Improving Wildlife Agency Decisions by Acknowledging and Explaining Policy Choices Embedded in Agency Science

Alexander Kuljis

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Improving Wildlife Agency Decisions by Acknowledging and Explaining Policy Choices Embedded in Agency Science

Alexander Kuljis

Federal action consultations are a key component to the Endangered Species Act’s conservation regime. Biological opinions produced during consultations usually contain the bulk of the administrative record for review and must be based on the best science available. Because courts have historically deferred to agency science, wildlife agencies are encouraged to rely heavily on purely scientific explanations for their conclusions. However, because of the uncertainties inherent in environmental science, over-reliance on purely scientific explanations may mask an agency’s policy-based choices and consequently leave its decision vulnerable to judicial review. The decision in Dow AgroSciences LLC v. National Marine Fisheries Service exemplifies this problem, showing that courts may be overturning adequately reasoned agency decisions because the wildlife agency failed to explain these inherent policy-based choices. This article argues that to improve the ESA’s consultation framework, wildlife agencies should acknowledge and explain the policy choices embedded in their biological opinions, completing the administrative record and ensuring that courts uphold reasoned decision making on review.

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INTRODUCTION

A healthy ecosystem depends on the interconnectedness of all its constituent parts to provide a relatively stable balance.1 Introduce a sudden change to the system that disrupts that balance and there is potential for the system to collapse.2 The United States’ regulatory framework for species conservation utilizes a similar balance. On one hand, we understand the need to preserve our country’s ecological diversity. On the other hand, our country’s interest in sustained economic development creates the need to limit restrictions to only those that are reasonable. The Endangered Species Act’s (ESA) framework for federal action consultations promotes that balance. Similar to a delicate ecosystem, disturbances to this balance can lead to a collapse of the regulatory framework’s efficiency and usefulness.

ESA section 7’s prohibition of federal agency actions that would jeopardize the continued existence of protected species is a key part of the Act’s conservation regime. Consulting agencies must evaluate proposed federal agency actions by creating a biological opinion examining the action’s potential impacts. Section 7’s requirement that biological opinions be based on the best science available attempts to ensure that wildlife agency recommendations are

2. See id.
objectively reasonable. However, in practice, judicial review of biological opinions often leaves both conservationists and industry wanting.

Much of the problem arises from how consulting agencies prepare their biological opinions. Because courts have historically deferred to agency decisions based on science, wildlife agencies are encouraged to rely heavily on scientific explanations in biological opinions. This potentially masks the policy-based choices used to resolve the science’s inherent limitations. Agencies are not necessarily using bad science or intentionally misusing science. Rather, this overreliance may result from a “science charade” aimed at protecting decisions from judicial review. Conservationists often fear that the science charade allows conservative administrations to disguise political decisions as scientific ones. This lack of accountability similarly concerns industry during politically liberal administrations. The tension further degrades public perception of the ESA’s conservation regime and of the wildlife agency’s decision makers.

While courts will defer to reasoned agency science, they still require agencies to “cogently explain” their scientific decisions. Despite the desire to use science as a shield, an agency’s inability or unwillingness to explain limitations in its science can make biological opinions vulnerable to judicial review. Consequently, courts remand inadequately explained biological opinions to already overburdened agencies for further processing. Meanwhile, because of the agencies’ poor explanations, both industry and conservationists are left in the dark about the true reasoning behind the agencies’ decisions, reducing accountability and making future consultations unpredictable.

*Dow AgroSciences LLC v. National Marine Fisheries Service* exemplifies this problem. In *Dow AgroSciences*, the Fourth Circuit invalidated a National Marine Fisheries Service (NMFS) biological opinion that decided reregistering certain pesticides would jeopardize the existence of protected salmon species. Explicit in the court’s reasoning was a call for NMFS to further explain why it relied on certain scientific data. Because of uncertainties in the science, NMFS could only reach a decision by incorporating value judgments into the conclusion. Although NMFS’s policy choices were likely reasonable, they were not adequately explained in its biological opinion and the court correctly struck

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9. *Id. at 475.*
10. *See id.*
down the jeopardy decision because the record was left incomplete. However, this case highlights the need for wildlife agencies to acknowledge the policy choices made in biological opinions, in order to improve the ESA section 7 consultation framework and to ensure that reasonable decisions are upheld on review.

Part I of this Note explains the ESA’s current regulatory framework for section 7 consultations and describes when biological opinions are required and what they must contain. Part II discusses what constitutes a reasoned decision in section 7 consultations that courts should uphold on review. Part III examines Dow AgroSciences, which exemplifies the potential hurdles agencies face when justifying agency decisions based on science in biological opinions. Finally, Part IV argues that in order to preserve the appropriate balance between development and conservation and ensure that courts uphold reasoned decision making on review, the wildlife agencies should acknowledge and explain policy choices embedded in environmental science in their biological opinions.

I. THE STATUTORY FRAMEWORK FOR ENDANGERED SPECIES CONSERVATION

A. The ESA

In response to President Nixon’s call to strengthen the existing 1969 Endangered Species Conservation Act, the Senate and House passed their respective 1973 amendments amid wide public support. President Nixon signed the ESA into law, calling threatened wildlife an “irreplaceable part of our national heritage . . . .” The ESA’s purpose is to protect endangered and threatened species and their habitats. By enacting the ESA, Congress intended for the implementing wildlife agencies to “halt and reverse the trend toward species extinction, whatever the cost.” Further, a policy of institutionalized caution lies at the heart of the Act. The ESA clearly favors conservation when a substantial threat is evident. But determining the existence and extent of the threat to a species is more difficult than one would think.

The first step is for either the Fish and Wildlife Service (FWS) or the National Oceanic and Atmospheric Administration (NOAA) to identify and then list the species they deem worthy of protection under section 4 of the ESA. According to the statute, the term “species” is defined as any species, or

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12. See id. at 21.
15. See id. at 178.
16. NOAA administers the conservation of marine fish species through NMFS, also known as NOAA Fisheries. See Doremus, supra note 4, at 401; see also 50 C.F.R § 402.01(b) (2013); 50 C.F.R. § 402.14.
subspecies, of fish, wildlife, or plants. This definition also includes distinct population segments of wildlife or vertebrate fish species, even though they may interbreed with other populations when mature. The wildlife agency can list a species as endangered if the species is in danger of extinction in a significant portion of its habitat. If the species does not currently meet this requirement, the wildlife agency can list the species as “threatened” if the species is likely to become endangered in the foreseeable future. In order to make these determinations, the wildlife agency reviews the status of the species through several factors enumerated in section 4. Once the wildlife agency has made its listing decision, it must invite public comment on the proposed rule by publishing it in the Federal Register and holding at least one public hearing. Finally, after the species is officially listed, it is protected by the Act’s section 7 consultation requirements and section 9 take prohibitions.

**B. ESA Section 7: Interagency Consultation for the Conservation of Listed Species**

The federal government has a huge impact on the habitat of many protected species because it owns around a third of the nation’s land. As a landowner, it has the greatest ability to protect endangered and threatened species in those areas by controlling activity on and associated with these lands. The federal government also impacts protected species and critical habitat on privately owned land by approving actions or projects through its executive agencies. Because these activities usually tend to be large in scope, they have the potential to significantly impact endangered species.

