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Water Policy Decision-Making and Implementation in the Johnson Administration*

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The relationship between policy development and actual implementation is a topic of continuing concern to political scientists. Accordingly, this paper focuses on mutual-role taking¹ and speculative augmentation² by Secretary of the Interior Stewart Udall in his quest to build political support for a policy designed to prevent further deterioration of the quality of the nation's water.

Murray Edelman argues that legislatures act primarily within the realm of symbolism.³ His classic example is antitrust legislation which reassures the public that the economy is competitive while leaving economic concentration comfortably intact.⁴ Water pollution legislation similarly has great symbolic appeal.

Legislation to clean up the nation's waters is a "motherhood" consensus issue, particularly for the Democratic party.⁵ The Water Quality Act of 1965 which increased federal funds for sewage treatment plants and charged the states with setting and implementing water quality standards passed Congress unanimously.

It was clearly going to be easy to pass a clean water bill in the 89th Congress with its swollen Democratic majorities and Lyndon Johnson in the White House. President Eisenhower had vetoed similar water pollution legislation in 1960 which had easily passed both Democratic-controlled chambers.⁶ Findings by Riley Dunlap reveal Democrats to be significantly more supportive than Republicans of environmental proposals at both the legislative and congressional levels.⁷ Furthermore, 86% of the American public in a 1965 Gallup poll supported the idea of a strong clean water program.⁸

Udall's two big concerns were to see that legislation which passed could be implemented effectively and to nurture in-depth political support for environmentalism among the public, state and local authorities and federal administrators.⁹ Despite the favorable auguries of Democratic control and public support, there was cause for concern.

John Kennedy's main issue concerning water in the 1960 presidential campaign was that the Eisenhower administration did not build enough dams. True, Kennedy did come to support water pollution legislation; and Johnson, with visions of conservationist Franklin Roosevelt in his mind, did so even more enthusiastically.¹⁰ Obviously, presidential support could wax and just as easily wane. Udall also perceived public support as being superficial. There is evidence to suggest that there is misperception concerning support for environmental measures even among self-styled "environmentalists." Stephen Cotgrove found environmental concern to be widespread and only modestly related to demographic variables such as income, education, and occupational status in Great Britain, Germany, Australia, and the United States.¹¹ Lester Milbrath in 1976 surveyed the

views of leaders “. . . representative of those who were most likely to participate in the development of the water quality plan . . .” for the Niagara Frontier, a two-county region in New York.¹² Sixty-two percent of the public believed that cleaning up the water would create more jobs and only 10 or 11 percent maintained that it would reduce the number of jobs.¹³ Among two subgroups of leaders, elected officials and environmentalists, all of whom believed that clean water and jobs were compatible, majorities believed that the public felt that there had to be a choice between jobs and clean water.¹⁴ The outlook of the environmentalists is strikingly similar to views expressed by Udall.¹⁵

In order for protection of the environment in general and clean-up of the nation's waters in particular to take place, Udall argued that the public had to be educated. Moreover, the Interior Department was to play a leading role in the development of an environmental consciousness which was quite distinctive from the conservation orientation of the Theodore and Franklin Roosevelt eras.¹⁶ It is interesting to note that Cotgrove's *Catastrophe or Cornucopia* has as its central theme that the “new” environmentalism of the 1960s and 1970s differed radically from earlier environmental efforts.¹⁷ Indeed, he sees conflict between those of the older perspective who care about the environment and those of the newer perspective who perceive a fragile spaceship earth that should return to a pre-industrial past. At any rate, he does suggest that environmental consciousness has changed, at least among a significant portion of the populace of the four nations of Great Britain, Germany, Australia and the United States. Heightened public concern about the environment was a goal of Stewart Udall.

