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Can Regulation Evolve?
Lessons from a Study in Maladaptive Management

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CAN REGULATION EVOLVE? LESSONS FROM A STUDY IN MALADAPTIVE MANAGEMENT

Alejandro E. Camacho*

In the active literature on regulatory reinvention, many have pointed to the Habitat Conservation Plan (HCP) program of the Endangered Species Act (ESA) as a successful example of the potential for collaborative and experimentalist regulatory innovation. Yet, despite its frequent mention as a prototype for fostering public participation and adaptive decisionmaking, no thorough, systematic evaluation of the program as a form of regulatory innovation exists. By integrating data from recent scientific studies, interviews and surveys of agency officials, newspaper investigations, and even unpublished biological databases, this Article serves as the first cross-disciplinary, comprehensive assessment of this pioneering but ultimately defective program.

The Article demonstrates that though a few HCPs have served as truly promising examples of the value of broad participation and adaptation in regulation, the HCP program as implemented largely allows for the proliferation of private, ill-considered agreements between agencies and developers that evade the ESA's otherwise strict prohibitions. More fundamentally, the Article contends that the HCP regulatory experiment is failing because the agencies charged with administering it have never seriously treated it like an experiment. Regulatory programs must themselves be periodically and systematically monitored for agencies to learn from and adjust to regulatory mistakes and successes. As the legislative and executive branches yet again contemplate amending the ESA, the HCP program serves as a crucial lesson in regulatory design. Only by assiduously attending to the incentives of both agency personnel and applicants in order to cultivate meaningful participation and systematic regulatory adaptation can the HCP program—and indeed any regulatory program—ever evolve.

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* Associate Professor of Law, Notre Dame Law School. I would like to thank Tricia Bellia, Peter Byrne, Holly Doremus, Nicole Garnett, David Hayes, Ollie Houck, Brad Karkkainen, Lindell Marsh, John Nagle, Mary Ellen O'Connell, Zyg Plater, J.B. Ruhl, Dan Tarlock, and the participants in faculty workshops at the Georgetown, Northwestern, Notre Dame, and Illinois law schools for their many helpful comments on earlier drafts. I would also like to thank Robert McClure and Lisa Stiffler of the *Seattle Post-Intelligencer* and Greg Thomas of the Natural Heritage Institute for their special insights on the Habitat Conservation Plan (HCP) program, Dan Cory, Chris Gafner, and Bradley Schrager for their invaluable research assistance, the Notre Dame Law School for funding supporting this research, and the editors of the *UCLA Law Review* for their editorial support.

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INTRODUCTION

In 1982, the U.S. Congress established what many leading scholars have described as a grand "experiment"[1] and a "paradigm shift"[2] in regulatory

1. *E.g.*, Jody Freeman, *The Private Role in Public Governance*, 75 N.Y.U. L. REV. 543, 664 (2000) (referring to HCP programs as "experiments"); J.B. Ruhl, *Regulation by Adaptive Management—Is It Possible?*, 7 MINN. J. L. SCI. & TECH. 21, 39–40 (2005) (explaining the "HCP adaptive management experiment"); A. Dan Tarlock, *Fred Bosselman as Participant-Observer Lawyer: The Case of Habitat Conservation Planning*, 17 J. LAND USE & ENVTL. L. 43, 50 (2001) ("HCP experiments represent a potentially important turning point in environmental law."); *see also* J.B. Ruhl & James Salzman, *Mozart and the Red Queen: The Problem of Regulatory Accretion in the Administrative State*, 91 GEO. L.J. 757, 847 n.289 (2003) ("The [HCP] program is often included as an example of an innovative performance-based regulatory reinvention.").

2. Lindell L. Marsh, *Conservation Planning Under the Endangered Species Act: A New Paradigm for Conserving Biological Diversity*, 8 TUL. ENVTL. L.J. 97, 98 (1994); *see also* David A. Dana, *The New "Contractarian" Paradigm in Environmental Regulation*, 2000 U. ILL. L. REV. 35, 38–40 (describing the HCP program as the earliest occurrence of the "new contractarian paradigm" in administrative regulation); Jean O. Melious & Robert D. Thornton, *Contractual Ecosystem Management Under the Endangered Species Act: Can Federal Agencies Make Enforceable Commitments?*, 26 ECOLOGY L.Q. 489, 490 (1999) (describing the HCP program as "the most prominent example" of "one of the most significant advances in environmental law over the last decade"—"the transformation of the command and control model into a contractual model").

design—the Endangered Species Act's (ESA) Habitat Conservation Plan (HCP) program. Departing from the ESA's initially strict and broad prohibition on harming any threatened or endangered species, the 1982 ESA amendments authorize the issuance of incidental take permits (ITPs) that allow protected species or their habitat to be harmed if carried out in conjunction with an approved HCP. HCPs were to rely on negotiated, collaborative decisionmaking and to focus on developing creative, flexible ways for managing uncertain, evolving ecosystems based on the best available science. The HCP program was thus one of the earliest experiments touted by scholars and government officials as transforming administrative law from its traditionally static and inflexible command-and-control regulatory model into a negotiated process that better addresses public goals through both collaborative and adaptive decisionmaking.[3]

Despite wide support for these increasingly influential regulatory experiments, very few rigorous, comprehensive analyses of such programs exist. This Article serves as the first systematic, cross-disciplinary assessment of the ESA's landmark HCP program, analyzing the value of participation and adaptation in regulatory decisions, as well as the suitability of existing government institutions in developing these vital regulatory characteristics. In light of the recent and increasingly insistent appeals by scientists for workable solutions to address the alarming and worsening biodiversity crisis[4] exacerbated by climate change[5]—and as

3. *See, e.g.*, ARCHON FUNG & ERIK OLIN WRIGHT, DEEPENING DEMOCRACY: INSTITUTIONAL INNOVATIONS IN EMPOWERED PARTICIPATORY GOVERNANCE (2003); Alejandro Esteban Camacho, *Mustering the Missing Voices: A Collaborative Model for Fostering Equality, Community Involvement and Adaptive Planning in Land Use Decisions: Installment Two*, 24 STAN. ENVTL. L.J. 269 (2005); Michael C. Dorf & Charles F. Sabel, *A Constitution of Democratic Experimentalism*, 98 COLUM. L. REV. 267 (1998); Daniel A. Farber, *Revitalizing Regulation*, 91 MICH. L. REV. 1278 (1993); Jody Freeman, *Collaborative Governance in the Administrative State*, 45 UCLA L. REV. 1 (1997); Jody Freeman & Daniel A. Farber, *Modular Environmental Regulation*, 54 DUKE L.J. 795 (2005); Philip J. Harter, *Negotiating Regulations: A Cure for Malaise*, 71 GEO. L.J. 1 (1982); Orly Lobel, *The Renew Deal: The Fall of Regulation and the Rise of Governance in Contemporary Legal Thought*, 89 MINN. L. REV. 342 (2004).

4. *See* EDWARD O. WILSON, THE DIVERSITY OF LIFE 254 (1992) (stating that biodiversity loss is the "scientific problem of great[est] immediate importance for humanity"); Michel Loreau et al., *Diversity Without Representation*, 442 NATURE 245 (2006) (statement from nineteen preeminent biologists asserting that "[t]here is . . . clear scientific evidence that we are on the verge of a major biodiversity crisis. . . . Despite this evidence, biodiversity is still consistently undervalued and given inadequate weight in both private and public decisions. There is an urgent need to bridge the gap between science and policy . . .").

5. *See Global Warming and Wildlife: Hearing Before the Subcomm. on Private Sector and Consumer Solutions to Global Warming and Wildlife Protection of the S. Comm. on Env't and Public Works*, 110th Cong. (2007) (statement of Dr. Thomas E. Lovejoy, Director, H. John Heinz III Center for Science, Economics, and the Environment), *available at* http://epw.senate.gov/public/index.cfm?FuseAction=Hearings.Hearing&Hearing_ID=7efcd166-802a-23ad-4634-25057d9d08bf

Congress[6] and the current Bush Administration[7] once again contemplate modifying the ESA—a systematic assessment of the HCP program twenty-five years after its establishment is particularly valuable.

Drawing on recent empirical studies, newspaper investigations, interviews and surveys of government officials, and unpublished scientific databases, this Article tells a cautionary tale about the resistance to experimentation by both regulators and regulated industry in collaborative administrative programs. Just as species adapt to survive, regulatory programs adapt to their environments—but not necessarily to better achieve stated statutory targets. The HCP program reveals that the challenge in fostering regulatory evolution is to cultivate the evolutionary pressure on regulatory actors to work toward achieving constructive societal goals.

Since being added to the ESA in 1982 and increasingly as the program has aged, the HCP program has been advanced as a fundamental shift in administrative regulation that relies on two primary elements.[8] The first collaborative element suggests that engaging affected stakeholders in meaningful involvement is more likely to lead to better regulatory decisions—and ultimately more effective environmental protection—than traditional regulation that relies almost exclusively on agency resources and presumed expertise.

