4-1-2012

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ENVIRONMENTAL JUDICIAL INTERPRETATION AND AGENCY REVIEW: AN EMPIRICAL INVESTIGATION OF JUDICIAL DECISION-MAKING IN THE CLEAN WATER ACT AND THE CLEAN AIR ACT

John A. Sautter* & Levente Littvay**

Political ideology has long been associated with the manner in which judges make judicial decisions. Extensive empirical research has established the link between a judge’s political ideology and how they rule on cases. However, little research has been conducted specifically in environmental law. Indeed, what research is available looks at environmental law in general and has not asked any questions concerning how political ideology might affect decision-making concerning specific environmental statutes. This article seeks to partially fill this void by looking specifically at how political ideology affects whether judges affirm or reverse agency action with respect to the Clean Water Act versus the Clean Air Act. The data used in this analysis were collected from seventy environmental law cases, which include 116 instances of statutory interpretation and 347 judicial votes concerning cases appealed to the U.S. Courts of Appeal over a three-year period from 2003 to 2005. Findings indicate that political ideology is a much more important factor in Clean Water Act cases as compared to Clean Air Act cases. Furthermore, evidence shows that panel composition was much more important for Clean Water Act decisions as opposed to Clean Air Act decisions. These findings are placed within the general framework of understanding legal decisions as a product of both legal interpretation and political preferences.

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INTRODUCTION

While there have been tremendous strides in using empirical methods to understand legal decisions made by courts, there have been very few empirical studies of environmental case law.¹ In all of the empirical studies on the subject, environmental statutes have essentially been treated as interchangeable.² That is, researchers have treated environmental statutes as essentially different objects of the same kind.³ However, this poses the question of whether there are differences in the way judges treat specific environmental law statutes. This article investigates the differences between the manner in which federal appellate judges treat Clean Air Act (“CAA”) and Clean Water Act (“CWA”) cases when deciding to affirm or reverse agency decisions.⁴ For the purposes of this article this is referred to as “statutory context.” In particular, the article addresses the issue of whether political ideology increases a judge’s probability of supporting an agency’s action under the CAA or the CWA.⁵

³ What little empirical work that has been done on environmental law has not distinguished between the manner in which judges treat statutes.
⁵ It is important to note that in this investigation there is no consideration of a
posing this question other variables like judicial collegiality or the political diversity of a bench also are explored. These variables are important in understanding how the statutory context might activate or obviate certain characteristics of a sitting bench.

As an empirical analysis, this article focuses on statistical analysis of 116 instances of judicial review of an agency action in environmental law between 2003 and 2005. This equates to 347 judicial votes concerning an agency action in regard to an environmental statute. The cases used in this data set only concern instances of judicial review of agency interpretation of a statute. Federal circuit courts either voted to affirm or reverse the agency action. The data set includes cases from every circuit court of appeals except the Third Circuit. Statistical results of this data indicate a number of important findings.

First, political preferences matter. The general salience of political ideology in judicial decisions supports a long line of research that has found similar results. Particular to this analysis, ideology is an important factor in CWA cases as opposed to CAA cases and other less litigated environmental statutes. In regard to the CWA, liberals were much more likely to reverse agency action as compared to conservatives. In contrast, no significant bifurcation along ideological lines existed in CAA cases.


6 Using only cases of judicial review of agency action avoids judges being able to use other legal doctrines, like standing, to dispose of a potential statutory interpretation issue. For more explanation on this, see Jason J. Czarnezki, An Empirical Investigation of Judicial Decisionmaking, Statutory Interpretation, and the Chevron Doctrine in Environmental Law, 79 U.Colo. L. Rev. 767, at 772.

7 See, Sunstein, Schkade & Ellman, supra note 2, at 322–23 (“From 1970 through 2002, Democratic appointees voted against agency challenges [sixty-four percent] of the time, whereas Republican appointees did so [forty-six percent] of the time.”).
Another important set of findings concerns statutory context and judicial collegiality – defined here as having two or more justices on the bench of the same political ideology – which had altering effects in both CAA and CWA cases. In CWA cases, conservatives were much more likely to affirm when there was another conservative on the bench with them, both as compared to other environmental law statutes and when estimated independently on only CWA cases. Conversely, in CAA opinions, liberals were more likely to reverse agency rulings when there was another liberal on the bench with them. However, unlike the CWA cases, this effect was not significant when an independent estimation of only CAA cases was used.

Finally, this article also looks at the manner in which political diversity of a bench affects agency review and statutory context. Political diversity of a bench measures the average distance between judges on the “conservative to liberal” ideological spectrum. Analysis of the data from this study shows that more ideological diversity on a bench led to a significantly higher likelihood that the judges would reverse the agency decision in CWA decisions. This trend was absent among CAA cases.

These findings suggest that there are major differences in the manner in which judges approach the CWA as compared to the CAA. However, there are no clear answers as to why CWA cases should be so much more politicized than CAA cases. The final section assesses the potential reasons for these differences.

I. Why Look at Environmental Statutory Interpretation?

Statutory context is an important question to address in environmental law generally. Understanding how judges react to specific environmental provisions can inform the legislative branch

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10 Although somewhat different, the political diversity construct is similar to that used by Czarnezki and Ford. See Jason J. Czarnezki & William K. Ford, *The Phantom Philosophy? An Empirical Investigation of Legal Interpretation*, 65 Mo. L. Rev. 841, at 841 (2006).
of the potential secondary effects of their choice of words and statutory content. These questions are also important to litigators. Statutory context could mean using different arguments or legal strategies in arguing an environmental case before a court. Finally, differences in how judges treat environmental statutes can be an important element for administrative agencies that must defend their interpretation of the statute. Knowing that one statute will arouse political ideology in the judiciary as compared to another could affect the way that the agency fulfills its mandate under the law or the way it interprets the statutory provisions.