ESA section 7(a)(2) prohibits agency actions that negatively affect listed species. Specifically, all federal agencies must ensure that their actions are “not likely to jeopardize the continued existence of any [listed species] or result in the destruction or adverse modification of [critical habitat].” This standard applies to actions that are “authorized, funded, or carried out” by any federal agency.

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18. Id. § 1532(16).
19. Id.
20. Id. § 1532(6).
21. Id. § 1532(20).
22. These factors are: “(A) the present or threatened destruction, modification or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence.” Id. § 1533(a)(1)(A)–(E).
23. See id. § 1533(b)(5)(A)–(E).
24. Section 7 outlines the prohibition on federal agency actions from jeopardizing a listed species or adversely modifying critical habitat and is explained in detail below. See generally id. § 1536.
25. Section 9 prohibits private parties from taking listed species. “The term ‘take’ means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” Id. § 1532(19).
26. See STANFORD ENVTL. LAW SOC’Y, supra note 11, at 78.
27. See id.
28. See id.
agency.\textsuperscript{30} The agency proposing action must first consult with the wildlife agency to determine if any listed species exists in the area of proposed action.\textsuperscript{31} If a listed species is potentially present, the action agency must prepare a biological assessment to determine “if any such species or habitat are likely to be adversely affected by the action . . . .”\textsuperscript{32} If the wildlife agency determines that an agency’s action is likely to adversely affect a listed species, the action agency must initiate formal consultation and the wildlife agency will produce a biological opinion.\textsuperscript{33}

C. Biological Opinions

Biological opinions play a major role in the regulatory framework because they are the primary records that a wildlife agency uses to determine whether a federal action will result in jeopardy to a listed species. A biological opinion explains the wildlife agency’s\textsuperscript{34} jeopardy finding, including the information upon which the wildlife agency based its finding and a discussion of the likely effects the action will have on the listed species in question.\textsuperscript{35} The standard used to determine jeopardy is whether the proposed agency action is likely to jeopardize the species’ continued existence or destroy or adversely modify the species’ critical habitat.\textsuperscript{36} In other words, the agency should not “engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild, by reducing the reproduction, numbers, or distribution of that species.”\textsuperscript{37} This culminates in either a jeopardy finding\textsuperscript{38} or a no jeopardy finding.\textsuperscript{39}

Federal statutes and regulations require the wildlife agency to undergo specific analysis in its biological opinion.\textsuperscript{40} First, the wildlife agency must describe the proposed action and determine the “action area” by considering all

\textsuperscript{30} Id. Examples of actions regulated by section 7(a)(2) are the promulgations of regulations, the grant of licenses or permits, and even actions taken for the conservation of other listed species. See 50 C.F.R. § 402.02 (2013).
\textsuperscript{31} See 50 C.F.R. § 402.02; id. § 402.10.
\textsuperscript{32} Id. § 402.12(a).
\textsuperscript{33} Id. § 402.14(c), (g).
\textsuperscript{34} The wildlife agency is the agency that the action agency must consult with under section 7. This is usually either FWS or NMFS. See id. §§ 402.01(b), 402.14.
\textsuperscript{35} See U.S. FISH & WILDLIFE SERV. & NAT’L MARINE FISHERIES SERV., ENDANGERED SPECIES CONSULTATION HANDBOOK xi (1998); see also 50 C.F.R §§ 402.02, 402.14(h).
\textsuperscript{36} 50 C.F.R. § 402.14(g)(4).
\textsuperscript{37} Id. § 402.02.
\textsuperscript{38} Unless the agency qualifies for an exemption from section 7 requirements, if the consultation results in a jeopardy finding, the action agency must halt its action or follow a reasonable and prudent alternative (RPA) outlined in the expert agency’s biological opinion. See 16 U.S.C. § 1536(b)(3)(A) (2012); see also 50 C.F.R. § 402.14.
\textsuperscript{39} A no jeopardy finding indicates that the proposed action is not likely to jeopardize the listed species and the agency can move forward with its action. 50 C.F.R. § 402.14(h)(3).
\textsuperscript{40} Id. § 402.14.
of the action’s potential direct and indirect effects. Next, the agency must present the current status of the listed species or critical habitat. This section includes a description of the species or critical habitat, the variables relevant to the species’ life cycle, any regular fluctuations in the species’ population, and the distribution of the species in the surrounding area. The biological opinion must also include an environmental baseline, which analyzes the current health of the species before any agency action occurs.

After providing background information, biological opinions address the possible effects of the agency action. The “effects of the action” section must take into account both direct and indirect effects. Indirect effects refer to any anticipated future impacts on the species from the action. The biological opinion must also address possible cumulative effects from future actions in the area including future impacts from nonfederal actions that are reasonably certain to occur.

The consulting agency will then explain its conclusions based on its analyses of all of the previous factors and determine whether or not the agency action would jeopardize the continued existence of the species. If it finds that the action would jeopardize the listed species, it must produce reasonable and prudent alternatives (RPAs) to the action if any are possible. Finally, if the consulting agency makes a no-jeopardy finding, the biological opinion must include an incidental take statement describing the allowed taking of the listed species that would not jeopardize its continued existence. As the source and record of all the information needed to assess the federal agency action’s effects on endangered species, the biological opinion yields great power in the decision-making process. Because outcomes from section 7 consultations can result in financial costs to companies associated with a federal agency action, biological opinions are a focal point for challenges to wildlife agency decisions.

II. WHAT REASONING IS ADEQUATE TO JUSTIFY A BIOLOGICAL OPINION?

A key concern for the judicial review of biological opinions is how the agency explains and justifies each of the administrative record’s required

42. See U.S. FISH & WILDLIFE SERV. & NAT’L MARINE FISHERIES SERV., supra note 35, at 4-19 to 4-22.
43. See id. at 4-22.
44. See id. at 4-26, 4-29.
45. See id.
46. See id. at 4-31. This section is often the least documented section in the biological opinion because of the speculative nature of information regarding future state, tribal, local, or private actions. See STANFORD ENVT'L LAW SOC’Y, supra note 11, at 93.
47. See U.S. FISH & WILDLIFE SERV. & NAT’L MARINE FISHERIES SERV., supra note 35, at 4-33.
49. Id. § 402.14(i). If the agency complies with the biological opinion’s RPAs for minimizing take, it is insulated from liability from violations of section 9. See id.
components. Environmental science, however, rarely provides the tools necessary to answer many of these questions with 100 percent certainty. Occasionally these difficulties lead to judicial scrutiny of the agency’s reasoning. This Part examines the standards for what constitutes reasoned decision making under these circumstances, and argues that wildlife agencies must acknowledge and explain policy decisions used to resolve the inherent limitations of environmental science.

