclear how often the institution is actually willing to decline a lawmaker's request. Thus, a better system might rely on a group of policymakers and scientists insulated from federal funding who would vet NRC study requests for anticipated effectiveness.⁵⁸⁹

What types of criteria, or symptoms, should determine whether to empanel a NRC committee? Some commentators are skeptical about developing a blanket list, and suggest the current de facto practice of seeking review when a regulatory decision is sufficiently controversial is as good a method as any other.⁵⁹⁰ However, the case studies reveal that current practice has not always been effective. For example, the usefulness of a NRC review is quite limited where an agency decision has already been subjected to multiple rounds of peer review—as had the Delta BiOps—or where the agency has

586. See, e.g., Doremus, *Best Available Science*, *supra* note 4, at 447–48; Doremus, *Integrity*, *supra* note 47, at 1652; Dwyer, *supra* note 68, at 13–14; Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 11.

587. See generally Ruhl, *Prescribing*, *supra* note 12.

588. See Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 29 (noting that industry and environmental advocates alike support using peer review in the ESA context, but only for “types of decisions each interest group finds the most troublesome”).

589. See, e.g., Noah, *supra* note 31, at 1070; Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 60.

590. Doremus & Tarlock, *Judgment*, *supra* note 9, at 32 n.135 (deeming it “difficult to prescribe blanket rules for the appropriate use of intensive committee-style peer review”).

previously acknowledged misstatements—like the NPS clarification report in Point Reyes.

The NRC claims to scrutinize factors like the importance and timeliness of the question, whether there is an adequate base of scientific knowledge to support the study, and the likely impact of the report.⁵⁹¹ Those all seem like useful factors, but it is unclear how the NRC applies them in practice. Thus, the NRC should be more transparent in how it weighs these factors when deciding whether to take on a particular study. The Executive Committee could post a summary of its deliberations on the NRC website, and maintain a public list of declined study requests. This would also create useful guidelines for future government sponsors who wish to request a NRC review, and might encourage further consistency among the NRC's empanelling decisions.

Regarding the factor of an adequate knowledge base, a common problem in regulatory peer review—and environmental regulation more generally—is how to deal with incomplete data. On the one hand, review in those instances can serve a useful deliberative function by clarifying the existing information and identifying key areas for further research. On the other, such reviews are more vulnerable to intrusion by reviewers' value judgments, which may unintentionally reassign the initial burden of proof, as was the case in the Klamath. This is especially problematic in the environmental arena, where statutes often require agencies to take action in the face of imperfect or incomplete science.

The Delta NRC committee tried to emphasize the difficulty of obtaining certain information or expecting early results from the RPAs, but those disclaimers failed to make a strong impression on Judge Wanger.⁵⁹² Policansky also questioned the value of a NRC review where there is a large degree of scientific uncertainty.⁵⁹³ NRC committees can only identify gaps, and do not have the time or ability to conduct their own research.⁵⁹⁴ Thus, in areas with incomplete evidence it might be more useful, instead, to employ standing peer review committees that can both review the existing data and, over time, work to help fill the identified gaps. Further, to maximize the deliberative benefits and minimize the threat of value intrusion, peer review of regulatory controversies that rely on incomplete evidence should occur earlier in the decision-making process. Post-hoc assessments of the sufficiency of evidence should be left for judicial review, not peer review.

Many stakeholders and commentators have suggested that the economic consequences of an agency decision do weigh or should weigh in favor of empanelling regulatory peer review.⁵⁹⁵ Professor Lewis argued that economic

591. COMMITTEE PROCESS, *supra* note 66, at 8.

592. *See supra* text accompanying notes 385–386, 423–424.

593. *See* Policansky, *supra* note 4, at 616–17.

594. *See supra* text accompanying note 89.

595. *See, e.g.,* Doremus, *Integrity*, *supra* note 47, at 1652 (suggesting that outside peer review

considerations justified the heightened standard of review in the Klamath, and Senator Feinstein cited economic impacts of the Delta water restrictions as a primary reason for supporting that NRC review.⁵⁹⁶ Certainly, large economic stakes might warrant the large taxpayer expense required for government-sponsored NRC reviews. In fact, an economic impact criterion might have cut against empanelling the costly NRC study for a single Point Reyes oyster farm.