(partial reprinting), *and at* rtsp://video.webcastcenter.com/srs_g2/epw020707.rm (audio recording) ("[E]cosystems will disassemble [as a result of global warming] and the individual species will assemble into novel biological communities: both a nightmare for natural resource managers as well as for the rest of us, as the shuffling of the ecological decks favors opportunistic species such as weeds, pests and diseases."); INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: IMPACTS, ADAPTATION, AND VULNERABILITY—SUMMARY FOR POLICYMAKERS (2007), http://www.ipcc.ch/SPM13apr07.pdf (reporting that 20 to 30 percent of plant and animal species are likely to be at a higher risk of extinction if increases in global average temperature exceed 1.5 to 2.5 degrees Celsius); Chris D. Thomas et al., *Extinction Risk From Climate Change*, 427 NATURE 145, 145 (2004) (predicting that 15 to 37 percent of existing species will be endangered by 2050 as a result of anthropogenic climate change).

6. *See, e.g.*, Endangered Species Recovery Act of 2007, S. 700, 110th Cong. (2007) (introduced Feb. 28, 2007); Endangered Species Reform Act of 2007, S. 658, 110th Cong. (2007) (introduced Feb. 16, 2007). The U.S. House of Representatives passed a substantial amendment to the Endangered Species Act (ESA) in late 2005, proposing to replace critical habitat requirements and provide incentives, guarantees, and compensation to landowners. *See* Threatened and Endangered Species Recovery Act of 2005 (TESRA), H.R. 3824, 109th Cong. (2005). A bill addressing similar issues was referred to the U.S. Senate Environment and Public Works Committee. *See* Collaboration for the Recovery of Endangered Species Act (CRESA), S. 2110, 109th Cong. (2005).

7. *See* Felicity Barringer, *Proposed Changes Would Shift Duties in Protecting Species*, N.Y. TIMES, Mar. 28, 2007, at A16 (discussing draft Interior Department regulations to overhaul the ESA by restricting the Department's ability to classify a species as endangered and allowing states to implement parts of the Act); Dan Berman, *Secretary Kempthorne Defends Record on ESA, Ethics*, E&ENEWS PM, May 25, 2007, http://www.eenews.net/eenewspm/2007/05/25/archive/1?terms=Kempthorne.

8. *See infra* Part I.

The second adaptive implementation element emphasizes a reliance on protocols[9] (more recently called "contingency planning" and "adaptive management"[10]) that seek repeated monitoring and, if necessary, adjustment of regulatory restrictions to account for new information or changed circumstances that arise during implementation. Many private developers, government officials, academics, and environmentalists have hailed the HCP program as innovative and more effective than the traditional, command-and-control model.[11]

The past two decades have seen the HCP program become "the centerpiece of . . . endangered species and ecosystem conservation policy,"[12] as HCPs have proliferated throughout the United States. Unfortunately, key interpretations and management decisions by the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) (collectively, the Services)[13] allow the Services and developers to avoid meaningful participation and to ignore adaptation. Though a few HCPs may be promising examples of the potential of collaborative regulation, the Services almost always allow HCPs to relegate interested stakeholders to a narrow and late role, while the Services and the developer-applicant negotiate the vast majority of the plan.[14] This too often produces risky regulatory approvals that lack basic yet vital information, as in Utah where several HCPs unwittingly relied on conservation measures to "protect" listed prairie dogs despite readily available scientific data showing that such measures had an 80 percent mortality rate.[15] Although the growing empirical evidence demonstrates that providing early and periodic opportunities for participation is valuable, HCP data gathering regularly ignores information resources despite the ESA's stated requirement of basing decisions on the "best scientific and commercial data available."[16]

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9. *See* 50 C.F.R. §§ 17.22(b)(5), 17.32(b)(5) (2004).

10. *See* Notice of Availability of a Final Addendum to the Handbook for Habitat Conservation Planning and Incidental Take Permitting Process, 65 Fed. Reg. 35,242, 35,243, 35,252 (June 1, 2000) [hereinafter HCP Handbook Addendum].

11. *See infra* Part I.B.

12. Bradley C. Karkkainen, *Adaptive Ecosystem Management and Regulatory Penalty Defaults: Toward a Bounded Pragmatism*, 87 MINN. L. REV. 943, 970 (2003).

13. The ESA is primarily administered by the U.S. Secretary of the Interior through the U.S. Fish and Wildlife Service (FWS) for land and freshwater species, and the U.S. Secretary of Commerce through the National Marine Fisheries Service (NMFS) for marine species. *See* 16 U.S.C. § 1532(15) (2000) (defining "Secretary"); *id.* § 1533(a)(2); 50 C.F.R. § 424.01 (2005) (FWS/NMFS joint regulations).

14. *See infra* Part II.

15. *See* Laura H. Watchman et al., *Science and Uncertainty in Habitat Conservation Planning*, 89 AM. SCIENTIST 351, 356 (2001).

16. 16 U.S.C. § 1536(a)(2).

Perhaps more discouraging is the limited adaptive implementation by the Services, notwithstanding how critical such activities are to the democratic and environmental goals of the HCP program.[17] For example, the much heralded Plum Creek HCP in the State of Washington, faced with a 50 percent decline since approval in endangered spotted owls attributable to an alarming influx of barred owls—a contingency unforeseen during development of the HCP—remains unchanged.[18] Because of key interpretations by the Services and the incentives created for applicants and Services staff by these interpretations, the adaptive regulatory approach vital to the HCP program's legitimacy has been largely disregarded. Monitoring of HCP compliance is usually deficient, if not entirely absent, and subsequent adaptation of HCPs to integrate new information or changed circumstances acquired during implementation is even rarer. Though the Services have repeatedly acknowledged that adaptive management and contingency planning are valuable characteristics of HCPs, empirical evidence shows an aversion to implementing them.

Yet, as problematic as these defects may be, this Article more fundamentally argues that the HCP program has failed to embrace experimentalism and adaptively manage *the regulatory process itself*.[19] By being demonstrably nonadaptive, the Services have failed to take full advantage of the valuable knowledge readily available from preceding HCP processes. Not only are the Services insufficiently adapting individual HCPs; they have also failed to gather systematic information about the HCP program, learn from its successes, or adjust to its failures. Thus, the HCP program has merely repeated the mistakes of its regulatory brethren in failing to harness the potential for regulatory learning. By adjusting the Services' and the applicants' incentives toward greater attention to monitoring and dissemination of information about HCP processes, Congress, the Services, and the public could finally gain the tools to assess regulatory outcomes.[20] Only then could the HCP program serve as a model for other regulatory programs on the potential for regulatory learning that exists for every regulatory program.

The Article consists of five parts. Part I provides a detailed account of the development of the ESA's HCP program as one of the earliest experiments in regulatory innovation. It also explores the promise of adaptive,

17. *See infra* Part III.

18. *See* Lisa Stiffler, *Best-Laid Plans Can't Foresee All—Spotted Owl Is in Decline and Another Bird May Be at Fault*, SEATTLE POST-INTELLIGENCER, May 5, 2005, at A18.

19. *See infra* Part IV.A.

20. *See infra* Part IV.B.

collaborative regulation for furthering environmental and democratic goals. Parts II through V assess how well the HCP program has lived up to the promise of adaptive regulation. Part II analyzes the Services' interpretation and management of the participation requirements of the HCP program. This Part marshals evidence of the considerable value of participation in fostering better decisions and decisionmaking processes, as well as the Services' and applicants' systematic avoidance of it. Part III examines the Services' interpretations of the monitoring and adaptation elements of the HCP program, exploring the disincentives that the Services have constructed for the systematic monitoring and adaptation of HCPs. This Part then analyzes existing evidence confirming the impeding effect of these interpretations on monitoring and adaptation during HCP implementation. Part IV explores the maladaptive management of the HCP program, arguing that the Services ignore the need for systematic collection and analysis of information about HCP processes in order to better implement the HCP program. Finally, Part V draws on the lessons of the HCP experiment to explore the ways the program should be altered to serve as a more participatory, experimental, adaptive, and ultimately cost-effective approach to environmental regulation. The Article then concludes by considering how lessons learned from the HCP program about adaptive regulation can help to develop protocols for adaptively managing other regulatory programs as well.

I. THE EVOLUTION OF THE HCP PROGRAM

A. The ESA and HCP Amendments

The ESA has evolved dramatically since its adoption in 1973 as a strict and broad prohibition on the "take" of any endangered species.[21] Congress enacted the ESA to actualize the public goal of "better safeguarding, for the benefit of all citizens, the Nation's heritage in fish, wildlife, and plants,"[22] recognizing that many vulnerable species are of "esthetic, ecological, educational, historical, recreational, and scientific value."[23] From the outset, the ESA declared as a primary purpose not only the

21. 16 U.S.C. § 1532(19) (defining "take" to include "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct").
22. *Id.* § 1531(a)(5).
23. *Id.* § 1531(a).

protection of endangered species, but also the conservation of the ecosystems upon which such species depend.[24]

To fulfill these goals, the ESA incorporates a number of restrictions on human activity that affect species listed as threatened or endangered.[25] Established as a strict prohibition statute, the ESA expressly forbids harmful actions against listed species.[26] In addition to the section 7 prohibition of any federal action[27] that would "jeopardize the continued existence"[28] of any listed species or result in the modification of their "critical habitat,"[29] section 9 of the ESA strictly prohibits the take of any endangered species by any person, public or private.[30] The statute defines taking to include to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any such conduct."[31] Subsequent judicial opinions have upheld expansive interpretations of this language to include substantial habitat modification.[32]

In the first decade after the statute's enactment, section 9's strict and broad prohibition on the take of listed species caused concern not only among private landowners and developers, but also among government

24. *See id.* § 1531(b); *see also* Babbitt v. Sweet Home Chapter of Cmtys. for a Greater Or., 515 U.S. 687, 699–700 (1995) (acknowledging that the ESA serves to protect vulnerable ecosystems, with listed species functioning as an indicator that the underlying ecosystem is faltering).