Udall was also concerned that water pollution policy have a strong organizational basis.¹⁸ This comports nicely with the following passage by Murray Edelman:

Establishment of a function at the highest hierarchical level is symbolically important only where there is genuine doubt about its high valuation or political support . . .¹⁹

Despite Udall's support for action in the field of water pollution by the federal government from the beginning of his tenure as Secretary of the Interior, the Department of Health, Education and Welfare actually housed the Federal Water Pollution Control Administration which was responsible for implementation of the Water Quality Act of 1965, and H.E.W. had formal jurisdiction in the field of water pollution.²⁰ Indeed, apparently in recognition of this formal jurisdiction, no invitations to the signing of the Water Quality Act of 1965 were extended to members of Interior, while H.E.W. was well represented.²¹ But by 1966, largely because of Udall's strong enthusiasm about water pollution clean-up efforts, the water pollution control functions vested by law in the Department of Health, Education, and Welfare were transferred to the Department of Interior.²²

The following passage from a memorandum dated January 11, 1966, to President Johnson from Lee C. White, Assistant Special Counsel, clearly indicated that the transfer was perceived as having symbolic as well as managerial significance:

The proposed reorganization would serve to *concentrate in a single Federal agency presently dispersed authorities*

for the management, development and conservation of water resources. The emphasis would be shifted from water pollution as primarily a health problem to pollution control as an integral element in the general management of our water resources.²³

It was also seen as advantageously providing for the consolidation of research programs and programs concerned with water quality standards.²⁴ The memorandum noted:

. . . Interior's data acquisition network is required to meet the water quality measurement requirements of all Federal agencies and provide water quality measurements common to the needs of two or more agencies . . . Transfer of abatement enforcement measures to Interior would bring within the jurisdiction of one department most of the programs relating to water quality standards.²⁵

Disadvantages were cited by White as well.

White noted that there may be a conflict of interest between water pollution control and natural resources projects. For instance, Interior has a developmental interest in mining operations which constitute a serious source of water pollution.²⁶ He cited problems concerning congressional committee relations involving water pollution control and administration of water pollution programs in states and communities. Interior programs were generally referred to ". . . congressional committees dominated by western members, whereas pollution problems stem from industrial and municipal sources in the urban East. . . ."²⁷ Also, H.E.W. has considerable experience working through state and local agencies; whereas, Interior did not have such expertise.²⁸

Stewart Udall saw these problems as having the kernels of excellent political opportunities for the Department of Interior and its mission of raising environmental consciousness. Interior is perceived as being a Western and a rural department. The former is most visibly symbolized by the fact that virtually every Secretary of the Interior has been from the West. By shifting responsibility for water pollution to Interior, Udall hoped to nationalize the concerns and the constituency of Interior, since Eastern states particularly urban ones, clearly have a stake in water pollution policy.²⁹ It should be added that he thought that because of its arid nature the ecology of the West was highly fragile and that current levels of water quality there had to be maintained.³⁰ This change would augment other moves to build up programmatic responsibilities in the East such as the launching in 1961 of the National Seashore Preservation Program. Nantucket in President Kennedy's home state of Massachusetts was the first area designated a national seashore. The Padre Islands in then Vice-President Johnson's home state of Texas were the second such designated site.³¹ Moreover, Udall saw a splendid opportunity for Interior to build a base in state and local agencies, particularly urban ones, through the necessity of having to develop expertise and administrative mechanisms to administer grant-in-aid funds for the construction of sewage treatment plants. He maintained that this would set the stage for increasing the concern of citizens with the urban environment and the quality of life in the city, where most Americans spent most of their lives.³²

Opposition to the transfer of functions from H.E.W. to Interior was voiced by Charles L. Schultze, Director of the Bureau of the Budget. He opposed it because he believed that Secretary John Gardner of the Department of Health, Education and Welfare was more competent than Udall.³³ Schultze was keenly interested in experimenting with effluent fees to curb air and water pollution. Indeed, in 1977, he published *The Public Use of the Private Interest* which dealt with the topic.³⁴ Aside from the question of competency, Schultze's chief argument involved the relationship of symbolism to enforcement. The following is a passage from a memorandum to President Johnson:

As a practical matter, bringing enforcement actions in the name of public health is much more likely to produce results than using the natural resource or recreation rationale. Moving the program to Interior seriously weakens its ties to a public health orientation.³⁵