However, the potential economic impact of a regulatory decision should not singlehandedly trigger NRC review unless there is additional evidence that the report will provide useful information. For one, an economic trigger runs counter to the philosophy behind the ESA, which expressly bars cost considerations in many regulatory decisions.⁵⁹⁷ Further, quantifying the economic effects of a particular regulation can be hotly contested and problematic, as it was in the Delta. Finally, the inherent difficulty of placing monetary values on the benefits of environmental regulation may lead to skewed estimates of a regulatory decision's effects.

Many commentators also consider the underlying level of controversy to be an important factor in justifying regulatory peer review.⁵⁹⁸ But that assumption merits reconsideration because—as we have seen—NRC studies frequently exacerbate conflicts rather than help resolve them. Especially where there is pending or expected litigation, reviews are more likely to provide opposing sides with ammunition for their ongoing fight.⁵⁹⁹ Thus, in those instances, the NRC might be better off leaving the dispute to the judicial and political branches. Otherwise, the institution runs the risk of decreasing its credibility by turning NRC committee meetings into adversarial sideshows.

Similarly, the Interior Department Inspector General may be better equipped to handle situations involving allegations of scientific misconduct. The Inspector General's investigation in Point Reyes probed into the agency's scientific and decision-making process more thoroughly than the NRC review did.⁶⁰⁰ And the Inspector General also seems to have been effective in a scandal involving Julie MacDonald, a deputy assistant secretary in the Interior

should be employed when there is strong reason to doubt the science behind an agency decision with important economic consequences); Dwyer, *supra* note 68, at 14 (suggesting that regulatory peer review should address questions "of the utmost importance to the agency such as when a decision carries a high risk of lasting harm to . . . the economy"); Ruhl, *Prescribing*, *supra* note 12, at 429 (suggesting that the cost of Klamath's initial report was worth the benefit of insuring against potentially faulty decisions bearing significant economic effects); Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 54–55 (describing an OMB rule that requires regulatory peer review for "agency decisions that impose private sector impacts of over \$500 million," among other factors).

596. Doremus & Tarlock, *Judgment*, *supra* note 9, at 16 (citing Lewis, *supra* note 179); Feinstein, *Viewpoints*, *supra* note 348; Weiser, *Prompts Fight*, *supra* note 5.

597. See *supra* text accompanying note 517.

598. See Ruhl, *Prescribing*, *supra* note 12, at 429; Doremus & Tarlock, *Judgment*, *supra* note 9, at 32.

599. See *supra* Part V.B.4.

600. See *supra* text accompanying notes 229–232.

Department during the George W. Bush Administration who resigned after the Inspector General found that she “injected herself personally and profoundly in a number of ESA issues.”⁶⁰¹ Although the Inspector General’s office is an internal—rather than external—review mechanism, it retains sufficient credibility and expertise to monitor allegations of misconduct effectively.

Regulatory peer review may also be inappropriate when the underlying dispute centers on diverging values rather than science—especially when the decision before the agency does not hinge on scientific information, as in Point Reyes. Policansky agreed that it is difficult for the NRC to help resolve a problem where there are overlapping goals and values;⁶⁰² the role of regulatory peer review should not be to “break the tie” between two conflicting policies.⁶⁰³ Policansky also questioned the NRC’s efficacy where there are multiple jurisdictions or user groups.⁶⁰⁴ Notably, however, both the Klamath and Delta reports helped identify potential areas of collaboration between different agencies and encouraged more holistic views of their complex water problems.