A. The Challenge of Making and Explaining Scientific Decisions

Scientific questions can be challenging in the context of wildlife management and conservation, but legislatures and regulators continue to rely on scientific standards because of the perceived objectivity and reliability of the scientific method. The scientific method has procedural and substantive elements. It is both a process of observing and evaluating the world around us, and a library of accumulated knowledge upon which the next important discoveries are based. Scientific consensus does not come from the success of one study alone. Rather, consensus is built from the culmination of many observational and experimental replications. In this way, the procedural component of science is constantly rebuilding the substantive component to better our understanding of the world. Thus, the perceived reliability of science comes from the scientific method’s painstaking process of repeated observation and critical review. Because of this perceived reliability, legislatures continue to require the use of science to justify wildlife agency decisions in an attempt to ensure that they are based on objective and value-neutral decision making.

However, in many circumstances, wildlife agency decisions require more than a mere technical application of science to the problem. Although the use of science in agency decisions provides some level of objectivity, even the best science cannot offer the agency’s decision makers answers with absolute certainty. Because environmental science data is often incomplete,


53. See id.

54. See id.

55. See id. at 1058.

56. See id.

57. See Doremus, supra note 4, at 419.

ambiguous, and contested, a biological opinion’s conclusions often turn on the resolution of these inherent uncertainties. This resolution often comes in the form of a policy choice from the agency’s decision makers. A basic distinction between science and policy is that science is based on objective measures, whereas policy is based on value judgments informed by professional experience, cultural norms, and political pressures. By definition, policy judgments are not made on an objective basis. Because of this, reviews of the wildlife agency’s decision-making process under the ESA have expressed a clear desire to separate science decisions from policy decisions.

Despite this preference, science-based decisions are not always easily distinguished from policy decisions. In fact, agency decision makers often fail to identify policy issues or fail to reveal value judgments used to fill gaps left by the agency’s science. This results in a “science charade” where agencies present their decisions as purely scientific, leaving value-based choices that were important to the agency’s reasoning out of the record. The science charade is problematic because it reduces transparency into the agency’s decision-making process and consequently reduces the accountability of both elected and appointed administrators. This can result in the agency augmenting its use of science to satisfy political or unacceptable institutional ends.

The key concern for courts is making sure that wildlife agencies are diligent and reasonable in their decision making. But the science charade masks value judgments that play a significant role in those decisions. Agencies use value judgments as part of the scientific research process. For example, agencies often resolve the statistical uncertainties inherent in most scientific inquiry by choosing one scientific explanation over another. Although this is inherent in the practice of science, the decision is one that represents a value

59. See Doremus & Tarlock, supra note 51, at 6.
60. See, e.g., U.S. FISH & WILDLIFE SERV. & NAT’L MARINE FISHERIES SERV., supra note 35, at 1-7 (recognizing in some circumstances that uncertainties from incomplete data should be resolved for the benefit of the doubt of the species).
61. See Doremus, supra note 52, at 1038 (explaining that science’s apparent objectivity makes it a politically attractive vehicle for disguising value-laden policy judgments); see also Meazell, supra note 3, at 744 n.50.
62. See Doremus & Tarlock, supra note 51, at 13.
63. See Doremus, supra note 4, at 400; see, e.g., NAT’L RESEARCH COUNCIL, ASSESSING RISKS TO ENDANGERED AND THREATENED SPECIES FROM PESTICIDES 25 (2013) (“[S]cience and regulatory policy need to be kept separate to the extent possible and that there should be transparency where policy is involved.”); U.S. FISH & WILDLIFE SERV. & NAT’L MARINE FISHERIES SERV., supra note 35, at 1-7 (explaining that the use of the best science available is an overriding factor in consultations and developing additional information is preferable to resolving uncertainty by deferring precaution).
64. See Wagner, supra note 5, at 1629.
65. See id.
66. See id. at 1628.
67. See id.
68. See Doremus & Tarlock, supra note 51, at 9.
69. See id.
judgment on the part of the scientist. Additionally, scientists make value judgments when deciding the level of confidence necessary for a study’s data to be statistically significant for their use.70 Similarly, agency scientists make value judgments when they choose the appropriate weight to give one set of data over another. Much of the data used in wildlife decisions is gathered by academics and may not be specifically targeted to the species or resource at issue in the agency’s decision.71 Agency scientists must choose among the limited data available by making value judgments about what data most closely fits their inquiry.72

Similarly, in section 7 consultations, the agency makes value judgments by deciding what level of risk falls below the jeopardy threshold.73 Even if the scientific data indicates the expected risk with reasonable certainty, the agency must make a policy judgment on whether that level of risk is enough to ensure that jeopardy is not likely.74 If this policy choice is not outlined in the biological opinion, then it is impossible for the agency to express a consistent jeopardy threshold for future consultations.

Of course, all of these situations still require science to play a substantial role in the agency’s decision, but the existence of these inherent policy choices should not make biological opinions dealing with difficult science inherently unreasonable. Policy choices are part of the decision-making process and should be reflected in the record. If agencies continue to mask these judgments through the science charade, the administrative record will continue to lack key reasoning, thus making the decision inadequately justified. Although judicial review of wildlife agency decisions usually focuses on scientific justification in the record, there seems to be room in the judicial standard of review to allow agencies to rely on these value judgments under certain circumstances.75

B. Judicial Review of Agency Decisions Based on Science

Plaintiffs can challenge agency decisions on substantive grounds, arguing that the agency’s jeopardy determination was incorrect or that the biological opinion failed to follow the procedures required by the ESA.76 Courts review such challenges through standards outlined by the Administrative Procedure Act (APA).77 This Part starts by discussing standards that the APA prescribes for judicial review of agency actions. It then discusses the appropriate level of deference courts should utilize when reviewing decisions based on agency science.

70. See id.
71. See id.
72. See id. at 9–10.
73. See id. at 15.
75. See infra Part II.D.
76. See STANFORD ENVTL. LAW SOC’Y, supra note 11, at 103.
1. APA Standards of Review

Judicial review of agency actions ensures that the wildlife agency and consulting agencies strike the ESA’s intended balance between species conservation and agency action. Review provides a way to guarantee that each decision made by an administrative agency was rationally thought-out and deliberated, as well as providing accountability for administrative procedures. Because the ESA does not explicitly provide a standard of judicial review, section 7 jeopardy decisions are reviewed under the APA.

Actions must be final agency actions in order to be judicially reviewable. Preliminary decisions that are otherwise not reviewable under the APA must be reviewed through the final agency action that they contribute to. The Supreme Court in Bennett v. Spear addressed the question of whether biological opinions, as opposed to the overall agency decisions that they address, are individually reviewable under the APA. The Court held that biological opinions are final agency decisions and that they are directly reviewable. This decision allowed plaintiffs to challenge agency science directly by challenging the wildlife agency’s biological opinion.

When considering a biological opinion or any ESA-based action, the appropriate standard of review is the arbitrary and capricious standard. The court should set aside agency actions that are “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” The court will consider whether the decision was based on relevant factors or if there was a “clear error of judgment.” The Supreme Court in Motor Vehicle Manufacturers Ass’n of the United States v. State Farm Mutual Automobile Insurance Co. listed several factors that courts should take into account during arbitrary and capricious review:

if the agency has relied on factors which Congress has not intended it to

78. Lisa Schultz Bressman, Procedures as Politics in Administrative Law, 107 Colum. L. Rev. 1749, 1778 (2007). APA requirements induce “agencies to be transparent about their rationales, facilitating not only judicial review but public and political oversight as well.” Id. at 1779.