25. Listing is based on an assessment of the risk of extinction that relies on "the best scientific and commercial data available." 16 U.S.C. § 1533(b)(1)(A). Species may be listed only after public participation and solicitation of independent scientific peer review. *See id.*; Endangered and Threatened Wildlife and Plants: Notice of Interagency Cooperative Policy for Peer Review in Endangered Species Act Activities, 59 Fed. Reg. 34,270 (July 1, 1994).

26. *See* 16 U.S.C. § 1533(b) (2000 & Supp. III 2004); 16 U.S.C. § 1538(a) (2000).

27. Action includes any activity "authorized, funded, or carried out, in whole or in part, by Federal agencies." 50 C.F.R. § 402.02 (2005).

28. 16 U.S.C. § 1536(a)(2); *see also* Tenn. Valley Auth. v. Hill, 437 U.S. 153, 188 (1978) (finding that a jeopardy determination must be made strictly without regard to the costs and benefits of the proposed agency action).

29. 16 U.S.C. § 1533(b)(2) (2000 & Supp. III 2004). If a species is listed, the Services must designate critical habitat in areas in which the species is found or which might provide additional habitat for the species' recovery. *See id.* However, the FWS had only designated critical habitat for 36 percent of listed domestic species as of June 2006. *See* EUGENE H. BUCK ET AL., THE ENDANGERED SPECIES ACT (ESA) IN THE 109TH CONGRESS: CONFLICTING VALUES AND DIFFICULT CHOICES 3 (2006).

30. 16 U.S.C. § 1538(a)(1). For threatened species, the take prohibition is not automatic; the FWS may apply the ban at its discretion, *see id.* § 1533(d), which it has done in most cases, *see* TIMOTHY BEATLEY, HABITAT CONSERVATION PLANNING: ENDANGERED SPECIES AND URBAN GROWTH 17 (1994).

31. 16 U.S.C. § 1532(19).

32. *See* Babbitt v. Sweet Home Chapter of Cmtys. for a Greater Or., 515 U.S. 687 (1995) (determining that the Services' statutory interpretation of "harm" to include "significant habitat modification or degradation" that significantly impairs breeding, feeding, or sheltering patterns was reasonable); Palila v. Haw. Dep't of Land & Natural Res., 639 F.2d 495, 497 (9th Cir. 1981).

officials and environmentalists. Unsurprisingly, many landowners were alarmed by the financial implications and criminal liability of the broad take prohibition's land use restrictions, asserting that the ESA was both overinclusive and unfocused.[33] Yet, some officials and environmentalists also found section 9 ineffective as a tool for species conservation on private lands.[34] Evidence indicated that species continued to decline and habitat continued to be destroyed after listing, in large part because of poor enforcement due to the Services' limited resources[35] and the difficulty of monitoring and enforcing on private lands.[36] In addition, because of the strict effect of section 9, listing decisions became very adversarial and politicized,[37] and the Services were reluctant to enforce a take prohibition that raised such political rancor.[38] Finally, environmentalists criticized section 9's focus on prohibiting harm to isolated species and guarding fragmented habitat rather than fostering a more comprehensive, ecosystem-based approach to conservation and recovery.[39] For all its strictness, the ESA's prohibition ignored the fact that merely preventing human development did little to make endangered species and fragile ecosystems recover once in steep decline.

In part as a result of these criticisms, the ESA was amended in 1982 to allow the Services to issue ITPs, which allow permittees to harm or even destroy members of a protected species. Under section 10(a), the Services may issue a permit to private or nonfederal public actors that authorize the incidental take of a listed species in conjunction with an approved HCP.[40]

33. *See* LAURA C. HOOD, FRAYED SAFETY NETS: CONSERVATION PLANNING UNDER THE ENDANGERED SPECIES ACT 1 (1998).

34. Michael J. Bean & David S. Wilcove, *The Private-Land Problem*, 11 CONSERVATION BIOLOGY 1, 1–2 (1997).

35. *See* HOOD, *supra* note 33, at 1.

36. *See id.* at 1–2 (reporting that due to limited Services oversight, landowners sometimes destroyed potential habitat before it was discovered); George F. Wilhere, *Adaptive Management in Habitat Conservation Plans*, 16 CONSERVATION BIOLOGY 20, 23 (2002) (stating that landowners often interfered with monitoring and refrained from reporting species on their property).

37. Craig W. Thomas, *Habitat Conservation Planning*, *in* FUNG & WRIGHT, *supra* note 3, at 144, 146.

38. *See* BUCK ET AL., *supra* note 29, at 19; Wilhere, *supra* note 36, at 22.

39. *See* HOOD, *supra* note 33, at 2–3; Thomas, *supra* note 37, at 146.

40. 16 U.S.C. § 1539(a) (2000). Federal agencies and federal permittees can also circumvent the section 9 prohibitions if one of the Services issues an incidental take statement (ITS) through the section 7 interagency consultation process. *See id.* §§ 1539(a)(1)(B), 1536(b)(4). Though this Article focuses on the HCP program, many of the same criticisms are also likely to be valid for the section 7 ITS program, which accounts for at least as many incidental take activities as HCPs. An ITS flows from the Services to an applicant through the permitting agency and is in many respects the equivalent of a section 10 authorization. Like an incidental take permit (ITP), an ITS is not available for public examination or comment until it has been finalized. *See* U.S. FISH & WILDLIFE SERV., ENDANGERED SPECIES ACT SECTION 7 CONSULTATION HANDBOOK 1–12 (1998).

In seeking an ITP, a developer-applicant must submit a proposed HCP that specifies: (1) the planned action's projected impact; (2) steps to be taken to monitor, lessen, and mitigate the taking's impact; (3) funding for such mitigation; (4) alternatives to the taking that the applicant considered and "the reasons why such alternatives are not being utilized"; and (5) any other measures the Services require.[41] To grant an ITP, the Services must, after affording opportunity for public comment,[42] find that: (1) the proposed taking is "incidental";[43] (2) the HCP minimizes and mitigates the taking's impacts "to the maximum extent practicable"; (3) the applicant has ensured "adequate" funding for the HCP; (4) the taking will not "appreciably" reduce the likelihood of survival and recovery of the species; and (5) the HCP meets any other "necessary or appropriate" measures.[44] As evident from such open terms as "practicable," "adequate," "appreciably," and "appropriate"—and as reinforced by the Services' interpretive guidelines[45]—the requisite findings thus give those parties involved in the formation of the HCP considerable flexibility to shape it.

B. An Experiment in Collaborative and Adaptive Regulation

Section 10(a)'s moderation of the ESA's strict prohibition provided the first systematic avenue for considering questions of economic feasibility in species-conservation disputes,[46] and in this sense its impetus was in part

41. 16 U.S.C. § 1539(a)(2)(A).

42. *See id.* § 1539(c); 50 C.F.R. § 17.22(c) (2005) (FWS implementing regulations); *id.* § 222.307(c) (NMFS implementing regulations).

43. An "incidental take" is broadly defined as any taking "that result[s] from, but [is] not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant." 50 C.F.R. § 402.02.

44. 16 U.S.C. § 1539(a)(2)(B); *see also* Gerber v. Norton, 294 F.3d 173, 185 (D.C. Cir. 2002) (finding that the Service, and not just the developer, must determine that the alternatives considered were impracticable).

45. The Services' Habitat Conservation Planning Handbook provides that any mitigation mandated in an HCP must be "commensurate with the impacts," and based on a "sound biological rationale." U.S. FISH & WILDLIFE SERV. & NAT'L MARINE FISHERIES SERV., HABITAT CONSERVATION PLANNING HANDBOOK 3-19, 7-3 (1996) [hereinafter HCP HANDBOOK]. The HCP Handbook also provides two accommodating factors to consider in determining the sufficiency of proposed mitigation: (1) the extent to which the measures provide substantial benefits to species; and (2) whether the mitigation is the maximum practicable in light of the "benefits and costs of implementing additional mitigation," the applicant's abilities, and the mitigation provided by other applicants in similar circumstances. *Id.*

46. A 1978 amendment to section 7 allowed federal actions at the cabinet level an extraordinary exemption from the prohibition against jeopardizing a listed species when the action's benefits "clearly outweigh" the benefits of conservation alternatives. *See* 16 U.S.C. § 1536(h)(A)(ii). However, only one exemption has ever been executed pursuant to this amendment. *See* BUCK ET AL., *supra* note 29, at 5.

the desire by some landowners to weaken the ESA's strict limitations. Yet, the introduction of the HCP process was touted more fundamentally by many as an innovative, collaborative shift in environmental dispute resolution. Though there were many appeals to revise section 9's strict prohibition, the prototype for the amendments actually adopted came directly from a well-regarded collaborative planning effort in San Bruno, California, which assembled a wide range of interested parties in a steering committee to resolve a complex development and species-conservation dispute.[47]

The flaws of the ESA's original restrictive approach were starkly evident on San Bruno Mountain. Because the underlying ecosystem and even the listed species were vulnerable to nondevelopment threats such as nonnative species, section 9's mere prohibition on development that harmed listed species and habitat would frustrate not only financial interests but also long-term conservation concerns.[48] As a result, federal, state, and local officials, landowners, developers, and conservation organizations engaged in a multilateral, rigorous data-gathering and negotiation process seeking an alternative that culminated in a thirty-year conservation agreement. The accord allowed limited development that would take critical habitat but also provided a long-term program funded by the development to protect and enhance the remaining plan area as habitat.[49] Importantly, the plan relied on: (1) shared information gathering on the impact and alternatives of the proposed take based on the best available science; (2) meaningful multiparty deliberation on the mitigation plan for the species; and (3) continued monitoring and adjustment of plan measures during implementation to manage and restore the evolving ecosystem for the life of the plan.[50]

The San Bruno plan's integration of these characteristics into the decisionmaking process was a pivotal motivating factor for the 1982 ESA amendments.[51] In adopting the amendments, Congress stated that the

47. *See* BEATLEY, *supra* note 30, at 19; Robert D. Thornton, *Searching for Consensus and Predictability: Habitat Conservation Planning Under the Endangered Species Act of 1973*, 21 ENVTL. L. 605, 622 (1991).