At what point should a NRC study be prescribed? One key recommendation of this Comment is that the NRC should avoid empanelling post-hoc reviews of discrete regulatory decisions. To maximize its effectiveness in providing useful guidance, the review should occur at earlier stages in the decision-making process—like the third Delta NRC report geared toward helping to develop the BDCP. This promotes the deliberative, “brainstorming” function of regulatory peer review, whereby it can provide information the agency might otherwise overlook without seeming like a hostile challenge to agency expertise.⁶⁰⁵ Peer review earlier in the decision-making process would also minimize the temptation for scientists to offer policy advice more properly left in the agency’s domain, and allow both the agency and members of the public to respond to aspects of the report they disagree with or dislike.

B. Framing the Statement of Task

No matter when regulatory peer review occurs, the next most important task is framing the official scope of the review.⁶⁰⁶ Appropriately framed

601. U.S. DEP’T OF THE INTERIOR, OFFICE OF INSPECTOR GEN., REPORT OF INVESTIGATION: THE ENDANGERED SPECIES ACT AND THE CONFLICT BETWEEN SCIENCE AND POLICY (2008); *see also* U.S. DEP’T OF THE INTERIOR, OFFICE OF INSPECTOR GEN., REPORT OF INVESTIGATION, JULIE MACDONALD, DEPUTY ASSISTANT SECRETARY, FISH, WILDLIFE AND PARKS (2007).

602. Policansky, *supra* note 4, at 617.

603. *See* Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 3.

604. Policansky, *supra* note 4, at 617.

605. *See* Doremus, *Integrity*, *supra* note 47, at 1652 n.254 (citing Noah, *supra* note 31, at 1059–64); *see also* Wymyslo, *supra* note 52, at 137, 152 (recommending that regulatory peer review of ESA listing proposals should occur earlier in the decision-making process).

606. *See* Dwyer, *supra* note 68, at 14; *see also* Policansky, *supra* note 4, at 617 (describing the “form of the question asked” as “[p]erhaps the most important factor” in the success of a NRC

questions go a long way in maintaining clarity about the proper role of science in complex policy decisions. Several parties have blamed unfortunate aspects of the Klamath NRC report on the initial statement of task, which they allege may have been shaped by antiregulatory Bush Administration officials.⁶⁰⁷ Thus, the NRC should be more transparent about how it develops its statements of task, and make publicly available its negotiations with study sponsors or other interested stakeholders. The MMC did this for its Drake Estero study, which provides a sharp contrast to the several months of silence between Senator Feinstein's request for a NRC review and the eventual release of the Point Reyes statement of task.⁶⁰⁸ Members of the public never learned what factors the NRC used, or whether politics played a role, in developing the statement of task. Similarly, the NRC should have done a better job explaining to what degree its Delta study paralleled the initial request from the wealthy agricultural player. Given the fundamental importance of the statements of task, increased transparency about their development is crucial to maintaining the legitimacy of the NRC reports.

Beyond transparency in negotiations, there are several ways the NRC can frame its statements of task to improve the efficacy of the studies. First, the NRC should avoid asking committees to review the scientific basis of discrete regulatory decisions. The Klamath marked the NRC's first-ever review of that kind under the ESA, and it underscored the problems of heightened evidentiary standards when the committee is placed in the role of a science court. The same thing happened with the initial report in the Delta and, to a certain extent, in Point Reyes as well. A flyspecking review of a past, discrete agency action serves only a minor deliberative function, and invites misuse by providing unwarranted ammunition to regulatory opponents. It also might be unnecessary, in that it usurps the traditional function of judicial review.

In contrast, the final Klamath report—for which the committee received a broader charge than just reviewing the BiOps—provided a more useful, holistic review that raised awareness about the entire Basin. The forthcoming second and third reports in both Point Reyes and the Delta may also provide valuable information for other estuaries with mariculture operations or in future management of the Delta. Thus, perhaps the NRC should limit its statements of task to broader, forward-looking, programmatic questions as opposed to honing in on discrete, past regulatory decisions or agency assertions.

Second, the questions posed in the regulatory peer review should have a direct bearing on policy, but avoid inviting committee members to make actual policy recommendations themselves.⁶⁰⁹ Policansky highlighted the Mono Basin

review).