79. See Rohlfs, supra note 1, at 190; see also Cabinet Mountains Wilderness/Scotchman’s Peak Grizzly Bears v. Peterson, 685 F.2d 678, 687 (D.C. Cir. 1982) (applying the APA to a complaint brought under the ESA).


81. Id.

82. Id.


84. See id. at 178–79 (reasoning that a biological opinion that determined the amount of water use allowed from a reservoir that was home to protected fish species was a final agency action ripe for review under the APA because it had direct and appreciable legal consequences on the plaintiffs).

85. See Cabinet Mountains Wilderness/Scotchman’s Peak Grizzly Bears v. Peterson, 685 F.2d 678, 687 (D.C. Cir. 1982) (holding that a jeopardy decision should be reviewed under the arbitrary and capricious standard because Congress had not expressed any intent in the ESA to require de novo review).

86. 5 U.S.C. § 706(2)(a).

consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise. These factors allow the court to give the agency’s decision and reasoning a “hard look” to ensure that they were reasonable. However, the scope of the hard look doctrine is narrow, and the court should not substitute its judgment for the agency’s judgment. Essentially, the court will defer to the agency’s decision as long as it seems reasonable. Many cases however, especially those reviewing agency decisions based on science, turn on how much deference the court is willing to afford the agency.

2. How Much Deference Should Courts Give to Agency Science in Biological Opinions?

One reason to give agency decisions deference is that judges are generalists. A judge may not have the background or knowledge needed to evaluate difficult policy decisions or to make critical assessments of the data used in the decision-making process. Agencies, which are in the business of making scientific and policy-based decisions, have more relevant experience in their field than a judge would. The notion of institutional competence underlying the structure of the federal government also supports a deferential approach to judicial review, as agencies have both substantive and procedural knowledge of the matter. On the other hand, wildlife agencies should be accountable for their decisions, and broadly deferring to their actions risks reducing transparency into the agency’s decision-making process. Deference also increases the risks from the agency coming to a wrong decision through unreasonable decision making.

This debate is readily apparent when courts review agency decisions based on scientific expertise. This is especially true for environmental science decisions because of the widespread uncertainties administrators face when making decisions. Recognizing the limitations judges face when evaluating

89. Id. at 103 (“[T]he agency must examine the relevant data and articulate a... rational connection between the facts found and the choice made.”).
90. Id.
92. See Int’l Harvester Co. v. Ruckelshaus, 478 F.2d 615, 648 (D.C. Cir. 1973) (Bazelon, C.J., concurring) (“Socrates said that wisdom is the recognition of how much one does not know. I may be wise if that is wisdom because I recognize that I do not know enough about dynamometer extrapolations, deterioration factor adjustments, and the like to decide whether or not the government’s approach to these matters was statistically valid.”) (internal citation omitted).
93. See Meazell, supra note 3, at 734.
94. See id. at 737.
95. See Int’l Harvester, 478 F.2d at 648.
96. See infra section II.A.2. (discussing the challenge of explaining scientific decisions).
agency decisions based on science, the Supreme Court in *Baltimore Gas & Electric Co. v. Natural Resources Defense Council* suggested a heightened deference standard for determinations that are at the “frontiers of science.” The Court concluded that “[w]hen examining this kind of scientific determination, as opposed to simple findings of fact, a reviewing court must generally be at its most deferential.” *Baltimore Gas* assessed whether a Nuclear Regulatory Commission decision violated the National Environmental Policy Act when it decided that the storage of certain nuclear waste products would have no significant environmental impact. The Court examined the reasonableness of the Commission’s assumption that there would be zero release from the nuclear waste products once they were contained in storage repositories. Even though the Court ultimately thought that the zero-release assumption was a policy decision, the Court held that it was not arbitrary and capricious, in part because the agency’s record noted several areas of scientific uncertainty that were within the agency’s area of special expertise to resolve.

Courts continue to cite *Baltimore Gas* for its heightened deference principle, even in the ESA context. Thus, courts that strictly adhere to heightened deference should allow the wildlife agency substantial leeway when it explains decisions based exclusively on agency science. The environmental science used to justify jeopardy decisions in biological opinions could be considered at the “frontiers of science” considering the multitude of variables and causal relationships ecological risk assessments must address. Therefore liberal application of what qualifies as being at the frontiers of science would help agencies evade review of their scientific determinations by reducing judicial scrutiny.

But giving blind deference to biological opinions based solely on science would also be problematic. By blindly deferring to a wildlife agency’s scientific interpretations, courts encourage the science charade by providing agencies with an incentive to frame science-policy questions as purely scientific ones. Allowing this kind of heightened deference may decrease agencies’ deliberation in preparing biological opinions and consequently

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98. *Id.*
100. *See id.* at 92. The Commission’s justification for the assumption was that it “believed that technology would be developed to isolate the [nuclear] wastes from the environment.” *Id.*
101. *Id.* at 103–04.
102. *See Meazell, supra* note 3, at 764. Meazell points out, however, that the number of citations to *Baltimore Gas* might be misleading and argues that it has become “meaningless boiler plate” inserted into decisions before courts perform hard look review. See *id.; see also San Luis & Delta-Mendota Water Auth. v. Salazar*, 760 F. Supp. 2d 855, 871 (E.D. Cal 2010), aff’d in part, rev’d in part sub nom. San Luis & Delta-Mendota Water Auth. v. Jewell (9th Cir. 2014).
103. *See Wagner, supra* note 5, at 1665. Wagner explains that the judicial deference afforded to environmental agencies in toxic risk regulations can result in a “science charade,” where policy choices are intentionally or unintentionally masked as science choices for the benefit of the agency’s decision makers. *Id.*
decrease accountability as well.\textsuperscript{105} Even though biological opinions do involve highly technical scientific studies, courts should still play a substantial role in reviewing wildlife agency decisions. Judges are not scientific experts, but they are well equipped at analyzing logical links in the record and should be responsible for highlighting gaps between the facts and the conclusion.\textsuperscript{106}

Despite \textit{Baltimore Gas}'s heightened deference standard, courts have continued to evaluate agency decisions involving scientific expertise under the \textit{State Farm} hard look factors.\textsuperscript{107} These courts often cite to \textit{Baltimore Gas}, but then carefully analyze the scientific issues raised by the underlying agency action.\textsuperscript{108} Although wildlife agencies do enjoy some deference regarding conclusions made in their biological opinions, the level of deference hardly reaches the level prescribed by \textit{Baltimore Gas}. Hard look review forces agencies to justify the science used to complete a biological opinion, and requires the agencies to adequately explain scientific choices and assumptions in the administrative record.\textsuperscript{109} Because many of these justifications must explain value and policy choices made to resolve scientific difficulties, APA review should allow agencies to use these justifications to support their science as long as they are not based on factors that Congress has specifically intended them to not consider.