Symbolism was prominent in the reasoning of both Charles Schultze and Stewart Udall, and both individuals had doubts about adequate support for the realization of environmental clean-up in general and water pollution control in particular. The chief distinction seems to be that Schultze was primarily concerned about achieving relatively specific goals, and that Udall additionally wished and believed that he could impart an environmental ideology or consciousness. Both men engaged in mutual-role taking and were cognizant that while virtually everyone may harbor a primeval need to favor clean water, individuals such as governors concerned about industrial growth and their own electability may be a lot less enthusiastic about the means to achieving that lofty end.

Senator Edmund Muskie, chairman of the Subcommittee on Air and Water Pollution of the Committee on Public Works and of the Subcommittee on Intergovernmental Relations, worked closely with the administration in the passage of the Water Quality Act of 1965.³⁶ During his governorship of Maine, he ". . . had initiated a state program to upgrade the quality of water in Maine streams—an action propelled in part by the dependence of the Maine lobster industry on the purity of coastal waters."³⁷ He supported the idea of eventually transferring the Federal Water Pollution Control Administration to Interior, but argued that water quality policy had to evolve further for such a move to be organizationally sound and politically feasible. He maintained that experience with implementation of the policy would provide needed information for the resolution of organizational questions. He noted:

The result (of the Water Quality Act) has been a flood of new ideas . . . industrial incentives, regional water and sewer systems, water transfers, effluent taxes and expanded grants . . . Implicit is the question of reorganization and rationalization of our water supply and waste treatment programs.³⁸

Muskie anticipated the "fixing" of organizational problems during the implementation stage of the Water Quality Act. According to Eugene Bardach, such a view may be wise since ". . . good policy development is learning by doing."³⁹

Far more significantly, he argued that such a transfer within six months of passage of the Water Quality Act would create political problems for

President Johnson. Muskie was himself engaged in delicate negotiations with representatives of the wood pulp industry concerning implementation of the act and feared that they, as well as other industrialists and state and local officials, would find such a transfer confusing. Republicans could use such a situation to add strength to charges of "Administration confusion" which were already being successfully leveled against the Poverty program.⁴⁰

Despite opposition from Schultze and Muskie, Udall's wishes prevailed and the Department of Interior assumed responsibility for the program on May 10, 1966.⁴¹ The transfer comports with James Davis' criteria concerning the likelihood of reorganization proposals being accepted.⁴² He sees presidential support and intensity of feeling as constituting crucial factors. Udall, who served for eight years as Secretary of Interior, had President Johnson's confidence and was able to achieve his support for the proposal.⁴³ Udall was far more intense in his support for the proposal than Schultze and Muskie were in their opposition to it.

On the day that responsibility was assumed, Secretary Udall issued the Guidelines for Establishing Water Quality Standards. It was emphasized that Interior "... was not prepared to approve standards submitted by the states unless they provided for upgrading waters now polluted and protecting waters already clean."⁴⁴ The guidelines clearly embodied "speculative augmentation" akin to that cited by Charles O. Jones concerning passage of the Clean Air Amendments of 1970 in the following passage:

That the technology was not available for meeting the 1975 (auto emission) standards in the Senate bill was indisputable. In fact, Senator Muskie pointed out in the floor debate that technology was rejected as a basis for decisions in this area. "The deadline is based not, I repeat, on economic and technological feasibility, but on consideration of public health."⁴⁵

In other words, the authority granted in the Clean Air Amendments of 1970 was "... based in large measure on 'speculation' that capabilities would improve to meet demands of the law."⁴⁶

In an oral history by Stewart Udall, he freely admitted that there were technical difficulties in measuring water quality.⁴⁷ Criteria established for quality in early efforts were "... based largely on physical and chemical conditions."⁴⁸ Jerry I. Wilhm and Troy C. Dorris in a 1968 *Bio Science* article noted the following:

The attempt to establish criteria in terms of toxicity of chemicals to aquatic organisms may exceed the capability of adequate testing due to the large number of toxic compounds, the vast number of biotic species, the effects of interactions among compounds, and the wide range of effects produced by variations in physical and chemical conditions.