607. See *supra* text accompanying notes 467–468.

608. See *supra* text accompanying notes 471.

609. Policansky, *supra* note 4, at 617.

NRC report as a helpful, illustrative example.⁶¹⁰ There, the NRC asked its committee to describe the probable effects of different lake levels, which provided critical information for future decision making, but did not ask the committee to recommend a desired target or make other value judgments about the health of the ecosystem.⁶¹¹ This stands in contrast to the Point Reyes report, in particular, where the oyster farm's ecological effects did not have a direct bearing on the legal question, and the NRC report used value-laden terms about the "beneficial" effects on the Estero.⁶¹² Policansky also praised the carefully framed statement of task in the *Science and the ESA* report, which focused on scientific issues instead of ESA implementation, and thus proved valuable to decision makers precisely because it was not a policy recommendation.⁶¹³ The Delta and Klamath statement of tasks, by contrast, focused on ESA implementation and asked committee members to identify a regulatory "magic point" that would provide more species protection at less cost to water users.⁶¹⁴ The futile search for such a nonexistent point likely escalated the underlying controversies.⁶¹⁵

Third, if a primary benefit and purpose of regulatory peer review is to break the science charade and identify the science-policy line, then the statement of task should focus more clearly on doing just that. It might, for example, ask the committee to: evaluate the degree of scientific support for a particular decision; identify missing links or weaknesses in the available data; highlight the interpretive judgments that were made and how the agency addressed uncertainty; roughly quantify the likelihood of errors associated with over or underregulation; and consider the value of additional data.⁶¹⁶ Explicitly charging committee members with revealing policy judgments made in the regulatory process might discourage them from substituting their own policy views. In contrast to this recommendation, the Klamath NRC committee did not adequately distinguish its review of the scientific support for a regulatory decision from a review of the decision itself, which left the report vulnerable to the very mischaracterization and misuse that ensued.⁶¹⁷ In the future, NRC reports should not assess whether the agency decision is consistent with the scientific information, but rather catalogue the available science and leave it to

610. *Id.* at 612–13.

611. *Id.*

612. *See supra* text accompanying note 261.

613. Policansky, *supra* note 4 at 614–15. The charge included a request that the committee provide "a review of whether different levels of risk ought to apply to different types of decisions (and the practical methods that might be employed to assess risk) to better achieve the purposes of the Act while providing flexibility in appropriate circumstances to accommodate other objectives as well." Ruhl, *Battle*, *supra* note 4, at 592 n.159 (quoting NAT'L RESEARCH COUNCIL, SCIENCE AND THE ENDANGERED SPECIES ACT 208 (1995)).

614. *See* Doremus & Tarlock, *Clash of Cultures*, *supra* note 4, at 349.

615. *Id.*

616. Doremus & Tarlock, *Judgment*, *supra* note 9, at 34.

617. *Id.*

the public, lawmakers, and courts to determine whether it is sufficient to justify the policy.

Finally, the NRC should consult with attorneys to match the statements of task to the underlying legal framework—both by ensuring consistency with agencies' statutory and regulatory mandate, and by making the standard of review more explicit. This might avoid NRC recommendations that fall outside the agencies' authority, and prevent the confusion over legal and scientific review standards that burdened the Klamath study.⁶¹⁸ Making the standard of review explicit is particularly important where the NRC reviews discrete agency decisions post-hoc; future committees might consider including, as the Delta committee did, a description of the arbitrary and capricious or other relevant legal standards in their reports.⁶¹⁹ If nothing else, these descriptions might remind the press and other relevant audiences that the legal and scientific research spheres are distinct.

C. Improving Committee Processes and Reports

In many ways, the NRC's common practice of commissioning two separate reports for a single review makes sense because it allows committee members to receive some feedback from their initial report and internalize those comments as they develop their second, more in-depth report. The Klamath committee, for example, markedly improved its use of language in its final report. However, because of the nature of media coverage, the initial report will inherently attract more attention. Thus, the NRC should reconsider the incredibly short timelines it typically affords for those initial reports. As was evident in all three case studies, short deadlines can exact a cost on quality and potentially on accuracy. To maintain the credibility of NRC reports, committee members should have at least six months to complete their first round of work. If an agency or lawmaker needs an answer sooner than that, perhaps the NRC is not the right institution for the job, and a less intensive, standing peer review committee—like the CALFED Bay Delta Authority—may be a more appropriate forum.