\textbf{C. The Best Available Science Mandate}

As discussed above, when a wildlife agency produces a biological opinion, it must adequately explain the basis for any of its findings.\textsuperscript{110} A major part of this process comes from explaining the science underlying the wildlife agency’s decision. Section 7 requires the wildlife agency to base its findings on the best scientific and commercial data available.\textsuperscript{111} In fact, the ESA requires the use of best available science for many agency decisions throughout the Act.\textsuperscript{112}

In \textit{Bennett v. Spear}, the Supreme Court explained that the best available science mandate’s purpose is to “ensure that the ESA not be implemented

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\textsuperscript{105} See \textit{id.} at 751.
\textsuperscript{106} See \textit{id.} at 782–83.
\textsuperscript{107} See \textit{id.} at 772.
\textsuperscript{108} See \textit{id.}
\textsuperscript{109} See Pac. Coast Fed’n of Fishermen’s Ass’ns v. Nat’l Marine Fisheries Serv., 265 F.3d 1028, 1037 (9th Cir. 2001) (holding a NMFS biological opinion arbitrary and capricious for not adequately explaining its conclusions that vegetation regrowth would mitigate short term effects on listed salmon from a logging project); \textit{see also} Nat’l Wildlife Fed’n v. Nat’l Marine Fisheries Serv., 524 F.3d 917, 934 (9th Cir. 2008) (holding that a biological opinion did not adequately explain why it relied on uncertain long-term improvements to a species’ critical habitat in its baseline analysis).
\textsuperscript{110} 50 C.F.R. § 402.14(g)(5) (2013).
\textsuperscript{112} For example, the ESA also requires the use of the best available science for listing determinations, critical habitat designations, and exemptions from jeopardy consultation. \textit{See} \textit{Doremus, supra} note 4, at 406–07.
\end{flushleft}
haphazardly, on the basis of speculation or surmise.”\textsuperscript{113} The Court further reasoned that the mandate has dual goals: to advance the ESA’s primary objective—species preservation—and to avoid warrantless economic inefficiency from the unjustified pursuit of environmental objectives.\textsuperscript{114} Congress likely had these goals in mind when drafting the ESA because its members believed that wildlife agency decisions were primarily technical and the necessary scientific data could be easily obtained.\textsuperscript{115} This perspective oversimplifies the agency’s task as it relates to environmental science because data sets are often limited and agency decisions require decision makers to resolve complex ecological questions involving many interrelated factors.\textsuperscript{116}

Unfortunately, the statutory language of the ESA does not define what the “best available science” specifically entails.\textsuperscript{117} Nor is the mandate explained in the statute’s legislative history.\textsuperscript{118} FWS and NMFS attempted to explain their interpretation of the best available science standard in their Consultation Handbook.\textsuperscript{119} The Handbook recommends that to ensure that the quality of the information used in section 7 consultations, the agencies should take a seven-step evaluative process. The wildlife agency should: (1) evaluate all scientific and nonscientific information; (2) gather information disputing the agency’s actions; (3) document the supporting and contrary data; (4) use primary sources of information; (5) retain these sources for the record; (6) complete reviews of the data in a timely manner; and (7) require wildlife agency biologists to review documents produced by the agency.\textsuperscript{120} This definition, however, is primarily process-oriented\textsuperscript{121} and does not necessarily differentiate the best available science from “junk” science. It is also a mere guidance document, proffering recommendations for agencies. Its propositions, unlike statutory authority, are not necessarily judicially enforceable.\textsuperscript{122}

The key congressional concern here is likely to ensure that the science used by the agency to formulate its decision was supported with adequate reasoning.\textsuperscript{123} Courts have elaborated on the best available science mandate, but the resulting framework is far from a bright-line rule. For one, the wildlife

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\item \textsuperscript{113} Bennett v. Spear, 520 U.S. 154, 176 (1997).
\item \textsuperscript{114} See id. at 176–77.
\item \textsuperscript{115} See Michael J. Brennan et al., Square Pegs and Round Holes: Application of the “Best Scientific Data Available” Standard in the Endangered Species Act, 16 Tul. Envtl. L.J. 387, 410 (2003) (arguing that by relying on the best science available mandate, “Congress was implicitly attempting to align the ESA with an objective, rational, and scientific standard”).
\item \textsuperscript{116} See supra Part II.A.2–3.
\item \textsuperscript{117} See Brennan et al., supra note 115, at 404.
\item \textsuperscript{118} See id.
\item \textsuperscript{119} See U.S. FISH & WILDLIFE SERV. & NAT’L MARINE FISHERIES SERV., supra note 35, at xi.
\item \textsuperscript{120} See id.
\item \textsuperscript{121} See Brennan et al., supra note 115, at 398.
\item \textsuperscript{122} See W. Radio Serv. Co. v. Espy, 79 F.3d 896, 901 (9th Cir. 1996) (holding that a Forest Service handbook did not “have the independent force and effect of law”).
\item \textsuperscript{123} See Brennan et al., supra note 115, at 416.
\end{itemize}
agency cannot disregard scientifically superior data when it is available.\textsuperscript{124} Another important concept is that the wildlife agency is not required to use the best possible science, just the best available science.\textsuperscript{125} Similarly, the mandate does not require absolute scientific certainty.\textsuperscript{126} This allows the wildlife agency to rely on imperfect data, as long as the agency considered it the best data available.\textsuperscript{127} Minor flaws or peer-review criticism of data does not doom a particular biological opinion as long the agency’s reliance on the data is adequately explained.\textsuperscript{128} Furthermore, the regulations do not require the wildlife agency to conduct its own independent research and add to the existing data if the existing data is flawed or incomplete.\textsuperscript{129} The wildlife agency must merely endeavor to “manage and consider the data in a transparent administrative process.”\textsuperscript{130}

In light of the “best science available” standard’s nebulous character and the courts’ seemingly deferential attitude toward wildlife agency science, one might think that courts never strike down wildlife agency decisions. But that is not necessarily the case.\textsuperscript{131} Part of the problem in these cases might be that the science was complex or uncertain, producing equivocal data, and the agency inadequately explained how it resolved these scientific inconsistencies. The prevalence of the science charade may have led agencies in these cases to—intentionally or unintentionally—overlook the value judgments contributing to the resolution. But because these judgments are inherent to the process, the wildlife agency should have addressed them in the administrative record. Otherwise the agency’s decision is not adequately explained.

Although science must remain the base of wildlife agency’s biological opinions, there may be room in section 7’s best science available standard for the agency to explain why the science used was the best available through its value judgments. Unlike the strict science mandate for listing decisions under

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124. Plaintiffs challenging a wildlife agency finding must at least allege that the agency disregarded available, scientifically superior data. See City of Las Vegas v. Lujan, 891 F.2d 927, 933 (D.C. Cir. 1989). However, what constitutes scientifically superior data is debatable.


127. See Bldg. Indus. Ass’n of Superior Cal., 247 F.3d at 1246–47.

128. See Blue Water Fisherman’s Ass’n v. Nat’l Marine Fisheries Serv., 226 F. Supp. 2d 330, 338–39 (D. Mass. 2002) (holding that even though NMFS ignored published criticism of the dataset that it was using, NMFS did not fail to use the best available data because it merely considered and disagreed with that criticism).