A. The Environmental Law Context

Environmental statutes tend to be as complex as the environment they protect. These laws are sprinkled with statutory mandates concerning hard science, geography, risk assessment and the public welfare. Agencies promulgate regulations, devise policy and take actions based on the way that they interpret these statutes. When these actions are challenged, the agency must defend its statutory interpretation in the courts. Judges hearing environmental cases must then apply the *Chevron* Doctrine to decide whether the agency appropriately interpreted Congress’s intent.

The *Chevron* decision is the most cited court case in all of American law. The precedent calls upon a court to ask two questions. First, did Congress speak directly to the issue at hand in the statute? Second, if Congress left ambiguity in the statute was

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11 For a basic synopsis of environmental case law that captures the intricacies and history of the subject, see Robert V. Percival, Christopher H. Schroeder, Alan S. Miller & James P. Leape, Environmental Regulation: Law, Science, and Policy (5th ed. 2006).
13 Percival, Schroeder, Miller & Leape, supra note 11.
14 See id. at 843 n.9. “The judiciary is the final authority on issues of statutory construction and must reject administrative constructions which are contrary to clear congressional intent. If a court, employing traditional tools of statutory construction, ascertains that Congress had an intention on the precise question at issue, that intention is the law and must be given effect.”
the agency’s interpretation of the statute reasonable? If a court finds that the agency action was reasonable, then it should defer to the expertise of the agency in the particular area being litigated.

Judicial interpretation of agency action leaves much room for individual judges to potentially apply their own preferences. Previous findings have supported this contention. However, though judges can rule that the statute is ambiguous, they tend to defer to agency judgment in a majority of environmental law cases, roughly sixty percent of the time. Past studies have indicated that political ideology has been an important factor in judicial review of agency action concerning environmental statutes on a statistically significant level. None of these researchers looked into specific differences regarding statutes. Thus, the absence of research in this area begs the question of whether the statutory context does make a difference.

B. Models of Behavior: The Legal vs. The Attitudinal Models

Empirical investigators of the law generally refer to two basic models of behavior that are used to formulate theory and think about how judges make decisions. The first and most basic conception is that judges make decisions based on the legal questions put before them. Known as the “legal model,” this framework views judges

15 Id. at 843–44, 866.
16 Id.
18 Id.
19 Id. at 827.
21 Id.
23 Id.
as processors of information and logic with little to no regard for exogenous factors that might influence their decision.\textsuperscript{24} Under this model judges use traditional tools of legal analysis like precedent, statutory construction, original intent and legislative history to logically weigh the legal issue that is before them.\textsuperscript{25}

Clearly, law matters. However, it would be naïve to posit that a justice does not bring with her to the bench her own preferences for certain policy outcomes and her own political ideology. This brings us to the second basic model used by researchers, known as the “attitudinal model.”\textsuperscript{26} This model of judicial behavior suggests

\textsuperscript{24} Id.
\textsuperscript{25} Id.
\textsuperscript{26} For a brief discussion of the legal versus attitudinal model, see id (internal citations omitted). The authors state that political scientists speak of two basic models of judicial behavior: the legal model and the attitudinal model. As defined by political scientists, the legal model refers to traditional interpretive approaches familiar to lawyers, such as the language of legal texts (e.g., contracts, statutes, and constitutions), precedent, canons of construction, the intent of the framers, and legislative history. A common thread among these sources is that each is external to a judge’s personal preferences or political views. The attitudinal model, on the other hand, is essentially the political science version of legal realism, where judges “decide[ ] disputes in light of the facts of the case vis-à-vis [their] ideological attitudes and values.” While the legal model assumes an almost mechanical form of jurisprudence, the attitudinal model represents the opposite extreme, suggesting that ideology alone determines judicial outcomes. Indeed, the frequent protests of Supreme Court Judges that they do not or must not make policy are matched by some political scientists’ complaints that legal arguments are deceptions. Standing alone, neither model captures what most legal scholars think influences judicial decisionmaking. Recently, political scientists have begun to give more attention to the legal model, and legal scholars have begun to give more empirical attention to the role of ideology. Nevertheless, much work remains to be done in developing and testing a model that incorporates ideological and legal influences. Both types of influences have strong backing in the theoretical literature on legal interpretation and deserve careful testing.

\textit{Id.}
that the legal analysis is not the only, nor necessarily the primary, determinant of decision-making. Rooted in the philosophy of pragmatism, this legal realist view looks at a judge’s decision by asking about the judge herself or her relationship to other judges on bench, instead of strictly about the legal question that must be decided. Essentially, this model looks at how the judge’s predisposed notions of policy preferences and political ideology influence her decision.

For example, researchers Miles and Sunstein have found that when conducting the *Chevron* analysis, the most conservative judges on the Supreme Court approve agency decisions at a lower rate when the President is a democrat as opposed to a republican. The same study also found that the liberal judges on the Court were more likely to approve agency decisions when there was a democrat in the White House. This pattern holds true for the courts of appeal as well. When liberal circuit court judges decide cases under the *Chevron* doctrine, they tend to approve those agency actions that were more liberal in nature, with conservatives voting in the same manner to promote their policy preferences. More recent analysis of environmental law has revealed that judges in fact may be using the *Chevron* analysis strategically in order to further their policy preferences.