We propose the establishment of water quality criteria by the evaluation of biological conditions existing in receiving streams. Effluents produce striking changes in the structure of the benthic macroinvertebrate community. A distinctive longitudinal series of populations can be identified in a polluted stream until water

quality and biotic structure approach the normal situation.⁴⁹

It is worth emphasizing that the above was published nearly three years after the passage of the Water Quality Act of 1965. So, there were clearly technological limitations which hindered the establishment of viable water quality criteria. But, concerned about the loss of political momentum, the Department of Interior pressed hard for states to submit the best possible standards.⁵⁰

Interior initially promulgated some water quality standards which conflicted with its long range goals, but such criteria were perhaps necessary to get the program off to a strong start. Concerning treatment for municipal and industrial wastes, Interior required “. . . that secondary treatment (85% removal of biochemical oxygen demand—BOD) would be the minimum degree acceptable . . .”⁵¹ This blanket standard allowed the Federal Water Pollution Control Administration to avoid negotiating quagmires with state officials and seemed “fair.”⁵² But, such a standard was questionable in terms of economic efficiency and led one group of researchers to ask the following:

“Why go through the business of setting stream standards if they are not indeed being used as the basis for developing treatment requirements?”⁵³

Such arbitrary standards which were “. . . unrelated to water quality of receiving bodies . . .” also hindered regional or river basin water quality management⁵⁴—a long range goal of Secretary Udall.⁵⁵

Interior was conscious of the importance of the image which it projected during the initial stages of implementation of the Water Quality Act. It feared being labeled “pro-industry” and maintained the following:

A degradation of water quality in standards of even 1 part per million of oxygen is a ‘license to pollute’ and may be interpreted as weakening, having a bad psychological effect on municipal and state government people working for clean water, on the general public and voters on bond issues.⁵⁶

This policy was of particular concern to Governor Tim M. Babcock of Montana⁵⁷ and Governor Stan Hathaway of Wyoming both of whom maintained that their waters were pristine and wanted to induce industries to locate in their respective states.⁵⁸ Interior did not want to be perceived as caving in to pressure at the earliest stages of implementation, nor wish to engage in litigation with the states at such a point in time. The states were responsible for establishing their own standards. If these were not acceptable to the Federal Water Pollution Control Administration, then the Secretary of Interior would be empowered to draft standards for the state in questions. It was believed that rejection of initial efforts at standard-setting by several states would instill fear among the remaining states and result in “stronger, more viable standards.”⁵⁹ State and local government officials were not the only parties whose cooperation was vital for successful implementation.

There was great concern about the reaction of industry. At the time of the passage of the legislation, Senator Muskie had engaged in delicate negotiations with the wood and pulp industry.⁶⁰ The seminal water pollution legislation which passed in 1924 dealt specifically with oil discharges from ships.⁶¹ The oil industry sought to be involved in the formulation of

water pollution legislation in 1965 and with its implementation later.

In response to the section of President Johnson's State of the Union message pertaining to air and water conservation, Frank N. Ikard of the American Petroleum Institute wrote the following:

You have a pledge of full cooperation from the American Petroleum Institute, and the industry it serves, to help in any way we can to further effective, well-founded air and water conservation programs.

To this end, we will be glad to provide scientists and other experts to meet with those in your administration who will be working in this vital field and to share with them the information and experience the petroleum industry has acquired through years of research and practical application of discoveries.⁶²

President Johnson invited a small group from the oil industry to meet with him to provide input into pollution legislation.⁶³ A letter from Bill Moyers, Special Assistant to the President, to Frank Ikard expressed marked enthusiasm about the prospect of oil industry scientists aiding air and water conservation efforts.⁶⁴ The exchanges between the American Petroleum Institute and the White House are thought-provoking.