\end{footnotes}
ESA’s section 4, 132 section 7’s best science available mandate allows the wildlife agency to base its decisions on factors besides science. 133 This can be inferred from the statutory language because section 4 requires the wildlife agency to base its listing decisions “solely on the basis of the best scientific and commercial data available,” 134 whereas section 7 merely requires agencies to use the best available science and commercial data in their determinations. 135 How far the wildlife agency can stray from the best science available during the consultation process is unclear. The wildlife agency must still provide a scientific basis for the decision, but without explaining the embedded policy choices within the science, the record remains incomplete. In order to allow judges to fully evaluate section 7 consultation decisions and decide whether they were truly based on rational judgments, wildlife agencies should explain these imbedded policy choices in their biological opinions.

D. Can Value Judgments Provide a Rational Basis for Agency Decision Making in the Face of Uncertain Science?

One area where courts have accepted value judgments used to resolve scientific uncertainty is in the promulgation of National Ambient Air Quality Standards (NAAQS) under the Clean Air Act. 136 EPA’s promulgation of NAAQS provides an analogous agency decision to biological opinions because, like the jeopardy standard for listed species in jeopardy decisions, NAAQS must be set to concentrations that the public health can tolerate with an adequate margin of safety using scientific research about that chemical’s health effects. 137 In American Trucking Ass’ns v. EPA, the D.C. Circuit upheld a revision to the NAAQS standard for ozone concentrations despite inherent uncertainties in the scientific data used. 138 The EPA’s studies indicated that to reduce risk to human health, the ozone NAAQS should be lowered to 0.09, 0.08, or 0.07 parts per million. 139 The petitioners claimed that EPA’s ultimate decision to set the NAAQS at 0.08 parts per million lacked a rational basis because of an advisory committee’s determination that there was no bright line distinguishing the alternative concentrations. 140 Despite this claim, the court held that EPA engaged in reasoned decision making, because it explained that its decision was based on the fact that “the most serious health effects of ozone [were] ‘less certain’ at low concentrations,” which provided a rational reason to

133. See Doremus, supra note 52, at 1051.
135. See id. § 1536(a)(2).
139. Id. at 376.
140. Id. at 379.
set the standard at a higher level. Because the agency’s science could not distinguish between the alternative concentrations, the agency had to make a value judgment about the appropriate standard. Interestingly, two of the ten members of the advisory council explicitly acknowledged that the lack of scientific data distinguishing the alternative concentrations required a value judgment, stating, “the [final] selection should be a policy decision.” The court deferred to EPA’s policy choice because it was explained in the record and was reasonable.

In the ESA context, courts reviewing biological opinions have weighed in on how an agency should interpret equivocal scientific data. One federal district court reasoned that the agency should resolve cases where there is a question as to what constitutes the best available science by giving the species the benefit of the doubt. By applying this policy choice, the agency is complying with Congress’s intent in creating the ESA. There is some debate regarding whether the legislative history creates an affirmative obligation on the agency to resolve uncertainty in this way, and agencies cannot use this policy rationale in favor of decisions that totally lack scientific support. However, these cases do not prohibit the agency from using this policy judgment as a reasonable rationale to resolve uncertain science. These cases also show that precaution in the face of uncertain data is a factor that Congress intended the wildlife agency to consider in its decision-making process. Biological opinions explaining this policy choice as a reason for using certain data should meet hard look review standards because precaution for the benefit of the species is not a factor that Congress has prohibited the agency from using during its decision making.

III. CASE STUDY: DOW AGROSCIENCES v. NATIONAL MARINE FISHERIES SERVICE

A. Background

Dow AgroSciences v. National Marine Fisheries Service offers an example of a decision where the court used hard look review to criticize the wildlife agency’s use of uncertain science and ultimately strike down its biological opinion. The controversy in Dow arises from the intersection of the ESA and federal pesticide regulations. Manufactures of pesticides must

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141. Id.
142. Id.
143. See id.
145. See id.
146. See Miccosukee Tribe of Indians v. United States, 566 F.3d 1257, 1267–68 (11th Cir. 2009).
register their products with EPA before they can be distributed or sold.\textsuperscript{149} In 1988, amendments to the Federal Insecticide, Fungicide, and Rodenticide Act required the EPA to reregister any pesticides that were registered before November 1, 1984.\textsuperscript{150} As part of the reregistration process, the EPA had to determine any unreasonable adverse effects on the environment from the pesticide’s labeled use.\textsuperscript{151} EPA’s reregistration of pesticides is subject to ESA section 7 consultation because reregistration is a federal agency action. Originally, the manufacturers of three pesticides—chlorpyrifos, diazinon, and malathion—agreed to certain usage restrictions during EPA’s reregistration process.\textsuperscript{152} Curiously, the EPA initially declined to consult with NFMS to obtain a biological opinion, thinking the reregistrations would have only minimal effects on listed species and formal consultation was not needed.\textsuperscript{153} Environmental groups eventually sued to compel EPA to initiate formal consultation with NMFS.\textsuperscript{154}

Section 7 pesticide registration consultations provide a good example of why environmental science is a difficult, and not purely technical, process. To determine the effect of a pesticide on a listed species, a wildlife agency will usually look to EPA risk assessment studies on a chemical, or coordinate with EPA to conduct such a study.\textsuperscript{155} The definition of risk in this context is the probability of adverse effects to a listed species due to pesticide use consistent with its labeling requirements.\textsuperscript{156} This risk is estimated by predicting future pesticide concentrations in the species’ habitat as well as the potential effects exposure might have on the species.\textsuperscript{157} Uncertainties arise from natural variability within the species population, lack of knowledge due to absent or incomplete data, and errors in the underlying assumptions and variables used to predict exposure and effects.\textsuperscript{158} Due to the complex interaction of the many variables in any ecosystem, it is unlikely that NMFS would be able to generate absolutely conclusive answers on the level of risk that pesticide registration posed to listed species based purely on science. Even calculating what level of risk the agency thought tolerable would be difficult without utilizing value

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\item \textsuperscript{149} 7 U.S.C. § 136a (2012).
\item \textsuperscript{150} Id. § 136a-1; see also 40 C.F.R. § 152.130(a) (2013).
\item \textsuperscript{151} 7 U.S.C. § 136a(c)(5)(C), (D).
\item \textsuperscript{152} Dow AgroSciences, 707 F.3d at 465.
\item \textsuperscript{153} See id.
\item \textsuperscript{154} See Wash. Toxics Coal. v. EPA, 413 F.3d 1024, 1034 (9th Cir. 2005).
\item \textsuperscript{155} Under the Federal Insecticide, Fungicide, and Rodenticide Act, pesticides must be registered with the EPA before they can be distributed or sold. 7 U.S.C. § 136a. As part of the registration process, the EPA must assess whether the pesticides will have unreasonable adverse effects on the environment. See id. § 136a(c)(2)(A).
\item \textsuperscript{156} See NAT’L RESEARCH COUNCIL, supra note 63, at 17.
\item \textsuperscript{157} See id. at 28.
\item \textsuperscript{158} See id.
\item \textsuperscript{159} See id. at 28–29. The National Research Council acknowledged that in many circumstances it may be impossible to eliminate these uncertainties from pesticide consultation studies. The NRC recommended that instead of explaining these uncertainties at the end of a study, the uncertainties should be explained and integrated into each step of the risk analysis. See id. at 29–30.
\end{itemize}
judgments to resolve inherent uncertainties.