Another example comes from an analysis of all of the environmental law decisions coming before the D.C. Court of Appeals from 1970 to 1994. In this study by Richard Revesz, judicial

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27 *Id.*
28 *Id.*
29 *Id.*
31 *Id.*
32 *Id.*
33 *Id.* at 826–827.
34 Jason Czarneski, *An Empirical Investigation of Judicial Decisionsmaking, Statutory Interpretation, and the Chevron Doctrine in Environmental Law*, 79 U. Colo. L. Rev. 767, at 820 (“The data provide very limited evidence that Chevron step one is used strategically to achieve desired policy preferences.”).
collegiality was an important modifier of a justice’s partisanship. Revesz found that when judges of either party tended to work with at least one colleague of the same ideological bent, that those judges were more likely to reverse EPA decisions in an industry challenge if conservative, and affirm the EPA decision if liberal.

More than likely, a combination of both conceptions of human nature explains judicial behavior; though neither model completely explains the calculus of judges, each is essential in developing testable hypotheses. This article draws upon both of these models to develop testable hypotheses. The main objective of this investigation was to uncover whether there are differences in the manner in which judges decide CAA versus CWA cases, not to compare or test these models of behavior. With that in mind, it is helpful to think of both of these models when developing hypotheses that test for differences in the statutes.

C. Developing Hypotheses: The Clean Water Act and The Clean Air Act

The CAA and the CWA were chosen for this analysis because they tend to be the two most litigated statutes in environmental law concerning agency review. These two statutes were also the two statutes that offered enough observations to conduct a statistical analysis. Furthermore, each statute has received recent notoriety for potentially far reaching Supreme Court cases. The legal model suggests that there should be no difference between the CAA and the CWA. Since judges merely decide cases based on legal

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36 Id.
37 Id.
38 This should not be confused with the most litigated environmental statutes. Litigation normally occurs on the lower district court level, not on the appellate level. The cases used here are only found on the appellate circuit court level.
39 Generally, a statistical analysis requires at least \( n = 29 \) observations in order to satisfy the basic assumptions of regression estimation. The CAA and CWA were the only two statutes in this study that met this basic criteria.
analysis, political ideology should not be a statistically significant predictor. On the other hand, the attitudinal model suggests that political ideology, along with judicial collegiality and political diversity, should play a part in both of the statutory contexts. The research design used in this study explicitly tested for evidence that judges’ political attitudes drove their decisions regarding agency interpretation of the CAA and CWA.

The following hypotheses were developed regarding judicial interpretation and agency review:

**Hypothesis 1:** Political ideology will be a significant predictor of both CAA and CWA decisions, with conservative ideology being correlated with support of an agency decision and a liberal ideology being correlated with reversal of the agency decision.

**Hypothesis 2:** Judicial collegiality will increase rates of partisanship, with conservatives more likely to affirm agency actions and liberals more likely to reverse agency actions.

**Hypothesis 3:** Political diversity on a bench will increase the likelihood that a justice will reverse an agency action.

## II. DATA AND METHODOLOGY

### A. The Courts, Judges and Cases

Each appellate circuit court was included in this analysis except for the Third Circuit Court of Appeals, which did not have any cases of environmental statutory interpretation appealed to the circuit level. Figure 1 displays a comparison of the number of cases tried by each circuit court from 2003–2005. The D.C. Circuit Court of Appeals dominates in the number of cases tried during the three-year period sampled, with 108 judicial votes cast in statutory interpretation cases. One reason for its dominance is that some environmental law statutes require that any agency challenges be

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42 Id.
43 Id.
44 During the time period in question (2003–2005) the United States had a Republican President, George W. Bush.
brought before the D.C. circuit. The Ninth and Second Circuits had the second and third highest number of judicial votes with sixty-six and sixty-two, respectively.

The six votes cast in the Tenth Circuit involved CERCLA, and due to their nature involved no affirmation or reversal of agency action. Therefore, these six votes were dropped from the analysis, lowering the total number of votes from 347 to 341.

The cases were chosen by conducting a search for all citations to the *Chevron* decision between 2003 and 2005. From this initial group of cases, all decisions that were decided en banc, amended later in the year, and cases whose primary question was not an interpretation of an environmental statute were deleted. After cutting out these cases, the data set was left with seventy cases, which

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45 See, e.g., Clean Air Act § 307(b), 42 U.S.C. § 7607(b) (2011).
46 The appendix contains a list of all of the judges whose votes were used in this analysis. Judges are listed according to the circuit on which they sit.
equated to 116 instances of environmental statutory interpretation and 347 judicial votes. These cases were reviewed by three judge panels that assessed agency action under the *Chevron* doctrine, and ultimately, whether to affirm or reverse such action.

Table 1 contains a listing of all of the environmental statutes used in this analysis. By far, the CAA and the CWA are the dominant statutes being challenged and brought to the appellate level, with 147 and seventy-two judicial votes respectively. The next two most frequently appealed statutes were the Organic Foods Production Act at the Energy Policy Act, with eighteen and fifteen judicial votes respectively. Most of these cases concern permitting actions by the EPA under the CAA and the Army Corps of Engineer under the CWA.