The NRC should also take further steps to ensure that its committee study process avoids appearing as though it is under too much political or stakeholder influence. Throughout the process, committee members should be “forcefully reminded” of the political aspects of the decision under review to ensure they maintain objectivity.⁶²⁰ To prevent external pressures and media atmospherics, committees should reserve their meeting agendas for testimony from scientists or stakeholders who have special knowledge of the factual situation. Political figures like Congressman Costa should not be given a platform to make stump

618. See Ruhl, *Battle*, *supra* note 52, at 592 (highlighting the importance of keeping separate scientific and legal burdens of proof).

619. See *supra* text accompanying notes 393–394.

620. Doremus, *Integrity*, *supra* note 47, at 1652 n.253.

speeches, nor should litigants' paid expert witnesses be invited to testify; otherwise, the proceeding begins to look like a political circus or adversarial science court. Similarly, the NRC might consider limiting submissions from interested parties to avoid being flooded with flyspecking material engineered to identify minor areas of incongruence that antiregulatory opponents can later exploit in the press or in courts.

Overall, the study process needs to protect the NRC's credibility and independence—two characteristics that make the institution particularly useful in the first place. NRC could improve on this front by providing additional transparency during the committee selection and during conflict-of-interest review.⁶²¹ The Delta committee resignations reveal that highly relevant information is not currently shared with the public; by contrast, the MMC posted correspondence and information about its Point Reyes panel selection on its website.⁶²² The NRC may have reasons to withhold such information initially, but doing so simply runs the risk of delegitimizing the institution should the information later come to light, as it did in Professor Glibert's case.

Similarly, NRC committees should strive to discuss openly any value judgments in their final reports.⁶²³ They should limit their findings to scientific determinations and avoid making policy judgments wherever possible. A good example is the Mono Basin report, which provided estimates of the likely ecological effects of different lake levels, but did not recommend one over another.⁶²⁴ However, if the report does make recommendations about specific policies or areas of future research, it should expressly note when those actions may fall outside the agencies' legal mandate or authority. The Delta report did a good job of this, but the Point Reyes report did not.

NRC committees should also be more careful about their use of language in their reports, which are susceptible to misrepresentation and misuse in the press. The reports should avoid using sound-bite rhetoric, such as that from the "sound science" movement. Analysis of the NRC reports in the three case studies suggest that committees may be moving in the direction of this recommendation. For example, the Klamath report referred to "sound science," the Point Reyes report to "lack of strong science," and finally the Delta report to "scientifically justified" decisions.

Given the heightened adversarial media coverage of recent reports, the NRC should also consider improving its communications outreach efforts for future reviews—such as emphasizing to reporters important concepts like the difference between scientific and regulatory standards of review. In addition, to reduce the role of the press as intermediary, it might help for the NRC to make

621. See Wymyslo, *supra* note 52, at 153–54 (recommending that peer review occur earlier in the process to allow public disclosure and comment on potential reviewer bias).

622. See *supra* text accompanying note 510.

623. See Policansky, *supra* note 4, at 617.

624. *Id.* at 612–13.

the reports more readily available. If the subject of review is a relatively localized dispute, as in all three case studies, the NRC could donate advance embargoed copies to local libraries and government offices. The NRC should also consider making all electronic copies of government-sponsored reports downloadable for free.