Despite these difficulties, NMFS produced a biological opinion that concluded that reregistration would likely jeopardize several species of salmonids. The initial opinion was not well received publicly. EPA, pesticide manufacturers, and several state agencies criticized the document for failing to account for EPA’s mitigation measures, which were designed to limit pesticide runoff as part of the reregistration process. The draft was also generally criticized for its insufficient explanation of the reasoning behind its conclusions. Responding to this criticism, NMFS issued its final biological opinion adding information on EPA’s mitigation measures and supplemented its original data with additional studies. Like the draft, the final biological opinion concluded that the reregistration of these three pesticides would likely jeopardize the listed salmonids and their critical habitat. The opinion recommended RPAs that created buffer zones where the registered pesticides could not be used. The pesticide manufacturers then sued, alleging that NMFS’s biological opinion was arbitrary and capricious and failed to apply the best science available.

B. Scientific Decisions Challenged in NMFS’s Biological Opinion

The district court reviewed the plaintiffs’ criticisms of the final biological opinion and held that the biological opinion was not arbitrary and capricious because the administrative record established a rational connection between the scientific studies NMFS considered and the conclusions it reached. However, the Fourth Circuit reversed, holding that the biological opinion was arbitrary and capricious, and remanded to NMFS for further proceedings. The pesticide manufacturers successfully convinced the court to utilize State Farm’s hard look review to require an explanation of the agency’s use of the best science available. The court then analyzed three critical unexplained

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160. Salmonid species include salmon and certain species of trout. The biological opinion in this case covered several specific species including: Chinook salmon, chum salmon, coho salmon, sockeye salmon, and steelhead trout. See Nat’l Marine Fisheries Serv., Biological Opinion: Environmental Protection Agency Registration of Pesticides Containing Chlorpyrifos, Diazinon, and Malathion 34 (2008) [hereinafter 2008 Biological Opinion].


162. Dow AgroSciences, 707 F.3d at 466.

163. Id.

164. Id.

165. Id.

166. Dow AgroSciences, 821 F. Supp. 2d at 800–01.

167. Dow AgroSciences, 707 F.3d at 475.

168. See Brief for Plaintiffs-Appellants at 36, 38, Dow AgroSciences v. Nat’l Marine Fisheries Serv. 707 F.3d 462 (No. 11-2337), 2012 WL 1689233, at *36, *38. The plaintiffs argued that although it is often appropriate for the court to defer to the agencies determination of the best available science, when the agency has failed to explain its determination “there is nothing to which to defer.” Id. at 38–39.
assumptions in NMFS’s biological opinion.\textsuperscript{169}

First, the court examined an assumption used in NMFS’s analytical model that extrapolates the effect of the three pesticides on individual salmonids to the entire population.\textsuperscript{170} NMFS assumed that the fish would be exposed to the pesticides for ninety-six straight hours as part of the toxicity response analysis in its risk characterization.\textsuperscript{171} NMFS argued that this assumption was justified because “survival of individuals is typically measured by incidences of death following 96 hour . . . exposures . . . .”\textsuperscript{172} However the court was not convinced that this was a satisfactory explanation that demonstrated a rational connection to the choice made.\textsuperscript{173} Instead, the court held that relying on the ninety-six-hour exposure assumption rendered the biological opinion arbitrary and capricious because NMFS did not explain why this exposure was likely to occur in the wild.\textsuperscript{174}

Second, the manufacturers challenged the biological opinion’s reliance on allegedly outdated water quality data to determine the expected concentrations of their pesticides in the salmonids’ habitats.\textsuperscript{175} Their main contention was that the water data used did not reflect recent EPA regulations aimed at reducing pesticides from entering the relevant waterways, thus inflating NMFS’s baseline concentrations.\textsuperscript{176} In an attempt to bolster its data set, NMFS responded that its biological opinion acknowledged the potential concentration changes but argued that any mitigation effects would be too causally uncertain to affect the analysis.\textsuperscript{177} The court disagreed, noting that “an agency need not revise its action every time new data is announced,” but the agency was still required to explain why it chose to rely on older data.\textsuperscript{178}

Finally, the court examined the biological opinion’s prescription of uniform buffer zones in its RPA. According to the manufacturers, the problem with a uniform buffer zone is that it does not take into account the variation between individual salmonid habitats, some of which would be more vulnerable to pesticide use.\textsuperscript{179} NMFS’s justification for the uniform buffer zones was that similar buffers are regularly used in other programs, and are a recognized tool for reducing pesticide runoff into salmonid habitats.\textsuperscript{180} The court again disagreed that NMFS’s explanation was sufficient justification for the uniform buffers and pointed out that large buffers typically addressed impacts to off-channel habitats alone, which are more vulnerable to pesticide

\textsuperscript{169} Dow AgroSciences, 707 F.3d at 469–70.
\textsuperscript{170} Id. at 471.
\textsuperscript{171} Id. at 472.
\textsuperscript{172} 2008 BIOLOGICAL OPINION, supra note 160, at 267.
\textsuperscript{173} Dow AgroSciences, 707 F.3d at 471.
\textsuperscript{174} See id. at 472.
\textsuperscript{175} See Brief for Plaintiff-Appellants, supra note 168, at 47.
\textsuperscript{176} See id.
\textsuperscript{177} See Dow AgroSciences, 707 F.3d at 473.
\textsuperscript{178} Id.
\textsuperscript{179} See id. at 475.
\textsuperscript{180} 2008 BIOLOGICAL OPINION, supra note 160 at 393.
runoff.¹⁸¹ NMFS provided no justification for why they should apply to protect large, flowing rivers in the buffer zone, which the court thought would be impacted less by pesticide runoff.¹⁸² Finally, the court reasoned that NMFS was not required to pick the best RPA available for industry, but it was required to do some analysis for its chosen RPA.¹⁸³

C. Why Cases Like Dow AgroSciences Are Problematic

*Dow AgroSciences* exemplifies two potential problems facing the process of ESA consultations. First, there is a potential for courts to reject biological opinions based on reasoned decision making merely because their scientific judgments, and inherent value judgments, were poorly explained. The court in *Dow AgroSciences* stated that NMFS may have had reasonable explanations for its scientific decisions.¹⁸⁴ However, because they were not clearly explained in its biological opinion, the court could not review their reasonableness.¹⁸⁵ For example, NMFS filed an affidavit from one of the toxicologists explaining why NMFS used certain data over others in its biological opinion.¹⁸⁶ The affidavit outlines in detail why it discounted the water quality data that the court thought it was arbitrary for the biological opinion to exclude. However, because the court saw the affidavit as a post hoc rationalization of the agency’s decision, it could not accept these explanations as evidence of the biological opinion’s reasonableness.¹⁸⁷ Had these value choices been fully explained in the biological opinion itself, the court may have been more likely to uphold it.