<table>
<thead>
<tr>
<th>Federal Statute</th>
<th>Judicial Votes Cast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean Air Act</td>
<td>147</td>
</tr>
<tr>
<td>Clean Water Act</td>
<td>72</td>
</tr>
<tr>
<td>Organic Foods Production Act</td>
<td>18</td>
</tr>
<tr>
<td>Energy Policy Act</td>
<td>15</td>
</tr>
<tr>
<td>Comprehensive Environmental Response, Compensation, and Liability Act</td>
<td>9</td>
</tr>
<tr>
<td>Safe Drinking Water Act</td>
<td>9</td>
</tr>
<tr>
<td>National Wildlife Recovery Act</td>
<td>9</td>
</tr>
<tr>
<td>Endangered Species Act</td>
<td>9</td>
</tr>
<tr>
<td>Magnuson-Stevens Fishery Conservation and Management Act</td>
<td>6</td>
</tr>
<tr>
<td>National Historic Preservation Act</td>
<td>6</td>
</tr>
<tr>
<td>Resource Conservation &amp; Recovery Act</td>
<td>6</td>
</tr>
<tr>
<td>Alaska National Interest Lands Conservation Act</td>
<td>3</td>
</tr>
<tr>
<td>Emergency Planning and Community Right-to-Know Act</td>
<td>3</td>
</tr>
<tr>
<td>Federal Power Act</td>
<td>3</td>
</tr>
<tr>
<td>Federal Power Act</td>
<td>3</td>
</tr>
<tr>
<td>Dolphin Conservation Program Act</td>
<td>3</td>
</tr>
<tr>
<td>National Environment Policy Act</td>
<td>3</td>
</tr>
<tr>
<td>National Forest Management Act</td>
<td>3</td>
</tr>
<tr>
<td>Nuclear Waste Policy Act</td>
<td>3</td>
</tr>
<tr>
<td>Rivers &amp; Harbors Act</td>
<td>3</td>
</tr>
<tr>
<td>Surface Mining Control &amp; Reclamation Act</td>
<td>3</td>
</tr>
<tr>
<td>Food Security Act</td>
<td>3</td>
</tr>
<tr>
<td>Wilderness Act</td>
<td>3</td>
</tr>
<tr>
<td>NPS Organic Act</td>
<td>3</td>
</tr>
<tr>
<td>National Appliance Energy Conservation Act</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>347</strong></td>
</tr>
</tbody>
</table>

Table 1.
Number of Judicial Votes Cast Per Environmental Statute
B. Methodology

1. Dependent Variable

A judge’s vote to either reverse or affirm an agency action is the dependent variable in all of the regression estimations used in this analysis. Judicial votes were coded as a binomial (0,1), with “0” indicating an agency reversal and “1” indicating an agency affirmation. Unlike prior assessments of judicial review of agency action, there is no coding for a liberal versus a conservative decision, or whether the action was pro-industry or pro-environment. For the purposes of this test of statutory context, the focus is only on reversing or affirming agency action.

2. Ideology

In order to code judges’ political ideology, each judge’s “common space score” under the Giles, Hettinger and Peppers’ (“GHP”) formulation for ideology is used.47 As shown in Figure 2, this measure assigns a score to each judge who sits on a circuit court of appeals that varies from +1 (the most conservative) to -1 (the most liberal). For each judge, Giles et al. assigns them one of two scores.48

For judges nominated to sit in a state represented by a senator (or senators) of the president’s party, the senator’s common space score is used (or an average if both senators are of the president’s party), reflecting the tradition of senatorial courtesy. If neither senator in office at the time of appointment is of the same party as the appointing president, then GHP assigns the judge the appointing president’s score.49

48 Id. at 628.
The validity of GHP scores as a measure of political ideology for judges has been proven to be effective.\textsuperscript{50}

Common Space Scores for Judges (GHP)

![Common Space Scores Diagram](image)

A judge’s GHP score can range from +1 (most conservative) to -1 (most liberal).

Each judge in the data set was given a “GHP score” or a common space score in place of a label as a Republican or Democrat. Therefore, when referring to differences in political ideology throughout the article, references will be made to being more conservative or liberal depending on the GHP score a judge has been given. Figure 3 lists the average GHP scores for judges from the various federal circuits. The list to the left of the map indicates that the Ninth Circuit, which largely comprises the west coast, is the most liberal circuit as measured by the average GHP score for the judges sampled for this study. On the other end of the spectrum, the Fifth Circuit, which comprises Texas, Louisiana and Mississippi, is the most conservative circuit. Generally, these results intuitively make sense, with traditionally more conservative areas appointing conservative judges and liberal areas of the country appointing liberal judges.

Average Political Ideology Score Per Circuit Map. The figure shows the average political GHP score for each district using the individual judge’s scores gathered in the sample of cases collected for this analysis. Since not all of the judges that sit on each circuit, nor all of the circuits, were sampled, a reader should not take these scores to reflect the actual and total average score for each circuit, but rather only for judges whose environmental administrative decisions were used in this analysis.

3. Collegiality

It has been said that there is strength in numbers. Judges are no exception. Collegiality has been found to be an important modifier of judicial decision making. The presence of two judges of the same ideological disposition on a three judge panel tends to strongly reinforce the judges’ ideological convictions. In order to operationalize this variable, judges were coded as having an

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51 LEE EPSTEIN & JEFFREY A. SEGAL, ADVICE AND CONSENT: THE POLITICS OF JUDICIAL APPOINTMENTS 117 (2005) (In implementing Chevron, “Republican circuit court judges sitting on panels with two other Republicans frequently voted to reverse liberal agency decisions but were less likely to vote to overturn them if a single Democrat served on the panel. Similarly, Democratic judges on panels with other Democrats frequently voted against conservative agency decisions but were less likely to reverse them if a Republican sat along with them.”).