48. *See* HOOD, *supra* note 33, at 30; Zygmunt J.B. Plater, *The Embattled Social Utilities of the Endangered Species Act—A Noah Presumption and Caution Against Putting Gasmasks on the Canaries in the Coalmine*, 27 ENVTL. L. 845, 874 n.111 (1997).

49. *See* Lindell L. Marsh & Robert D. Thornton, *San Bruno Mountain Habitat Conservation Plan*, *in* MANAGING LAND-USE CONFLICTS 114, 119–25 (David J. Brower et al. eds., 1987).

50. *See* MICHAEL J. BEAN ET AL., RECONCILING CONFLICTS UNDER THE ENDANGERED SPECIES ACT 52–57 (1991).

51. *See, e.g.*, BEATLEY, *supra* note 30, at 17, 19; Graham M. Lyons, *Habitat Conservation Plans: Restoring the Promise of Conservation*, 23 ENVIRONS ENVTL. L. & POL'Y J. 83, 102 (1999).

San Bruno plan was the model for the section 10(a) ITP provision and that the "adequacy of similar conservation plans should be measured against the San Bruno plan."[52] Congress emphasized the public involvement in and support for the San Bruno process, the reliance on "independent exhaustive biological study," a more comprehensive, ecosystem-based approach, and effective monitoring and adaptation during implementation.[53] Congress also stressed the key compromise of the San Bruno plan: Though the plan allowed development that would harm habitat otherwise in violation of the ESA, it would use funding from the development not only to protect but also to enhance the rest of the plan area.[54] In adopting its first implementing regulations for the HCP program, the Services again emphasized Congress' reliance on the San Bruno plan approach.[55] The Ninth Circuit has confirmed that the San Bruno plan is the model for the HCP program.[56]

FWS officials explain that the HCP program was created out of a desire to transform the ESA from a static and narrow emergency statute into a multilateral, collaborative tool for addressing complex, long-term environmental disputes.[57] Similarly, some practitioners involved in species-conservation disputes saw the HCP program as a necessary alternative to the ESA's conventional but inflexible, expensive, and ultimately ineffective approach to resolving resource conflicts:

> [I]t was becoming increasingly apparent that the wildlife conservation objective would be difficult, if not impossible, to attain by utilizing our historic project-by-project, adversarial, quasi-judicial processes. . . . The interest in the HCP approach reflects the conclusion that the result of this historic model has been fragmented and ineffective mitigation, very expensive and often unsuccessful

52. H.R. REP. NO. 97-835, at 31 (1982), *reprinted in* 1982 U.S.C.C.A.N. 2860, 2872; *see also* HCP HANDBOOK, *supra* note 45, at 1-2; Thornton, *supra* note 47, at 624.

53. H.R. REP. NO. 97-835, at 31–32; *see also* Lyons, *supra* note 51, at 102 ("Congress was sure to point out the fact that local citizens and environmental organizations supported the San Bruno plan.").

54. *See* H.R. REP. NO. 97-835, at 32.

55. *See* Endangered and Threatened Wildlife and Plants; Prohibitions and Permits, 50 Fed. Reg. 39,681, 39,682 (Sept. 30, 1985) (codified in scattered sections of 50 C.F.R. pts. 13, 17).

56. *See* Friends of Endangered Species v. Jantzen, 760 F.2d 976, 983 (9th Cir. 1985).

57. *See* George Frampton, *Ecosystem Management in the Clinton Administration*, 7 DUKE ENVTL. L. & POL'Y F. 39, 40 (1996) (key Interior Department official stating that the HCP reforms represent an effort to transform the ESA from "a species-by-species 'emergency room' regulatory tool or safety net into a comprehensive vehicle for regional multi-species habitat planning in collaboration with state and local governments, private landowners and other interest groups"); Robert D. Thornton, *Habitat Conservation Plans: Frayed Safety Nets or Creative Partnerships?*, 16 NAT. RESOURCES & ENV'T 94 (2001).

> attempts to save "endangered" species, an unacceptable level of frustration and conflict, and the belief that we must do better, without compromising the two principles of biodiversity conservation and freedom.[58]

As such, Congress explained that the HCP process established a cooperative framework that fostered participation in the Services' decisions instead of unilateral judgments,[59] ecosystem-based solutions instead of fragmented analysis of protected species,[60] and the need during implementation for sustained monitoring[61] and subsequent adjustment of the HCP to address unforeseen circumstances.[62] The HCP process was thus seen as fostering better agency decisions by incorporating participation, rigorous and comprehensive data gathering and analysis, and subsequent monitoring and adaptation into the regulatory process. Importantly, however, Congress never thoroughly delineated the extent and forms of participation and adaptation to be provided in HCPs, leaving such details to the Services.

Though surely not evident at the time of its adoption, the HCP program's agreement-based approach to regulation was one of the earliest in a wave of experimental approaches to governance in public regulatory law.[63] Such innovations have been instituted as a method for reinventing regulation to address widespread concerns regarding the ineffectiveness and adversarialism of existing decisionmaking processes[64] through the incorporation of more meaningful participation opportunities and flexibility

58. Marsh, *supra* note 2, at 110.

59. *See* H.R. REP. NO. 97-835, at 30–31 ("To the maximum extent possible, the Secretary should utilize this authority under this provision to encourage creative partnerships between the public and private sectors and among governmental agencies . . . . This provision will measurably reduce conflicts under the Act and will provide the institutional framework to permit cooperation between the public and private sectors . . . ."); *id.* at 31 (HCPs should "create a climate of partnership and cooperation").

60. *See id.* at 30 ("Although the conservation plan is keyed to the permit provisions of the Act which only apply to listed species, the Committee intends that conservation plans may address both listed and unlisted species. In enacting the Endangered Species Act, Congress recognized that individual species should not be viewed in isolation, but must be viewed in terms of their relationship to the ecosystem of which they form a constituent element. . . . [T]he purposes and policies of the Act are far broader than simply providing for the conservation of individual species or individual members of listed species.").

61. *See id.* ("[T]he Secretary shall prescribe terms and conditions to ensure that appropriate measures are taken by the applicant and shall revoke the permit if the permittee is not complying with those terms and conditions.").

62. *See id.* at 31 ("It is also recognized that circumstances and information may change over time and that the original plan might need to be revised. To address this situation the Committee expects that any plan approved for a long-term permit will contain a procedure by which the parties will deal with unforseen [sic] circumstances.").

63. *See* Camacho, *supra* note 3, at 273–75.

64. *See* Freeman, *supra* note 3, at 3, 35; Harter, *supra* note 3, at 6–7.

in regulatory processes.[65] Though limited in number at the federal level,[66] these regulatory experiments have nonetheless arisen in a wide range of local and informal regulatory contexts.[67] In addition, some existing regulatory programs are being modified to be more adaptive to changing circumstances and new information.[68] Some scholars have promoted these regulatory processes as new private-public relationships that harness the capacities of affected private parties to assist in governance.[69] These scholars see negotiated regulatory decisionmaking as enhancing both governmental and private power by ensuring private involvement in public decisionmaking, while allowing agencies to influence projects in more effective ways.[70]

In this context, legal and nonlegal scholars have proposed a range of normative models[71] that emphasize the value of promoting participation throughout the regulatory process.[72] Numerous conceptions of regulation identified as "empowered participatory governance,"[73] "collaborative

65. *See* Lobel, *supra* note 3, at 371, 395.

66. In addition to the ESA's HCP program, the most commonly cited examples of federal negotiated administrative processes include regulatory negotiation under the Negotiated Rulemaking Act of 1990, 5 U.S.C. §§ 561–70 (2000), and the negotiation of Final Project Agreements under the Environmental Protection Agency's Project XL, *see* Regulatory Reinvention (XL) Pilot Projects, 60 Fed. Reg. 27,282 (May 23, 1995).

67. *See, e.g.*, FUNG & WRIGHT, *supra* note 3, at 6–14; LAWRENCE SUSSKIND ET AL., USING ASSISTED NEGOTIATION TO SETTLE LAND USE DISPUTES: A GUIDEBOOK FOR PUBLIC OFFICIALS 19–23 (1999); James S. Liebman & Charles F. Sabel, *A Public Laboratory Dewey Barely Imagined: The Emerging Model of School Governance and Legal Reform*, 28 N.Y.U. REV. L. & SOC. CHANGE 183 (2003); Lobel, *supra* note 3, at 404–07; Louise G. Trubek & Maya Das, *Achieving Equality: Healthcare Governance in Transition*, 29 AM. J.L. & MED. 395 (2003).