Second, these cases set good precedent for both conservation advocates that challenge “no jeopardy” opinions, as well as industry advocates that challenge jeopardy decisions and unfavorable RPAs. Inconsistent application of deference principles in the judicial review of agency science will likely follow. Without a consistent framework for when to courts should defer to the wildlife agency conclusions, remands will continue to plague agencies with a backlog of consultation requests.¹⁸⁸ The next Part addresses one potential solution to mitigate some of these problems.

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¹⁸¹. *See Dow AgroSciences*, 707 F.3d at 474.
¹⁸². *See id.*
¹⁸³. *Id.* at 475.
¹⁸⁴. *Id.*
¹⁸⁵. *Id.*
¹⁸⁷. *See Dow AgroSciences*, 707 F.3d at 468.
IV. To Ensure That Courts Uphold Reasoned Decision Making and to Improve the ESA Consultation Framework, Wildlife Agencies Should Acknowledge and Explain Policy-Based Decisions in Their Biological Opinions

Many of the issues explained above arise from the wildlife agency failing to fully explain its decision-making process. In order to allow judges to fully evaluate agency decisions based on science, these embedded policy decisions must be acknowledged and explained. For ESA consultations, the most effective place to explain policy decisions is in the wildlife agency’s biological opinion at the point in its scientific analysis where the policy decision was made. In Dow AgroSciences, the three challenged assumptions were likely based on reasoned decision making, but the decisions were policy choices that NMFS failed to explain in the record. Reasoned decision making should be upheld upon review. However, Dow AgroSciences was correctly decided because NMFS’s biological opinion was incomplete, even though it likely used the best available science justified by its unexplained policy choices.

Because of this result, wildlife agency administrators should acknowledge and strive to explain the policy choices embedded in their biological opinions when they arise. Improving the wildlife agency’s communication in this regard is the best way to improve ESA’s consultation framework, giving more certainty to the parties involved and creating a more efficient process. First, calls to improve wildlife agency science from the legislature and the judiciary may be unrealistic considering the limitations inherent in environmental science. Second, courts should uphold wildlife agency decisions when policy judgments are acknowledged and reasonably explained because those explanations complete the administrative record by describing why the agency’s science was the best available. Finally, addressing policy decisions throughout the biological opinion is the best way to increase predictability for developers and agencies, and increase transparency and accountability in the decision-making process.

A. Calls for Better Science Are Unlikely to Produce Meaningful Reform

There have been a number of legislative attempts to change the way wildlife agencies use science under the ESA.189 However, calls for “better” science will not improve the decision-making process. First, it may be unrealistic to have the wildlife agency resolve uncertainties with more or sounder science due to the complexity of environmental science problems. For one, scientific research is continually evolving, and in many situations there may never be such a thing as “enough” science.190 Calls for better science could be endless without actually improving the certainty of the researchers’

190. See id. at 216.
predictions, paralyzing the agency with a perceived need for answers to be 100 percent conclusive. Further, many agencies are already overburdened with consultation requests.\footnote{191} If conclusive data does not exist, the agency will likely have to expend time and resources that it does not have, prolonging what is already a long and tedious process for developers.

Second, calls for better science reinforce the science charade, exacerbating the transparency and accountability problems it creates.\footnote{192} Under circumstances where the science cannot provide the agency with an answer, for example determining the acceptable level of risk to the species, calls for improved agency science effectively force the agency to frame its value-based decisions as scientific ones in order to meet the heightened science standard.\footnote{193} Forcing wildlife agencies to create scientific rationales for these questions actually causes them to overlook the values Congress intended by creating the ESA.\footnote{194}

\section*{B. Courts Should Uphold Biological Opinions That Fully Explain Reasonable Policy Choices}

One of the reasons that agencies do not adequately explain policy choices embedded in biological opinions is a historic fear that explicitly addressing these considerations will make their decisions vulnerable to judicial review. However, because the role of judicial review, especially under the arbitrary and capricious standard, is to ensure that the agency is making rational decisions, courts should defer to the agency’s policy decisions under the hard look standard if they are reasonable. In light of Congress’s intent to resolve uncertainty to the benefit of the doubt of the species, this standard should apply at least to those policy decisions when they are explained in the record.

One counterargument is that providing deference to these policy choices could potentially create a kind of “policy charade” where the agency claims uncertainty in order to satisfy a political aim. However, courts could still apply hard look review to ferret out abuse, especially if the policy rationale explained is a factor upon which Congress did not intend the agency to rely. Consistently giving deference to congressionally approved policy, like resolving uncertainty to the benefit of the species, should then incentivize wildlife agencies to more fully explain how the science they considered was the best available. Where the agency recognizes the limitations and weaknesses of its scientific data and rationally addresses those problems in the administrative record, courts should uphold those decisions under hard look review.

\footnote{191} See, e.g., Li, supra note 188, at 69. FWS has over 170 pending requests for pesticide registration consultations alone, and EPA has over 1100 pesticide ingredients scheduled for registration review. \textit{Id.}
\footnote{192} See Doremus, supra note 52, at 1035.
\footnote{193} See \textit{id.}
\footnote{194} See \textit{id.}
C. Explaining Policy Decisions Throughout the Biological Opinion Would Increase Transparency and Accountability in the ESA Consultation Process

In its guide to pesticide consultations, the National Research Council advocates for explaining uncertainties within biological opinions so that all decision makers are aware of how these uncertainties impact the analysis.\textsuperscript{195} This proposal attempts to build a record of how the agency resolved scientific uncertainty and to what extent those resolutions contributed to the overall decision. Similarly, when a wildlife agency makes a policy choice—for example, to apply precaution for a species’ sake—that choice should also be reflected in the biological opinion. That way, courts can evaluate whether the wildlife agency’s value-based judgments were reasonable and whether the overall decision adhered to the best science available standard.

Some policy and value judgments align more closely with the aims of the ESA than others. If agencies consistently explained their policy judgments, courts would then be able to police the use of improper or irrational policy. Eventually, consistent judicial review of these once-hidden rationales would create a coherent record of the approved policy aims of the statute. Industry would benefit by getting more predictability out of the consultation process. Conservationists would benefit by seeing consultations aligning more closely with the species-focused policies of the statute. And finally, the public would benefit through the increased accountability of agency administrators. Because key decision makers are elected or appointed by elected officials, the increased transparency of the agency’s decisions would give the public some power to control the decision making process by replacing key administrators and legislators.

There may never be a perfectly defensible wildlife agency decision. Because the problems that agencies face are so complex, there will likely always be some available science that contradicts the agency’s ultimate conclusions. Despite a wildlife agency’s reflex to shield its decisions by appealing to scientific rationales alone, neglecting the value choices made along the way may leave gaps in the record that courts are accomplished at identifying. In order to create fully explained records, and increase the transparency and accountability of section 7 consultations, wildlife agencies should embrace the rational policy choices that necessarily complement environmental agency science.

\textsuperscript{195} See, e.g., NAT’L RESEARCH COUNCIL, supra note 63, at 27.

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