52 Id. For a focus on collegiality specific to an environmental law, see Richard L. Revesz, Environmental Regulation, Ideology, and the D.C. Circuit, 83 VA. L. REV. 1717 (1997).
“ideological colleague” if there was at least one judge on the panel with a GHP score of the same sign as their own. The result was a (0,1) binomial variable. For example, if two conservatives were on the bench with one liberal, the conservatives (whose sign would be “+“) would both receive a “1.” Conversely, the liberal whose GHP score would be negative, would receive a “0.”

4. Political Diversity of the Bench

In order to look at how diversity of political ideology on the bench might affect how a justice casts their vote to affirm or reverse an agency decision, a “political diversity” variable was developed that would measure the comparative amount of absolute difference between judges that comprise a bench decision.

The variable was computed using the following formula:

\[ y = |a - b| \]
\[ z = |a - c| \]
\[ x = |b - c| \]
\[ \delta = \frac{y + z + x}{3} \]

Where,
- \( y \) = Judge i’s GHP score.
- \( z \) = Judge ii’s GHP score.
- \( x \) = Judge iii’s GHP Score.
- \( \delta \) = Political Diversity of Bench.

For example, one of the CWA cases used in the analysis was the Rapanos Case from the Sixth Circuit. The appellate judges (and their corresponding GHP scores in parentheses) that decided the case for the Sixth Circuit were J. Reeves (\( \gamma = 0.416 \)), J. Gibbons

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53 This codification followed the same procedure used by Revesz in his earlier work. See, Richard L. Revesz, Environmental Regulation, Ideology, and the D.C. Circuit, 83 VA. L. REV. 1717 (1997).

54 United States v. Rapanos, 376 F.3d 629 (6th Cir. 2004).
(z = -0.142) and J. Siler (x = 0.358). J. Gibbons is more liberal at -0.142, then the largely conservative J. Reeves and J. Siler, who both score strongly to the right on the scale. The political diversity score for this bench is \( \delta = 0.372 \). This number is the average of the absolute difference on the GHP scale for each of the three judge pairs calculated using the formula above. This is a rather low political diversity number score, largely because the distance between J. Reeves and J. Siler is small, and J. Gibbons is not very far to the left.

However, consider a case like Blue Water v. EPA from the D.C. Circuit. The appellate judges in this case (and their corresponding GHP scores in parentheses) were J. Edwards (\( y = -0.51 \)), J. Tatel (\( x = -0.456 \)) and J. Sentelle (\( z = 0.568 \)). Judge Sentelle is far right of Judges Edwards and Tatel, who are on the far left. The resulting political diversity score is \( \delta = 0.718 \), nearly double the score of the Rapanos case. Because there is one strong conservative and two strong liberals (as opposed to three judges who are closer to the center), there is a more diverse bench. This variable offers a comparative measure of the make-up of the bench. It does not code for being more liberal or more conservative; rather, it just looks at how ideological differences on a bench might affect outcomes.

III. Results

The results are presented below in the order of the statistical analysis conducted.

A. Descriptive Results: The CAA versus The CWA

The first piece of evidence that there are basic differences between the way judges treat the CAA and the CWA can be seen by looking at the mean level of political ideology under each statute for those judges who reversed versus affirmed agency actions. Figure 4 compares these numbers. It is revealing that the mean GHP score for CWA cases shows that those judges who affirmed tended to

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55 Id.
57 Id.
be far more conservative. In contrast, those judges who reversed agency actions on statutory issues from the CWA tended to be far more liberal. This is not to say that there were no conservatives who reversed, or that there were no liberals who affirmed, but that the average GHP score was more conservative for affirmations and liberal for reversals.

The CAA shows a somewhat similar trend, but not to the degree of the CWA cases. Those who affirmed EPA decisions under the CAA tended to be more conservative, while those who reversed tended to be more liberal. However, while the CWA cases show a space score difference of (.2252), the CAA cases only show a difference of (.036). The difference for CWA cases was nearly seven times greater.

![Comparison of Mean Political Ideology Score for CWA & CAA Decisions](image)

**Figure 4.**

A higher mean value indicates a more conservative than average judge. A lower mean value indicates a more liberal than average judge.
B. Regression Estimations

1. Political Ideology Results

Political ideology was the first variable tested through regression analysis. In order to control for differences that would be unique to each federal circuit, dummy variables were created for each federal circuit.\(^5\)\(^8\) Equation 1 describes the regression estimation used here to test for the significance of political ideology in CAA versus CWA cases. The variables “CWAGHP” and “CAAGHP” are interaction terms, which combine the GHP score of the justice with whether or not they ruled on a CWA or CAA case. If the justice had ruled on either statute, then their GHP score was coded into the variable; for decisions that dealt with other environmental statutes, a “0” was given.

Equation 1:

\[
\text{Decision}_i = \beta_1 \text{CWA}_i + \beta_2 \text{CAA}_i + \beta_3 \text{Year}_i + \sum_{m \in M} \delta_m \text{CircuitCourt}_{mi}
\]

The original hypothesis was that political ideology would be a significant factor in both the CAA and CWA cases. The results of the regression presented in Table 2 indicate that the hypothesis was incorrect. As the previous comparison of means indicates, the political ideology of the judges who decided CWA cases was an important predictor in affirming or reversing an agency decision. The “CWAGHP” variable was positive and significant at the \(p<.10\) level, indicating that conservative judges tended to vote to affirm agency action in CWA cases and liberals tended to vote to reverse. However, there is no significance in CAA cases, indicating that conservatives and liberals did not tend to use their political ideology as a guide to decision making.