D. Adapting the Standard of Judicial Review

One concern highlighted by the case studies is that regulatory peer review benefits antiregulatory opponents by providing ammunition they can use later in court. This presents a hazard in that courts may focus on the minor, inevitable criticisms of agency decisions found in any NRC report, much as Judge Wanger did in his recent rulings. This abuses the heightened standard of research review and encourages well-connected litigants—like wealthy agricultural interests in the Delta—to push for regulatory peer review to help their cause in court. At the same time, favorable NRC reports should not preclude objections by parties unable to present their concerns directly to the committee.⁶²⁵ Thus, courts should refuse to grant special recognition to NRC reports if a stakeholder later challenges the underlying agency decisions as arbitrary and capricious. They must remember that NRC reports are not infallible, and thus should not supply the last word.⁶²⁶ Prioritizing peer review over the agency's own position would upset the traditional deferential balance struck for judicial review in administrative law. Instead, courts should treat NRC reports just like any other part of the administrative record.⁶²⁷

As discussed above, one way around this problem is to avoid post-hoc reviews of agency decisions. If regulatory peer review occurs earlier in the decision-making process, it is more consistent with the normal notice-and-comment procedural timeline, where the agency and other interested parties would have an ability to respond to any criticisms raised.⁶²⁸ Thus, it would not be overly prejudicial for the earlier review to play a role in subsequent litigation.

Another route to counteracting the improper litigious influence of NRC reports might be to adopt some form of asymmetric judicial review. For example, to balance the relative political influences of different groups in the climate change context, a prominent commentator recently recommended limiting or promoting judicial review based on the type of agency decision.⁶²⁹

625. Noah, *supra* note 31, at 1082.

626. Doremus & Tarlock, *Judgment*, *supra* note 9, at 36.

627. See Virelli, *supra* note 41, at 742–43 (recommending that courts consider peer review comments as part of the administrative record, but not afford those comments any special weight). *Contra* Burack, *supra* note 34, at 107–09 (suggesting that whether agency decisions undergo peer review should play a role in the degree of deference afforded by courts).

628. See *supra* text accompanying note 512.

629. Richard Lazarus, *Super Wicked Problems: Restraining the Present to Liberate the Future*, 94 CORNELL L. REV. 1153, 1229 (2009).

That is, future legislation might limit judicial review to diminish the power of unduly influential groups, and establish enhanced citizen-suit provisions to promote oversight by potentially underrepresented interests.⁶³⁰ Applying this to the regulatory peer review context, limited judicial review might be warranted where an interested stakeholder's political influence already results in a \$500,000 government-sponsored NRC report that may inform legislative amendments or riders in Congress.

In the end, Professor Ruhl agreed that there is no reason why regulatory peer review should upset the traditional judicial deference afforded to agency decisions. "Fundamentally, it must be remembered," Professor Ruhl wrote, "the purpose of peer review is to improve agency decision quality, not to arm litigants or undermine agency discretion."⁶³¹

CONCLUSION

Regulatory peer review can provide several benefits to agency decision making: assuring quality control, legitimizing regulations, and improving public deliberations. The NRC is often held out as the premier model of regulatory peer review because of its credibility and independence, its unique ability to convene top experts, and its commitment to balanced, unbiased study committees. But the intensity of NRC reviews imposes significant time and monetary costs, and institutional constraints of the NRC study process can carry a substantial political price tag as well.

As this Comment showed in three case studies, antiregulatory political forces have successfully enlisted the NRC peer review process to influence desired policy outcomes. Instead of advising agencies on large, forward-looking issues, the NRC has often functioned as a science court, flyspecking discrete regulatory decisions and providing agency opponents with ammunition to use in Congress, the courts, and the press. By applying a more rigorous evidentiary burden, it has also displaced the traditional deference afforded to agency regulations under the APA.

This trend runs the risk of politicizing the NRC's work and undermining its credibility, as well as that of the agencies whose decisions it reviews. However, there are ways the NRC and agencies can counteract this trend. They can be more discerning about when they institute regulatory peer review, more transparent about key decisions that frame the scope of the study, and more careful about how the reports are used afterward. Taking these steps can help maximize the benefits of regulatory peer review and minimize the costs.

630. *Id.* at 1206.

631. Ruhl & Salzman, *Regulatory Peer Review*, *supra* note 7, at 61.