68. *See, e.g.*, National Environmental Policy Act Revised Implementing Procedures, 69 Fed. Reg. 10,866 (Mar. 8, 2004) (amending the National Environmental Policy Act (NEPA) implementation regulations to incorporate adaptation).

69. *See* Freeman, *supra* note 3, at 4; Harter, *supra* note 3, at 103. Rejecting the view of regulation as an authoritarian exercise of power through static, uniform rules, Jody Freeman suggests that regulation should more appropriately be understood as a set of negotiated relationships analogous to contract. *See* Freeman, *supra* note 1, at 548–49; Freeman, *supra* note 3, at 28–29.

70. *See* Freeman, *supra* note 1, at 671.

71. To be sure, there are often substantial differences between these theoretical approaches, not the least of which is that some criticize the extant adopted regulatory innovations, while others support them. *See* Bradley C. Karkkainen, *"New Governance" in Legal Thought and in the World: Some Splitting as Antidote to Overzealous Lumping*, 89 MINN. L. REV. 471, 474 (2004).

72. *See, e.g.*, Freeman, *supra* note 3, at 22, 28–29 (promoting harnessing and enhancing the capabilities of private and democratic institutions through processes that encourage broad participation, problem solving, adaptable regulatory solutions, accountability through interdependence and mutual monitoring, and a flexible, engaged agency).

73. ARCHON FUNG, EMPOWERED PARTICIPATION: REINVENTING URBAN DEMOCRACY 3 (2004); FUNG & WRIGHT, *supra* note 3, at 15.

governance,"[74] "democratic experimentalism,"[75] "directly deliberative polyarchy,"[76] and "new governance" stress the value of participation—and, in particular, multilateral deliberation—in fostering more informed and widely supported regulatory decisions. In addition to its intrinsic value,[77] many claim that an open participatory process thwarts the potential for capture and corruption, provides valuable information for shaping regulatory decisions that are more satisfactory to those affected and the public generally,[78] and enhances accountability for governmental services and decisions.[79]

Similarly, drawing on a pragmatic notion of decisionmaking as an ongoing, iterative process of design, implementation, and evaluation,[80] many scholars[81] promote the development of regulatory institutions that allow for flexibility and learning within the regulatory process.[82] They reconceive regulation as a continuing process of monitoring and adaptation that must be flexible to maximize effectiveness.[83] Monitoring and adaptation can serve essential roles of promoting accountability and

74. Camacho, *supra* note 3; Freeman, *supra* note 3.

75. Dorf & Sabel, *supra* note 3, at 286–87; *see also* CHARLES SABEL ET AL., BEYOND BACKYARD ENVIRONMENTALISM (2000).

76. Joshua Cohen & Charles Sabel, *Directly-Deliberative Polyarchy*, 3 EUR. L.J. 313, 313–40 (1997); Dorf & Sabel, *supra* note 3, at 288.

77. *See* Freeman, *supra* note 3, at 27.

78. *See* Thomas C. Beierle & Jerry Cayford, *Dispute Resolution as a Method of Public Participation*, *in* THE PROMISE AND PERFORMANCE OF ENVIRONMENTAL CONFLICT RESOLUTION 53, 63–66 (Rosemary O'Leary & Lisa B. Bingham eds., 2003) (discussing the instrumental, substantive, and normative values of public participation); Dorf & Sabel, *supra* note 3, at 317 (discussing the fundamental value of direct and continuous participation).

79. *See* Dorf & Sabel, *supra* note 3, at 288 (stating that local participation in service-provision evaluation can increase the accountability of regulatory institutions).

80. *See id.* at 285 (stating that pragmatism accepts "the impossibility of defining first principles that survive the effort to realize them, as a constitutive feature of thought and action, and not as an unfortunate incident of modern political life").

81. Proponents of "eco-pragmatism" and "jurisdynamics" also emphasize an understanding of the law as a fundamentally iterative process. For a comprehensive justification of eco-pragmatism, see DANIEL A. FARBER, ECO-PRAGMATISM: MAKING SENSIBLE ENVIRONMENTAL DECISIONS IN AN UNCERTAIN WORLD (1999), and Daniel A. Farber, *Building Bridges Over Troubled Waters: Eco-Pragmatism and the Environmental Prospect*, 87 MINN. L. REV. 851 (2003). For a complete account of jurisdynamics, see THE JURISDYNAMICS OF ENVIRONMENTAL PROTECTION: CHANGE AND THE PRAGMATIC VOICE IN ENVIRONMENTAL LAW (Jim Chen ed., 2003), and Jim Chen, *The Pragmatic Ecologist: Environmental Protection as a Jurisdynamic Experience*, 87 MINN. L. REV. 847 (2003).

82. *See* Dorf & Sabel, *supra* note 3, at 285; Freeman, *supra* note 3, at 28–29; Karkkainen, *supra* note 71, at 496.

83. *See* Freeman, *supra* note 3, at 28 ("[A] flexible, adaptive system capable of responding to advances in science, technology, knowledge, and shifting human judgments will produce better rules that are more likely to accomplish legislative goals.").

more effective regulation by allowing decisions to be tailored as information is obtained and conditions change.[84] Though the commitments to participation and adaptation do not necessarily require an allegiance to the other, many suggest that they are synergistic.[85]

Despite the growing literature in support of these dual goals of participation and adaptation, fundamental questions still persist about the promise of this new generation of administrative regulation. Can administrative institutions adapt to new modalities of regulation that require transparency, dexterity in the adoption and implementation of regulatory decisions, and a reconception of the agency's role to include facilitation and capacity-building? What factors are essential for fostering an adaptive approach to regulation? In what regulatory contexts is a collaborative, adaptive approach more likely to flourish? As one of the earliest forms of regulation that purported to emphasize collaboration and adaptation, the HCP program is an ideal case study of the challenges of this new paradigm, providing valuable early lessons on the capacities of existing administrative institutions to engage in adaptive regulatory management. Unfortunately, as detailed in Parts II through IV, the lesson of the HCP program is that much must evolve in existing institutions for adaptive regulation—indeed, regulation generally—to have any chance of success.

II. AN AVERSION TO PARTICIPATION

As implemented by the Services, the 1982 HCP regulatory experiment has undoubtedly transformed the ESA. Though only a dozen HCPs were approved in the decade following the institution of the HCP program, they flourished during the Clinton Administration and continue to proliferate, with 300 HCPs adopted by the end of 2000,[86] and over 530 HCPs approved as of October 2007.[87] As detailed in this Part, there is encouraging evidence that a more collaborative, multilateral prototype has considerable promise in cultivating better regulatory decisions. Unfortunately, as a result of key interpretations by the Services of section

84. *See* Camacho, *supra* note 3, at 295–97; Freeman, *supra* note 3, at 28.

85. *See* J.B. Ruhl, *Is the Endangered Species Act Eco-Pragmatic?*, 87 MINN. L. REV. 885, 936 (2003).

86. *See* STANFORD ENVTL. LAW SOC'Y, THE ENDANGERED SPECIES ACT 133 (2001).

87. *See* U.S. Fish & Wildlife Service, Endangered Species Habitat Conservation Planning, http://ecos.fws.gov/conserv_plans/public.jsp (follow "Nationwide" hyperlink under "Habitat Conservation Plans" column, then follow "Regional (Summary) Report" hyperlink) (last visited Oct. 26, 2007).

10(a) and inhibited program management, existing empirical evidence reveals that the HCP program predominantly serves to allow bilateral, ill-informed HCPs to circumvent the ESA's section 9 take prohibition.

A. Designing the Role of Participation

Because of the success of San Bruno's multilateral, collaborative process, Congress provided for the opportunity for a more open, participatory approach to resolving species-conservation and economic-development disputes. However, though the Services claim to encourage participation by interested stakeholders in HCP processes, they have used the discretion Congress granted them to develop a bilateral program in which the applicant largely decides who gets to participate in long-term conservation planning.

The success of the San Bruno approach relied in part on thorough discussion among a broad range of parties with different stakes in the problem. Advocates argued that providing opportunities for affected parties to interact with Service officials in the plan-formation and implementation processes would serve to increase (1) the information available regarding various interests and the proposed plan's possible effects and alternatives; (2) support for the plan from affected parties; and (3) the likelihood of successful plan implementation and enforcement.[88] The forum for participation was the multilateral stakeholder steering committee,[89] which allowed affected parties to participate in setting plan objectives, provide and review data on the impacts and alternatives of the proposed take, and deliberate on the appropriate mitigation and recovery plan for the species. Though affected parties could not veto an HCP's provisions, they had substantial access and meaningful opportunities to participate—resulting in an HCP that most parties (including environmentalists) considered acceptable.[90] By integrating the various affected parties early and throughout the agreement-formation and implementation processes, collaborative regulation would serve to better

88. *See, e.g.*, JEREMY ANDERSON & STEVEN YAFFEE, BALANCING PUBLIC TRUST AND PRIVATE INTEREST: PUBLIC PARTICIPATION IN HABITAT CONSERVATION PLANNING, A SUMMARY REPORT 13 (1998).