One can easily speculate about and ascribe motives to Frank Ikard's letter of January 21, 1965. He could have been genuinely concerned about the quality of pollution research, he could have recognized the "inevitability" of the passage of some type of conservation legislation in 1965 and sought to have as much influence as possible on its formulation and implementation. Moyer's response perhaps is indicative of a desire on the part of the White House to "co-opt" the oil industry. A fascinating study could focus on the role which oil industry scientists have played in the implementation of water pollution legislation. Indeed, the systematic study by political scientists of the role of industrial scientists in public policy areas would be highly valuable. Clearly, values are involved in such endeavors. W. Henry Lambright and Albert H. Teich in a discussion of the role of the scientist as policy advisor wrote the following:

Most of the time, the questions that policy-makers want to pose to their science advisors are of the type Weinberg has called "trans-science." They are questions that involve an amalgam of facts and values or that require the application of seasoned judgment. They are, in a fundamental sense, beyond the power of science to answer. Furthermore, they are usually questions about which expert scientists disagree, questions such as those concerning the safety of civilian nuclear reactors.⁶⁵

The oil industry continues to figure prominently in discussions of water pollution.

Oil discoveries off of the California coast drew national attention in 1982 as is suggested in the following passage:

The potential size of the new discoveries near the western end of the channel is so great that environmentalists say they fear irresistible federal and corporate pressure to open offshore areas further up the coast

(from the Santa Barbara channel) to oil drilling, particularly since California's Democratic governor, Edmund G. (Jerry) Brown Jr., an active opponent of much offshore drilling, is about to be succeeded by Republican George Deukmejian.⁶⁶

The above passage is also suggestive of the dynamic nature of federalism which has been cited by Morton Grodzins.⁶⁷ During the Johnson administration, Udall perceived the role of the Interior Department as being one of inducing lethargic states and localities to implement effective water pollution control policies. In the above instance and others, we have Reagan administration officials allegedly restraining what they perceive as overzealous environmentally-oriented state officials.⁶⁸ Such developments suggest the logic of what Paul Sabatier describes as "the strategy of environmental groups" in the following passage:

While supporting the expansion of the scope of the conflict to the Federal government, they have continued to focus considerable attention on pollution control programs at the state and local level. In part, of course, this is a recognition of the crucial role of these "lower" levels of government in implementing Federal standards. At the same time, they have pressed for more stringent regulations by state and local authorities, thereby indicating an implicit awareness of what might be called "the principle of beneficent overlap:" the more governmental units involved concurrently in regulatory activity, the greater the probability that one of them will adopt and aggressively enforce stringent regulations.⁶⁹

The Water Quality Act of 1965 had a modest effect on the quality of America's waters.⁷⁰ It was supplemented by the Water Pollution Control Act Amendments of 1972 (PL 92-500) which established ". . . zero discharge standards for 1985."⁷¹ Hence, states no longer will be responsible for developing water quality standards. But, against the context of federal pollution enforcement budget cuts, the standards are likely to be realized or approached only if there is vigorous action by state and local officials.⁷² There may well be such action. The traditional pre-eminence of states and localities as environmental managers, albeit more concerned ones, may be re-established.⁷³ They may conceivably lobby for more rather than less action by the national government.

Such developments to the extent that, and if, they occur will in a sense be ironic. But, such developments would underscore the importance of symbolism in politics and suggest that Udall was correct to see the most important mission of the Department of Interior as being educational.

Of course, it is open to question how much effect, if any, the Department of Interior's efforts in the 1960s had on raising environmental consciousness among state officials and the general public. This should be the subject of empirical research.

FOOTNOTES

¹Murray, Edelman, *The Symbolic Uses of Politics* (Urbana: University of Illinois Press, 1974), p. 14. The following paragraph captures the essence of mutual-role taking:

One complication has so far been understated: that men are ambivalent. While one person's threat is another's reassurance, it is also true that every man does, in greater or lesser degree, share his adversary's view. Living in the same society and witnessing the same political drama, some appreciation of one's opponents' passions must be present in every individual.