\(^5\)\(^8\) However, the results of the regression coefficients for each circuit were not reported.
Binary Probit Regression – Dependent Variable: Decision

<table>
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<tr>
<th>Variables</th>
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<th>p-value</th>
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<tr>
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<td>-2.359</td>
<td>0.018</td>
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<tr>
<td>Circuit Courts</td>
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<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

McFadden R-squ.     | .09         |
N                   | 341         |
Obs with Dep=0      | 105         |
Obs with Dep=1      | 236         |

Table 2.
Dependent variable is binary (0, 1) variable. Reversal of agency decision was coded as “0”. Affirmation of agency decision was coded as “1”. The Eleventh Circuit was dropped to avoid a singular matrix in the regression and to provide a baseline analysis. The Third Circuit did not conduct a review of agency interpretation of a federal environmental statute during the period from 2003 to 2005. The Tenth Circuit’s only review of agency interpretation of a federal environmental statute did not involve an affirmation or reversal decision; therefore, it was not included in estimation. Analysis was run on E-views software.

2. Collegiality

Conservative judges who decided CWA cases, as compared to other environmental statutory decisions, were significantly more likely than liberals to affirm the agency interpretation when there was another justice on the bench of the same political ideology. Table 3 presents the results of the regression expressed in Equation 2. Notice that the “Judicial Colleague*CWAGHP” variable is significant at the p<.001 and is positive. Indeed, liberal judges who decided CAA cases were more likely than conservative judges to affirm the agency decision when there was another justice on the bench who was also liberal. This is shown by the Judicial Colleague*CAAGHP being significant at the p<.10 level and being negative. This means that when a negative GHP score multiplied by the Judicial Colleague dummy variable gave a value, those values tended to predict a
reversal at a significant level. As in the previous regression model, circuit courts were controlled for in the estimation.

Equation 2:

\[ \text{Decision}_i = \beta_1 \text{CWA}_i + \beta_2 \text{CAA}_i + \beta_3 \text{Year}_i + \beta_4 \text{JudColl}_i + \beta_5 \text{JudColl} \times \text{CWAGHP}_i \\
+ \beta_6 \text{JudColl} \times \text{CAAGHP}_i + \sum_{m} \delta_m \text{CircuitCourt}_m \]

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<th>p-value</th>
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</table>

Table 3.

Dependent variable is a binary (0,1) variable. Reversal of agency decision was coded as “0”. Affirmation of agency decision was coded as “1”. The Eleventh Circuit was dropped to avoid a singular matrix in the regression and to provide a baseline analysis. The Third Circuit did not conduct a review of agency interpretation of a federal environmental statute during the period from 2003 to 2005. The Tenth Circuit’s only review of agency interpretation of a federal environmental statute did not involve an affirmation or reversal decision; therefore, it was not included in estimation. Analysis was run on E-views software.

59 Before running this regression, another estimation was completed that looked at only whether the presence of a judicial colleague of the same ideology made a difference. However, no significance was found.
3. Collegiality in CWA versus CAA cases

In order to look at only the effects of judicial collegiality and political ideology among each class of cases, regressions were run first using only the CWA cases and then only the CAA cases. Without doing these regressions, our results would only explain the significance of these variables in relation to all non-CWA and non-CAA cases, which were used as a baseline in the preceding regressions. Therefore, these regressions take out that comparison and look at the effects of the interaction term when comparing only CWA or only CAA cases to other votes cast for those specific cases.

Equation 3:

\[ CWADecision_i = \beta_1 \text{GHP}_i + \beta_2 \text{JudCol}_i + \beta_3 \text{JudCol}_i \times \text{GHP}_i + \sum_{m} \delta_m \text{CircuitCourt}_mi \]

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<th>p-value</th>
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<td>McFadden R-squ.</td>
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Table 4.

Dependent variable is a binary (0,1) variable. Reversal of agency decision was coded as “0”. Affirmation of agency decision was coded as “1”. The Eleventh Circuit was dropped to avoid a singular matrix in the regression and to provide a baseline analysis. The Third Circuit did not conduct a review of agency interpretation of a federal environmental statute during the period from 2003 to 2005. The Tenth Circuit’s only review of agency interpretation of a Federal environmental statute did not involve an affirmation or reversal decision; therefore it was not included in estimation. Analysis was run on E–views software.
When looking at only CWA cases, conservatives are far more likely than liberals to affirm an agency interpretation of a statute when there is another conservative on the bench. Table 5 presents the results from the regression expressed in Equation 3. Note that the “Judicial Colleague*GHP Score” variable is significant at the p<.05 level and is positive. This indicates that, once again, conservatives were more likely to affirm agency actions when there was another conservative on the bench with them. However, in regard to CAA cases, there are no discernable differences from having a judicial colleague on the bench for either liberals or conservatives. Notice in Table 5 that the relevant variables are not significant predictors of the dependent variable. In other words, having a political colleague was not an important factor in CAA cases for either liberals or conservatives.

Equation 4:

\[ CAA_{Decision} = \beta_1 GHP_i + \beta_2 JudCol_i + \beta_3 JudCol_i \times GHP_i + \sum_{m \in M} \delta_m CircuitCourt_{mi} \]

<table>
<thead>
<tr>
<th>Variables</th>
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<th>Z-Score</th>
<th>p-value</th>
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McFadden R-squ. .01
N 147
Obs with Dep=0 43
Obs with Dep=1 104

Table 5.