89. A steering committee is "a group of persons who represent affected interests in a broad-scale HCP planning area and generally oversee HCP progress and development." HCP HANDBOOK, *supra* note 45, at 3-3.

90. *See* BEATLEY, *supra* note 30, at 19; Marsh & Thornton, *supra* note 49, at 128.

approximate the public interest than traditional processes relying on the underresourced and overwhelmed Services to ordain it.

Though many proponents of the HCP program emphasized the value of participation and detailed information gathering for the success of HCPs,[91] the 1982 amendments provide the Services significant discretion to shape the timing, amount, and types of participation by interested stakeholders and the public generally in HCP formation and implementation processes.[92] Section 10(a) only states that the Services must afford an "opportunity for public comment" before making findings regarding the permit application.[93] Furthermore, section 10(c) requires a minimum of thirty days for interested parties to comment on a permit application.[94] In short, the scope of participation by interested parties—who can participate, when it occurs, and whether it includes open meetings, stakeholder steering committees, multilateral negotiations, or merely a notice-and-comment period—was virtually left to the Services to decide.

The Services have at times interpreted these limited provisions to expand participation required under the program. For example, in response to widespread criticism regarding the lack of meaningful participation opportunities for nonapplicant stakeholders in the HCP process, the Services opted to lengthen the minimum public comment period required for larger HCPs.[95] Though the Services did not vary the type or extent of participation or even try to synchronize participation opportunities to when key decisions were being made, they nonetheless demonstrated the flexibility they have in shaping participation in the HCP process. Furthermore, although the 1982 amendments did not add any new express participation requirements, some early HCPs nonetheless relied on the San Bruno plan approach. These HCPs incorporated scientific data gathering during HCP development and substantial opportunities for participation during the HCP process's information-gathering, negotiation, and implementation phases.[96] This has led many developers

91. *See supra* notes 51–58 and accompanying text.

92. *See* ANDERSON & YAFFEE, *supra* note 88, at 22.

93. 16 U.S.C. § 1539(a)(2)(B) (2000).

94. *See id.* § 1539(c); 50 C.F.R. § 17.22(c) (2005) (FWS implementing regulations); *id.* § 222.307(c) (NMFS implementing regulations).

95. The Services extended the period to sixty days, with exceptions for "low effect" HCPs (thirty days), individual permits under a program-level HCP (thirty days), and large-scale, regional, or exceptionally complex HCPs (ninety days unless there was significant participation during HCP development). *See* HCP Handbook Addendum, *supra* note 10, at 35,242, 35,256.

96. *See* Thornton, *supra* note 47, at 631–32. *But see* Watchman et al., *supra* note 15, at 356.

and environmentalists to support the HCP process as a valuable model for resolving complex and contentious development-conservation conflicts.[97]

However, as the HCP program has aged, the Services have interpreted the ESA to consign any multilateral, collaborative protocols to the whim of the developer-applicant. The Services take the position that other than a short comment period provided immediately before HCP approval, any outside involvement is at the applicant's discretion.[98] Significantly, the steering committee key to the San Bruno plan is not required under the Services' interpretation. Though the Services allow the use of steering committees and emphasize their possible utility to applicants, an applicant can simply refuse one.[99] When used, committee members are appointed by the applicant.[100]

In short, the Services encourage integrating public input throughout the HCP process,[101] but they do not require it. They justify this interpretation on the statutory language that it is the applicant who "submits to the Secretary a conservation plan"[102] and claim the ESA only requires an "opportunity for public comment" before the FWS or NMFS finally approves the plan.[103] Because of these provisions, the

97. *See Endangered Species Act Amendments of 1993: Hearings Before the Subcomm. on Clean Water, Fisheries, and Wildlife of the Comm. on Env't and Public Works*, 103d Cong. 160 (1994) (statement of Lindell L. Marsh, Siemon, Larsen & Marsh) ("[T]here is a growing consensus that the HCP approach is our best chance to conserve the Nation's biodiversity . . . ."); *id.* at 228 (statement of Michael A. O'Connell, Director of Habitat Conservation Planning, The Nature Conservancy) ("HCPs provide opportunities to build relationships that achieve public benefit while accommodating private sector needs."); Farber, *supra* note 81, at 874; Jody Freeman, *The Contracting State*, 28 FLA. ST. U. L. REV. 155, 194 (2000); Marsh, *supra* note 2, at 110; Steve Vanderheiden, *Habitat Conservation Plans and the Promise of Deliberative Democracy*, PUB. INTEGRITY, Summer 2001, at 205, 209.

98. *See* HCP Handbook Addendum, *supra* note 10, at 35,246–47 ("[W]e maintain that the inclusion of other interested parties in the development of an HCP is ultimately the decision of the applicant. The ESA and its implementing regulations do not mandate public participation before an applicant submits a permit application; only a public comment period after it is submitted and published in the Federal Register.").

99. *See* HCP HANDBOOK, *supra* note 45, at 3-3, 3-4 (explaining that applicants may decline such processes if they view them as "giving 'outside interests' too much access," or allow for "the intrusion of outside interests into proprietary or sensitive economic matters").

100. *See id.* at 3-3.

101. *See* HCP Handbook Addendum, *supra* note 10, at 35,247 ("We strongly encourage applicants to include more public participation at all stages of development."); *id.* at 35,256 ("The Services will strongly encourage potential applicants to allow for public participation during the development of an HCP, particularly if non-Federal public agencies . . . are involved."); HCP HANDBOOK, *supra* note 45, at 3-3 ("[T]he Services should encourage the applicant to provide opportunities to brief or inform representatives of interested parties of key elements or issues to be addressed in the proposed HCP.").

102. 16 U.S.C. § 1539(a)(2)(A) (2000).

103. *Id.* § 1539(a)(2)(B).

Services have asserted that an HCP is the applicant's plan on which they cannot impose participation restrictions until after the application is formally submitted and deemed complete.[104]

Yet, nothing in these brief statutory provisions prohibits the Services from allowing other stakeholders to have access to negotiations about the framework and composition of the HCP or to participate in determining the scope of the plan.[105] The statute is largely silent regarding the extent of access to negotiations by stakeholders, yet the Services have interpreted its provisions to provide applicants remarkable control over the decisionmaking process to the detriment of other stakeholders. Indeed, the statute does not mandate that any negotiations that occur must occur without any access or opportunity for input by other interested stakeholders. For that matter, the statute does not include any provision expressly allowing the typically in-depth bilateral negotiations between Services staff and applicants. Other than making the bare assertion that they do not have the authority to shape participation requirements, the Services do not and cannot provide additional support for such a claim.

The Services also authorize subsequent alterations to HCPs without the involvement of other stakeholders. While the Services allow the involvement of "other stakeholders to help identify the alternative strategies," and the use of scientific advisory committees and independent peer review to examine a monitoring program, they leave such involvement to the applicant's discretion.[106] In fact, the Services encourage making some amendments to HCPs or ITPs informally, away from the scrutiny of nonapplicant stakeholders.[107] Whether in a concerted effort to persuade developers to enter into HCPs,[108] a single-minded belief in agency

104. *See* Jon R. Luoma, *Habitat-Conservation Plans: Compromise or Capitulation?*, AUDUBON, Jan.–Feb. 1998, at 36, 43. Indeed, a past FWS director claimed that "[i]f we had our druthers, we'd certainly open up the HCP process to more public involvement. But the way the law's written, it's not our HCP." *Id.*

105. *See* NATURAL HERITAGE INST., WHERE PROPERTY RIGHTS AND BIODIVERSITY CONVERGE: LESSONS FROM EXPERIENCE IN HABITAT CONSERVATION PLANNING 20 n.85 (2000) ("Other federal statutes allow stakeholders to help shape natural resource use and protection. . . . Nothing in the ESA precludes the Services from employing similar measures to involve the public in the HCP development process.").

106. HCP Handbook Addendum, *supra* note 10, at 35,253.

107. *See* HCP HANDBOOK, *supra* note 45, at 3-33. Though limited to situations in which an adopted HCP includes "procedures for incorporating minor amendments so that the public had an opportunity to comment on the process," this provision allows an applicant to make subsequent changes to the HCP without public input as long as the net effect on the species is not "significantly" different than analyzed when the HCP was approved. *Id.*

108. Several commentators have noted that the Services' developer-friendly interpretations are a result of former Secretary of the Interior Bruce Babbitt's calculated

expertise[109] and the triviality of participation,[110] or simply a reticence toward change and learning, Congress and the Services have failed to establish any requirement or incentive for applicants to engage other parties.

B. Devaluing Participation

The Services' decision to merely encourage multilateral stakeholder participation and only require a short, postnegotiation period for public comment has been the determining factor shaping the role of participation in the HCP program. Existing evidence substantiates that the Services' interpretations allow participation to be neglected by failing to link it to when it might be most useful: when data are being gathered, perspectives are being shaped, alternatives are being considered, and decisions are being made.