²Charles O. Jones, "Speculative Augmentation in Federal Air Pollution Policy-Making," in James E. Anderson, ed., *Cases in Public Policy-Making*, Second Edition (New York: Holt, Rinehart and Winston, 1982), p. 59. Jones discusses the concept in the following paragraph:

Whereas majority building and incrementalism typify policy development under most circumstances, other concepts are necessary to describe and analyze action in the fourth quadrant (low understanding-large change). Lindblom concludes that "one would be hard put to formalize the methods appropriate to that quadrant." If we examine the appropriateness of two methods—"public satisfying" and "speculative augmentation"—we may find that a majority did not have to be fashioned. Rather, a public, however distinct and ill-informed, had to be satisfied. Second, something more than an increment in policy was necessary if large change were the goal, regardless at this point of whether it would be reached or not. Still, knowledge and institutional capability were limited, as was technology. The term "speculative augmentation" is useful in meeting the analytic needs of this situation, and I now turn to describe and compare each set of characteristics under fourth-quadrant conditions.

³*Symbolic Uses of Politics*, p. 26.

⁴*Symbolic Uses of Politics*, p. 40.

⁵Riley E. Dunlap and Richard P. Gale, "Party Membership and Environmental Politics: A Legislative Roll-Call Analysis," *Social Science Quarterly* 55 (December 1974), p. 671.

⁶James L. Sundquist, *Politics and Policy* (Washington, D.C.: Brookings Institution, 1968), p. 323.

⁷Riley E. Dunlap and Michael Patrick Allen, "Partisan Differences on Environmental Issues: A Congressional Roll Call Analysis," *Western Political Quarterly* 29 (September 1976), p. 396.

⁸Lyndon Baines Johnson Presidential Library: Memorandum to the Secretary of the Interior, Stewart L. Udall, from the Assistant Secretary—Water Pollution Control, Frank C. DiLuzion, concerning water quality standards—deterioration of quality, 10-23-66, FG 165-6-3, Box 250.

⁹Lyndon Baines Johnson Presidential Library: Oral History Collection, Stewart Lee Udall; Container Number: AC 74-259, Tape 1, p. 32-35.

¹⁰Lyndon Baines Johnson Presidential Library: Oral History Collection, Stewart Lee Udall; Container Number: AC 74-259, Tape 1, p. 32.

¹¹Stephen Cotgrove, *Catastrophe or Cornucopia: The Environment, Politics and the Future* (New York: John Wiley & Sons, 1982), p. 18.

¹²Lester W. Milbrath, "Incorporating the Views of the Uninterested but Impacted Public in Environmental Planning," delivered at Cook College of Rutgers University on April 26, 1978, pp. 3-4.

¹³*Impacted Public*, p. 9.

¹⁴*Impacted Public*, p. 10.

¹⁵Lyndon Baines Johnson Presidential Library: Oral History Collection, Stewart Lee Udall; Container Number: AC 74-259, Tape 1, pp. 23-25.

¹⁶Lyndon Baines Johnson Presidential Library: Oral History Collection, Stewart Lee Udall; Container Number: AC 74-259, Tape 1, pp. 32-33.

¹⁷*Catastrophe or Cornucopia*, p. 22.

¹⁸Lyndon Baines Johnson Presidential Library: Oral History Collection, Stewart Lee Udall; Container Number: AC 74-259, Tape 1, pp. 34-35.

¹⁹*Symbolic Uses of Politics*, p. 63.

²⁰Lyndon Baines Johnson Presidential Library: "Water Pollution Organization," 1-11-66, FG 165-6-3, Box 250.

²¹Lyndon Baines Johnson Presidential Library: Invitation List—Signing of Water Pollution Bill, Ex. HE8-4, Box 24.

²²Lyndon Baines Johnson Presidential Library: Oral History Collection, Stewart Lee Udall; Container Number: AC 74-259, Tape 1, p. 34.

²³Lyndon Baines Johnson Presidential Library: Memorandum Lee C. White to the President, 1-11-66, Ex. HE8-4, Box 24.