Dependent variable is a binary (0,1) variable. Reversal of agency decision was coded as “0”. Affirmation of agency decision was coded as “1”. The Eleventh Circuit was dropped to avoid a singular matrix in the regression and provide a baseline analysis. The Third Circuit did not conduct a review of agency interpretation of a federal environmental statute during the period from 2003 to 2005. The Tenth Circuit’s only review of agency interpretation of a federal environmental statute did not involve an affirmation or reversal decision; therefore, it was not included in estimation. Analysis was run on E-views software.
4. Political Diversity of Bench

The following regression looks at how diversity of political ideology on the bench might affect how a justice casts their vote to affirm or reverse an agency decision. Diversity of political ideology is the average absolute difference in GHP scores of the judges on each bench. When looking at this explanatory variable, various independent variables were also used in the regression in order to control for potential factors that might influence the judges’ decisions. Equation 5 describes the regression estimation and the interaction terms created to test how political diversity might affect decisions made concerning the CWA and the CAA, as well as when another justice on the bench is of the same political ideology. Once again, the regression controlled for the circuit court in which the decision was made.

Table 6 displays the results. Notice that in this regression the CWA*Political Diversity variable is significant at the p < .05 and is negative. This indicates that in CWA decisions, more ideological diversity on a bench led to a significantly higher likelihood that the judges would reverse the agency decision. However, this effect is absent in the CAA*Political Diversity interaction term. Furthermore, there was no statistical significance for the Political Diversity*Judicial Colleague interaction term.

Equation 5:

\[ \text{Decision}_i = \beta_1 \text{CWA}_i + \beta_2 \text{CAA}_i + \beta_3 \text{Year}_i + \beta_4 \text{JudCol}_i + \beta_5 \text{POLDIV}_i + \beta_6 \text{GHPSCORE}_i + \beta_7 \text{CWA} \times \text{POLDIV}_i + \beta_8 \text{CAA} \times \text{POLDIV}_i + \beta_9 \text{POLDIV} \times \text{JudCol}_i + \sum_{n=1}^{m} \delta _n \text{CircuitCourt}_n \]
Binary Probit Regression – Dependent Variable: Decision

<table>
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<th>Variables</th>
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McFadden R-squ. .06
N 341
Obs with Dep=0 105
Obs with Dep=1 236

Table 6.

Dependent variable is a binary (0,1) variable. Reversal of agency decision was coded as “0”. Affirmation of agency decision was coded as “1”. The Eleventh Circuit was dropped to avoid a singular matrix in the regression and to provide a baseline analysis. Analysis was run on E-views.

IV. DISCUSSION: WHY THE DIFFERENCE?

The results presented above show that there are real differences between the way judges treat CAA and CWA decisions concerning agency action. In short, this empirical analysis shows that statutory context does matter in environmental law. However, there is no clear reason why this might be. In what follows, some potential explanations are explored as to why CWA decisions seemingly are more political in nature as compared to CAA decisions.

A. The Clean Water Act Allows More Political Interpretation

One possible explanation could be that there was more confusion in CWA jurisprudence between 2003 and 2005, when the
cases used in this study were decided. Theoretically, unsettled points of statutory interpretation by the Supreme Court could open up the door for appellate courts to apply their own policy preferences with less fear that their decision would be overturned. The CWA cases analyzed here followed the Supreme Court’s important decision in Solid Waste Agency of Northern Cook County v. Army Corps of Engineers, but were before the Court clarified its position in the Rapanos v. U.S. decision in 2006.\(^{60}\)

In Solid Waste Agency of Northern Cook County (“SWANCC”), the Supreme Court reversed an agency decision that for the first time put limits on the scope of CWA jurisdiction.\(^{61}\) In the decision the Court struck down the Migratory Bird Rule, which gave the Army Corps of Engineers (“ACE”) jurisdiction over isolated wetlands that were inhabited by migratory birds.\(^{62}\) The ACE reasoned that migratory birds crossed state lines and accounted for over a billion dollars in annual expenditures by American consumers who were hunters or bird watchers.\(^{63}\) Therefore, the ACE concluded that any ponds used by the birds in interstate travel had a substantial affect on interstate commerce and were covered by the Clean Water Act.\(^{64}\) However, the Court decided that the Migratory Bird Rule unconstitutionally provided jurisdiction over bodies of water whose relationship was too attenuated to interstate commerce, the constitutional hook upon which the ACE placed its power to regulate.\(^{65}\) Since the bodies of water were neither adjacent nor had any significant nexus with navigable waters, they were not covered by § 404 of the Clean Water Act.\(^{66}\)

By striking down the migratory bird rule, the Court opened up the possibility that it would entertain other challenges to the

\(^{60}\) 531 U.S. 159 (2001); United States v. Rapanos, 376 F.3d 629 (6th Cir. 2004). Indeed, when the Rapanos case was at the appellate level, it was used in this analysis.


\(^{62}\) Id.

\(^{63}\) Id.

\(^{64}\) Id.

\(^{65}\) Id.

\(^{66}\) Id.
CWA. Under this ruling, appellate judges might have been more encouraged to rule based on their policy preferences. However, this does not seem to fit with the circumstances found in this analysis. First, it was liberal judges who were more likely to reverse an agency decision in the CWA cases, not conservative judges. If any confusion surrounding the *SWANCC* decision was causing more agency reversals, one might expect it to come from conservative judges who would have held beliefs similar to those of Justice Rhenquist, who authored the majority opinion in *SWANCC*. On the contrary, liberal judges who were reversing agency decisions in this study probably would have been more likely to support a broad reading of the CWA to include as much of the nation’s waters as possible. For these reasons, it seems unlikely that the *SWANCC* decision may have led to the phenomenon found, i.e., liberal reversal of agency decisions.