Though published studies by the Services are nonexistent, independent data demonstrate that the "vast majority" of adopted HCPs have been subject to little if any participation from the public or interested stakeholders during HCP formation and approval.[111] A thorough University of Michigan analysis determined that outside stakeholders were involved in less than 40 percent of the HCPs studied.[112] Unfortunately, though

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decision to expand usage of ITPs. *See* David Dana & Susan P. Koniak, *Bargaining in the Shadow of Democracy*, 148 U. PA. L. REV. 473, 511–12 (1999); John D. Leshy, *The Babbitt Legacy at the Department of the Interior: A Preliminary View*, 31 ENVTL. L. 199, 213–14 (2001) (Interior Department Solicitor's account); Ruhl, *supra* note 85, at 936; *cf.* A. Dan Tarlock, *Slouching Toward Eden: The Eco-Pragmatic Challenges of Ecosystem Revival*, 87 MINN. L. REV. 1173, 1199 (2003) ("[T]he Babbitt Department of Interior promoted AM [adaptive management] to induce stakeholder participation in large-scale, multi-species HCPs, as a way to counter efforts to roll back the ESA.").

109. *See infra* notes 345–348 and accompanying text.

110. *See* ANDERSON & YAFFEE, *supra* note 88, at 30.

111. John Kostyack, *Habitat Conservation Planning: Time to Give Conservationists and Other Concerned Citizens a Seat at the Table*, ENDANGERED SPECIES UPDATE, July/Aug. 1997, at 51, 52; *see also* ANDERSON & YAFFEE, *supra* note 88, at 9; HOOD, *supra* note 33, at 43–44; Holly Doremus, *Preserving Citizen Participation in the Era of Reinvention: The Endangered Species Act Example*, 25 ECOLOGY L.Q. 707, 713 (1999); Michael Lipske, *Giving Rare Creatures a Fighting Chance*, NAT'L WILDLIFE, Feb./Mar. 1998, at 14, 21–22 ("Landowners and government representatives hammer out the details behind closed doors. Public review typically occurs only after the plan has been created.").

112. *See* ANDERSON & YAFFEE, *supra* note 88, at 17. Though applicants were moderately or actively involved before the comment period in 91 percent of the HCPs studied, not one environmental group was even moderately involved before the comment period in 51 percent of the HCPs. *See* PETER AENGST ET AL., BALANCING PUBLIC TRUST AND PRIVATE INTEREST: AN INVESTIGATION OF PUBLIC PARTICIPATION IN HABITAT CONSERVATION PLANNING 5-3, 5-5 (1998). In only a minority of cases did local governments (40 percent), business groups (28 percent), or independent scientists (28 percent) participate prior to the comment period. *See id.* at 5-5, 5-6, 5-7, 5-9. Even the higher level of local government participation is misleading; the study found that local government participation was closely correlated with whether the government owned land subject to the HCP. *See id.* at 5-7.

the HCP process provides considerable opportunities for negotiation of the scope of development and species conservation,[113] this negotiation is usually restricted to the applicant and Services staff.[114]

Existing evidence shows that participation is more likely to affect an HCP the earlier it occurs in the process.[115] This evidence is consistent with empirical studies analyzing other regulatory processes.[116] Unfortunately, participation rarely contributes to the quality of HCPs,[117] because outside stakeholders are habitually relegated to a comment period that is both cursory[118] and late,[119] usually after the key aspects of the plan have been extensively negotiated.[120] The Balcones Canyonlands Conservation Plan,

113. *See* David E. Moser, *Habitat Conservation Plans Under the U.S. Endangered Species Act: The Legal Perspective*, 26 ENVTL. MGMT. S7, S10 (2000) (stating that HCPs are "rarely submitted to the FWS 'cold' . . . . FWS strongly prefers to work with applicants in developing the HCP").

114. *See* Kostyack, *supra* note 111, at 52.

115. *See* AENGST ET AL., *supra* note 112, at 5-13 ("[O]n average more significant changes occurred before the comment period than during the comment period, or after HCP approval."); *id.* at xv ("[I]n those cases where public participation resulted in substantive changes to the HCPs, public participation invariably began early in the process . . . .").

116. *See* THOMAS C. BEIERLE & JERRY CAYFORD, DEMOCRACY IN PRACTICE: PUBLIC PARTICIPATION IN ENVIRONMENTAL DECISIONS 74–75 (2002) (suggesting that early public participation is effective in incorporating public values and thus leads to better outcomes); Mary Grisez Kweit & Robert W. Kweit, *The Politics of Policy Analysis: The Role of Citizen Participation in Analytic Decision Making*, *in* CITIZEN PARTICIPATION IN PUBLIC DECISION MAKING 19, 25–26 (Jack DeSario & Stuart Langton eds., 1987) (describing the negative impacts of only providing late participation opportunities); Stephanie Tai, *Three Asymmetries of Informed Environmental Decisionmaking*, 78 TEMP. L. REV. 659, 693 (2005); *cf.* 40 C.F.R. § 1502.5 (2006) (stating that the environmental impact statement (EIS) under NEPA "shall be prepared early enough so that it can serve practically as an important contribution to the decision-making process and will not be used to rationalize or justify decisions already made"); Donna M. Nagy, *Playing Peekaboo With Constitutional Law: The PCAOB and Its Public/Private Status*, 80 NOTRE DAME L. REV. 975, 1062–63 (2005) (describing the Administrative Procedure Act's call for widespread early participation in rulemaking, before policy decisions get "chiseled into bureaucratic stone").

117. AENGST ET AL., *supra* note 112, at xv ("[P]ublic participation resulted in significant substantive changes to only 3 out of 45 responding HCPs . . . ."); *see also id.* (finding in more than 75 percent of the HCPs studied, public participation led to "only minimal or moderate changes").

118. *See id.* app. at A-Weyerhaeuser-5 ("Many considered the time provided for public review 'woefully inadequate considering the technical issues involved and the difficulty in getting documents.'" (quoting environmental representative)).

119. *See* ANDERSON & YAFFEE, *supra* note 88, at 17 (finding that outside stakeholders "tended to be more involved during comment periods . . . than during earlier phases of the planning process when most key HCP decisions are made"); BARBARA PEDERZOLI, PUBLIC PARTICIPATION AND BIOLOGICAL SOUNDNESS IN HABITAT CONSERVATION PLANS 75 (1999) (finding that participation occurred during early design phase in only eight of thirty HCPs studied (27 percent)); *see, e.g.*, AENGST ET AL., *supra* note 112, app. at A-Orange County-9 ("'The problem was people felt they had already missed the point to really affect the plan and that decisions were already made.'" (quoting local government administrator)).

120. *See* Luoma, *supra* note 104, at 43 ("[O]nce HCPs receive that preliminary approval . . . public comment is considered. But in many cases federal regulators have by

an ambitious regional, multispecies plan in Texas, illustrates another effect of failing to adequately incorporate public participation early in the process.[121] The Services' failure to seek participation from some affected landowners until late in the process led to low trust, balkanized local politics, and ultimately many fragmented, single-species HCPs rather than a more cost-effective and comprehensive regional one.[122]

Weak stakeholder involvement is particularly egregious for HCPs in which the applicant was a private developer rather than a public body.[123] Two large studies found that the level of participation voluntarily provided by the applicant was highly correlated with whether the permittee was a public entity.[124] The contrast between these public plans and the program's characteristic private HCP is so large that some scholars refer to them as essentially two distinct regulatory models.[125] The typically larger, public HCPs by necessity incorporate substantially more stakeholder participation than private, single-project HCPs.[126] Not coincidentally, local and state officials are more likely than private developers to have political incentives or an obligation under state or local law to provide participation opportunities before submitting application materials to the Services.[127]

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that point already been closely involved in developing the HCP . . . . Fish and Wildlife Service officials have frequently provided extensive technical support . . . and engaged in detailed give-and-take negotiating . . . . Public notice [say some critics] comes only when the giving and taking is over."); Patrick Parenteau, *Rearranging the Deck Chairs: Endangered Species Act Reforms in an Era of Mass Extinction*, 22 WM. & MARY ENVTL. L. & POL'Y REV. 227, 309 (1998).

121. *See* Thomas, *supra* note 37, at 159.

122. *See id.* at 159, 164.

123. *See* David Ostermeier et al., *Habitat Conservation Planning: Current Processes and Tomorrow's Challenges*, 2 ENVTL. PRAC. 166, 169, 170 (2000).

124. *See* AENGST ET AL., *supra* note 112, at 5-20 (finding that 88 percent of HCP processes employing low levels of participation—minimal interest group involvement, no steering committee, and no independent scientific review—involved strictly private lands, while only 12 percent involved public lands). In contrast, 11 percent of HCP processes providing high levels of participation (multiple interest groups, early involvement, a steering committee, and typically independent scientific review) regulated strictly private lands, while 89 percent involved public lands. *See id.*; *see also* Ostermeier et al., *supra* note 123, at 170 ("Of the thirteen private cases, none had representative participation, six had expanded participation and seven involved only the applicant and service representatives. For public plans, 15 of 18 were either representative or expanded with the remaining three involving the service and permittee only."). This study defined "expanded" participation as "one or more individuals or representatives beyond that required" and "representative" participation as "those in which the intent was to involve representatives of all interests." Ostermeier et al., *supra* note 123, at 169.

125. *See* Bradley Karkkainen, *Toward Ecologically Sustainable Democracy?*, *in* FUNG & WRIGHT, *supra* note 3, at 208, 212.

126. *See* Paul Shigley, *Twelve Years and Two Billion Bucks*, PLANNING, Aug./Sept. 2006, at 26 (describing a habitat conservation planning process that involved 237 meetings before the release of a draft document).