²⁴Lyndon Baines Johnson Presidential Library: Memorandum Lee C. White to the President, 1-11-66, Ex. HE8-4, Box 24.

²⁵Lyndon Baines Johnson Presidential Library: Memorandum Lee C. White to the President, 1-11-66, Ex. HE8-4, Box 24.

²⁶Lyndon Baines Johnson Presidential Library: Memorandum Lee C. White to the President, 1-11-66, Ex. HE8-4, Box 24.

- ²⁷Lyndon Baines Johnson Presidential Library: Memorandum Lee C. White to the President, 1-11-66, Ex. HE8-4, Box 24.
- ²⁸Lyndon Baines Johnson Presidential Library: Memorandum Lee C. White to the President, 1-11-66, Ex. HE8-4, Box 24.
- ²⁹Lyndon Baines Johnson Presidential Library: Oral History Collection, Stewart Lee Udall; Container Number: AC 74-259, Tape 1, pp. 24-35.
- ³⁰Lyndon Baines Johnson Presidential Library: Oral History Collection, Stewart Lee Udall; Container Number: AC 74-259, Tape 5, p. 5.
- ³¹Lyndon Baines Johnson Presidential Library: Oral History Collection, Stewart Lee Udall; Container Number: AC 74-259, Tape 2, p. 25.
- ³²Lyndon Baines Johnson Presidential Library: Oral History Collection, Stewart Lee Udall; Container Number: AC 74-259, Tape 5, pp. 21-22.
- ³³Lyndon Baines Johnson Presidential Library: Memorandum Joe Califano to the President, 1-14-66, FG 165-6-3, Box 250.
- ³⁴Charles L. Schultze, *The Public Use of the Private Interest* (Washington, D.C.: Brookings Institution, 1977).
- ³⁵Lyndon Baines Johnson Presidential Library: Memorandum Charles Schultze to the President, 1-11-66, FG 165-6-3, Box 250.
- ³⁶Lyndon Baines Johnson Presidential Library: Memorandum Lee C. White to the President, 1-12-66, FG 165-6-3, Box 250.
- ³⁷*Politics and Policy*, p. 349.
- ³⁸Lyndon Baines Johnson Presidential Library: Letter to the Secretary of the Interior, Stewart L. Udall, from Senator Edmund Muskie, 2-7-66, EX FG 165-6—1/A, Box 250.
- ³⁹Eugene Bardach, *The Implementation Game: What Happens After a Bill Becomes a Law* (Cambridge, Massachusetts: The MIT Press, 1979).
- ⁴⁰Lyndon Baines Johnson Presidential Library: Letter to the Secretary of the Interior, Stewart L. Udall, from Senator Edmund Muskie, 2-7-66, EX FG 165-6—1/A, Box 250.
- ⁴¹Lyndon Baines Johnson Presidential Library: Administrative History of the Department of the Interior (1963-1968), Volume I, Part II, p. 10.
- ⁴²James W. Davis, Jr., *The National Executive Branch* (New York: The Free Press, 1970), pp. 205-208.
- ⁴³Lyndon Baines Johnson Presidential Library: Oral History Collection, Stewart Lee Udall; Container Number: AC 74-259, Tape 1, pp. 32-34.
- ⁴⁴Lyndon Baines Johnson Presidential Library: Memorandum to the Secretary of the Interior, Stewart L. Udall, from the Assistant Secretary—Water Pollution Control, Frank C. DiLuzio, concerning water quality standards, 11-22-67, FG 165-6-3, Box 250.
- ⁴⁵*Speculative Augmentation*, p. 66.
- ⁴⁶*Speculative Augmentation*, p. 66.
- ⁴⁷Lyndon Baines Johnson Presidential Library: Oral History Collection, Stewart Lee Udall; Container Number: AC 74-259, Tape 2, p. 35.
- ⁴⁸Jerry L. Wilhm and Troy C. Dorris, "Biological Parameters for Water Quality Criteria," *Bio Science* 18 (June 1968), p. 477.
- ⁴⁹*Biological Parameters*, p. 480.
- ⁵⁰Lyndon Baines Johnson Presidential Library: Memorandum to the Secretary of the Interior, Stewart L. Udall, from the Assistant Secretary—Water Pollution Control, Frank C. DiLuzio, concerning water quality standards, 11-22-67, FG 165-6-3, Box 250.
- ⁵¹U.S. Department of Commerce, *Metropolitan Water Management—Case Studies and National Policy Implications* (Cambridge, Massachusetts: Urban Systems and Research, 1971), p. 56.
- ⁵²*Metropolitan Water Management*, p. 57.
- ⁵³*Metropolitan Water Management*, p. 57.
- ⁵⁴*Metropolitan Water Management*, p. 57.
- ⁵⁵Lyndon Baines Johnson Presidential Library: "Water Pollution Organization," 1-11-66, Ex. HE8-4, Box 24.
- ⁵⁶Lyndon Baines Johnson Presidential Library: Memorandum to the Secretary of the Interior, Stewart L. Udall, from the Assistant Secretary—Water Pollution Control, Frank C. DiLuzio, concerning water quality standards, 11-22-67, FG 165-6-3, Box 250.
- ⁵⁷Lyndon Baines Johnson Presidential Library: Letter to Governor Tim Babcock from Secretary of the Interior, Stewart L. Udall, concerning the water quality standards of Montana, 2-29-68, FG 165-6-3, Box 250.
- ⁵⁸Lyndon Baines Johnson Presidential Library: Letter to Secretary of the Interior, Stewart L. Udall, from Governor Stanley K. Hathaway, concerning the water quality standards of Wyoming, 3-21-68, FG 165-6-3, Box 250.
- ⁵⁹Lyndon Baines Johnson Presidential Library: Memorandum to the Secretary of the Interior, Stewart L. Udall, from the Assistant Secretary—Water Pollution Control, Frank C. DiLuzio, concerning water quality standards, 11-22-67, FG 165-6-3, Box 250.
- ⁶⁰Lyndon Baines Johnson Presidential Library: Letter to the Secretary of the Interior, Stewart L. Udall, from Senator Edmund Muskie, 2-7-66, EX FG 165-6-1A, Box 250.
- ⁶¹Lyndon Baines Johnson Presidential Library: "Report of the Task Force on Pollution Abatement," 10-9-65.