**B. The Clean Air Act is More Complex**

Another possibility stems from the actual language and structure of each statute. Could it be that that the CAA is more complex than the CWA? If it was relatively more complex, this complexity could drive judges to defer to the expertise of the EPA under the *Chevron* doctrine. In effect, this argument suggests that statutory complexity trumps political ideology, in that judges will merely defer to the agency and not apply their own policy preferences when they don not fully comprehend the statutory setup.

This reasoning too does not make sense in light of the findings. If statutory complexity were truly causing the bench to defer to the agency, then one would expect there to be more instances of agency affirmations in the CAA than in the CWA. However, in this study the opposite is true. Judges deferred to the EPA in CAA cases a total of 104 out of 147 judicial votes, or 70% of the time. In CWA cases judges deferred to the agency in 57 out of 72 judicial votes, or 79% of the time. Therefore, it would seem that statutory complexity is not the answer.

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67 *Id.*
C. Institutional Differences: The Army Corps of Engineers vs. the EPA

The third possible explanation could involve the agency that the judges were reversing or affirming. In cases involving jurisdiction of wetlands under the CWA, the Army Corps of Engineers was the agency involved. The Environmental Protection Agency handles the implementation of the CAA. The findings indicate that it may have been liberal judges who were reversing agency actions by the Army Corps of Engineers in CWA cases. Since the agencies in question fell under the executive branch at a time when there was a republican president, it could be that these liberal judges were enacting their policy preferences by opposing what they saw as conservative agency decisions regarding interpretation of the CWA.

Indeed, previous studies have suggested that judges who are more liberal tend to reverse agency actions at a higher rate when there is a sitting president who is a republican. Unfortunately, this explanation does not shed light on why this trend is absent in the CAA cases. However, there are no indications that this is not what was occurring. Indeed, recall that the average GHP Score for judges reversing CAA cases was relatively more liberal than those who were affirming. These facts do tend to support the hypothesis that liberal judges were enacting their policy preferences. While it cannot be certain, this explanation offers another way to understand the results uncovered in this empirical analysis.

V. Conclusion

This investigation looked at the differences of statutory context in environmental law. Specifically, this article examined the CWA and CAA to find out if there were differences in the manner

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68 Section 404 of the CWA designates the Secretary of the U.S. Army Corp of Engineers as the permitting authority for discharge of dredge or fill in the navigable waters of the United States, including wetlands that fall within this definition. See 33 U.S.C. § 404 (2011).  
in which judges decided to affirm or reverse agency action. First, political ideology was found to be an important factor in CWA cases as opposed to CAA cases and other less litigated environmental statutes. Specifically, in the CWA cases liberals were much more likely to reverse agency action as compared to conservatives. Another important set of findings concerns statutory context and judicial collegiality. In CWA cases, conservatives were much more likely to affirm when there was another conservative on the bench with them; both as compared to other environmental law statutes and when compared against only CWA cases. Conversely, in CAA opinions liberals were more likely to reverse agency rulings when there was another liberal on the bench with them. However, unlike the CWA cases, this effect was not significant when an independent estimation of only CAA cases was used. Finally, this article also examined the manner in which political diversity of a bench affects agency review and statutory context. Analysis of the data shows that in CWA decisions more political ideological diversity on a bench led to a significantly higher likelihood that the judges would reverse the agency decision. This trend was absent among CAA cases. These findings suggest that there are major differences in the manner in which judges approach the CWA as compared to the CAA.
### Judicial GHP Scores for Judges Casting Votes

#### Circuit 1
- Boudin: 0.546
- Coffin: -0.39
- Howard: 0.469
- Lipez: -0.456
- Lynch: -0.44
- Schwarzer: 0.409
- Selya: -0.009
- Torruella: 0.568
- Calabresi: -0.283
- Cardamone: 0.150
- Jacobs: 0.15
- Katzmann: -0.363
- Kearse: -0.359
- Oakes: 0.061
- Parker, F.: -0.390
- Parker, B.D.: 0.538
- Pooler: -0.359
- Sotomayor: -0.359
- Straub: -0.359
- Walker: 0.150
- Wesley: 0.538
- Conrad: 0.538
- Gibbon Motz: -0.414
- Hamilton: 0.417
- Luttig: 0.259
- Michael: -0.260
- Niemeyer: 0.546
- Wilkinson: 0.269
- Barksdale: 0.334
- Benavides: -0.456

#### Circuit 2
- Davis: 0.568
- Dennis: -0.079
- Garwood: 0.468
- Garza: 0.547
- Higginbotham: 0.468
- Restani: 0.567
- Smith: 0.547
- Stewart: -0.359
- Batchelder: 0.546
- Bogggs: 0.358
- Clay: -0.409
- Cole: -0.291
- Daughtrey: -0.264
- Forrester: 0.327
- Gibbons: -0.142
- Guy: 0.568
- Gwin: -0.281
- Moore: -0.291
- Reeves: 0.416
- Siler: 0.358
- Suhelehnerich: -0.359
- Bauer: -0.026
- Easterbrook: 0.568
- Kanne: 0.369
- Manion: 0.369
- Rivner: 0.546
- Williams: -0.345
- Wood: -0.416
- Bye: -0.247
- Heaney: -0.461

---

**Appendix 1.**

Judicial GHP Scores for Judges Casting Votes
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<thead>
<tr>
<th>Circuit</th>
<th>Judge</th>
<th>GHP</th>
</tr>
</thead>
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<tr>
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</tr>
<tr>
<td>9</td>
<td>Bea</td>
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**Appendix 2.**

Judicial GHP Scores for Judges Casting Votes