⁶²Lyndon Baines Johnson Presidential Library: Letter to the President from Frank Ikard, President of the American Petroleum Institute. 1-21-65, HE, Box 24.

⁶³Lyndon Baines Johnson Presidential Library: Memorandum to the President from Ramsey Clark, 1-27-65, HE, Box 24.

⁶⁴Lyndon Baines Johnson Presidential Library: Letter to Frank Ikard, President of the American Petroleum Institute from Bill D. Moyers, Special Assistant to the President, 1-29-65, HE, Box 24.

⁶⁵W. Henry Lambright and Albert H. Teich, "Scientists and Government: A Case of Professional Ambivalence," *Public Administration Review* 38 (March/April 1978). p. 136.

⁶⁶Jay Mathews, "Major Calif. Oil Finds Concern Ecologists," *Washington Post*, November 19, 1982, p. A2.

⁶⁷Paul A. Sabatier, "State and Local Environmental Policy," *Policy Studies Journal* 1 (Summer 1973), p. 221.

⁶⁸Howard Kurtz, "Show Industry EPA Data, Lavelle Memo Suggested," *Washington Post*, February 11, 1983, p. A2.

⁶⁹*State and Local Environmental Policy*, p. 220.

⁷⁰*State and Local Environmental Policy*, p. 218.

⁷¹*State and Local Environmental Policy*, p. 218.

⁷²Robert L. Lineberry, *Government in America*, 2nd ed. (Boston: Little, Brown and Company, 1983), p. 598.

⁷³John J. Harrigan, *Politics and Policy in States and Communities* (Boston: Little, Brown and Company, 1980), p. 320.