127. *See* AENGST ET AL., *supra* note 112, at 13-6, 13-7.

Yet, even state agency applicants have been found to treat the public review process as a token exercise.[128]

Existing evidence also shows that very few HCP processes include independent scientists in scientific or technical review committees, and even fewer use independent scientific peer review at any stage of the HCP's development.[129] Any independent scientist involvement typically occurs only after negotiation or initial HCP implementation, and even then only "at the behest of the outside scientist, not as a result of solicited peer review," or "as part of routine practice in the formulation of a habitat conservation plan."[130] As a result, independent scientific assessments of proposed HCPs tend to come when the chances for changing elements of the plan are slim, relegating scientific data and assessment to the "role of an adversarial interest at the approval stage rather than a shaping influence at the foundational stage."[131] In short, too little information is made available too late to many interested parties who have an ability to contribute substantively to the HCP's terms. This is an unfortunate loss not only to those stakeholders, but also to regulatory experimentation and ultimately to habitat conservation.

Similar data exist for the HCP-implementation stage as well. Because the Services leave to the developer's discretion whether to use a scientific advisory committee or independent peer review during HCP implementation,[132] most HCPs rely exclusively on applicant self-reporting and limited Services oversight.[133] External monitoring and oversight is largely absent.[134]

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128. *See, e.g.*, Thomas N. Lippe & Kathy Bailey, *Regulation of Logging on Private Land in California Under Governor Gray Davis*, 31 GOLDEN GATE U. L. REV. 351, 396 (2001) (quoting a superior court decision that found that a state agency failed to follow its mandated public review procedures: "A believer in orchestration might reasonably conclude [the agency's] actions were intentionally executed to prevent public exposure or comment").

129. Data from an unpublished database indicate that independent scientists were involved in scientific or technical committees in only 14 percent of the 274 HCPs approved before 1999, and that less than 8 percent of HCP processes integrated independent scientific peer review at any stage of the HCP's development. *See* Defenders of Wildlife, Habitat Conservation Plan Data, at Questions 30, 31 [hereinafter Defenders HCP Data] (on file with the UCLA Law Review).

130. NATURAL HERITAGE INST., *supra* note 105, at 19.

131. *Id.* at 20.

132. *See* HCP Handbook Addendum, *supra* note 10, at 35,253.

133. *See* Defenders HCP Data, *supra* note 129, at Question 31 (revealing that fewer than 8 percent of 274 HCP processes integrated independent scientific peer review at any stage of the HCP's development).

134. *See* Thomas, *supra* note 37, at 154. One study found that though applicants were at least moderately involved in 85 percent of responding HCPs during the implementation phase, in only a minority were environmental groups (40 percent), business and development groups (23 percent), or independent scientists (15 percent) at least moderately involved. *See* AENGST ET AL., *supra* note 112, at 5-3, 5-5, 5-7. In fact, in only one out of fifteen

Other affected parties are typically shut out during the interpretation of HCP provisions.[135] In fact, the Services have stated that no other stakeholders *should* be allowed to enforce an HCP's terms.[136]

Despite the Services' claims to actively encourage participation in the HCP process,[137] substantial evidence suggests otherwise. Studies have found that the Services often treat "participation as a procedural burden," "a legally required step in an approval process that must be completed as quickly and effortlessly as possible."[138] Interested stakeholders have had to rely on laborious Freedom of Information Act (FOIA)[139] requests to obtain access to the products of Services-developer negotiations.[140] Researchers also point to additional Services policies that hinder meaningful participation.[141] For example, the Services' permit processing schedules, in some cases self-imposed and in others negotiated with the applicant, have led to hasty approvals despite stakeholder appeals for additional time and one official's recognition that "'we ended up without enough time to review things thoroughly.'"[142] A federal court has also found that the Services have stonewalled attempts to even comment on proposed plans.[143]

Likewise, though the National Environmental Policy Act's (NEPA)[144] requirement of the preparation and disclosure of an environmental impact statement (EIS) for certain federal actions[145] provides another opportunity for more in-depth stakeholder involvement,[146] the Services' application of

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HCPs did a FWS official report that "the public was very involved in the monitoring of HCP implementation." *See id.* at 5-8.

135. *See* Lippe & Bailey, *supra* note 128, at 393.

136. *See* HCP HANDBOOK, *supra* note 45, app. 4, § 14.8 ("Template" Implementing Agreement); Plater, *supra* note 48, at 872.

137. *See supra* note 101.

138. *See* ANDERSON & YAFFEE, *supra* note 88, at 23.

139. 5 U.S.C. § 552 (2000 & Supp. III 2004).

140. *See, e.g.*, Luoma, *supra* note 104, at 42–43; *infra* note 273.

141. *See* ANDERSON & YAFFEE, *supra* note 88, at 21, 22.

142. *Id.* at 21 (quoting Dave Whipple of the Washington Department of Fish and Wildlife).

143. *See* Gerber v. Norton, 294 F.3d 173, 181 (D.C. Cir. 2002) (reprimanding the FWS for withholding from the public a key map showing the location of mitigation, stating "an agency may not turn the provision of notice into a bureaucratic game of hide and seek" (quoting MCI Telecomms. Corp. v. FCC, 57 F.3d 1136, 1142 (D.C. Cir. 1995))).

144. 42 U.S.C. §§ 4321–4370(f) (2000).

145. NEPA requires preparation of an EIS for any major federal action (including permit approval) significantly affecting the quality of the environment. *See id.* § 4332(2)(C).

146. In addition to federal fora for participation, for most development projects necessitating an HCP there typically are other fora (for example, local development permitting) in which stakeholders may have the opportunity to provide input. As a result, focusing exclusively on HCP participation may underestimate the extent of participation opportunities available, as some of the informational and other values of participation not attained through the HCP formation process may be provided in other nodes of participation. Yet, it would

NEPA to HCPs serves to limit such input. The EIS process includes opportunities for public comment through early, open scoping meetings on the impacts of and alternatives to the proposed action, as well as requiring responses to comments on the project.[147] However, the Services almost never require ITP applications to follow the EIS process. Instead, they recommend that applicants prepare a much briefer environmental assessment[148] or categorically exclude an HCP from NEPA review.[149] These exceptions to the EIS process avoid the EIS's early participation opportunities, extended public comment period, detailed evaluation of impacts and alternatives,[150] and the requirement that the Services respond to comments.[151]

In contrast, in HCP processes in which applicants (almost always government entities) voluntarily opened up the negotiations to stakeholders, the instrumental value of such participation has been impressive.[152] In one study, 94 percent of FWS officials reported "that public participation increased the quality of information available to develop HCPs."[153] The increase in information also served to decrease misperceptions and to increase trust.[154] Another study found that 75 percent of HCP participants "reported that collaborating on an HCP

be a mistake to suggest that the existence of these fragmented and uncoordinated fora could resolve the participation limitations of the HCP program. Beyond the inefficiency of this fragmented approach, conservation questions considered in HCP deliberations would only tangentially be considered in other fora.

147. *See* ANDERSON & YAFFEE, *supra* note 88, at 22; HOOD, *supra* note 33, at 44–45.

148. *See* Doremus, *supra* note 111, at 713; Kostyack, *supra* note 111, at 53; Barton H. Thompson, Jr., *The Endangered Species Act: A Case Study in Takings and Incentives*, 49 STAN. L. REV. 305, 380 (1997) (revealing that 99 percent of HCPs approved between 1994 and 1996 were accompanied only by environmental assessments).

149. *See* ANDERSON & YAFFEE, *supra* note 88, at 22.

150. *See* Doremus, *supra* note 111, at 713.

151. *See* ANDERSON & YAFFEE, *supra* note 88, at 22. Even when an EIS is required, though it may provide an opportunity for stakeholders to comment before negotiations occur, it does not require that stakeholders have access to the negotiations themselves. *See id.* at 24.

152. *See id.* at 9; Thomas, *supra* note 37, at 151–52.

153. ANDERSON & YAFFEE, *supra* note 88, at 13; *cf.* AENGST ET AL., *supra* note 112, app. at A-Weyerhaeuser Willamette-7 (quoting applicant as stating that participation broadened the values and options considered during deliberations).

154. *See id.* app. at A-Weyerhaeuser Willamette-7 (quoting an applicant employee as stating that public participation can "help diffuse misperceptions from growing out of control"); *id.* app. at A-Orange County-5 (quoting environmental group representatives as stating that in-depth participation through a steering committee "allowed us time to understand how the plan developed and evolved" and facilitated "communication beyond what you would ever get from written comments and hearings").

improved subsequent working relationships between the participants."[155] This increased trust may in turn increase the likelihood of HCP approval and implementation and decrease the likelihood of litigation.[156] Perhaps most importantly, studies found that both participants and outside observers more widely support HCPs crafted with substantial and early opportunities for public input[157] and view such HCPs as better HCPs.[158] In short, most stakeholders (including applicants) in the more collaborative HCP processes assert that "the benefits of representative participation outweighed their associated problems."[159] Even the Services substantiate the benefits of participation; program guidelines state that in the Services' experience, there is a direct relationship between the extent of participation in the plan-approval process and the extent to which both participants and outsiders believe an HCP is effective.[160]

Conspicuously, little data appear to exist supporting the Services' approach to participation. Of course, there are explanations for why both applicants and the Services often favor bilateral bargaining over multilateral collaboration: It is simpler and more easily controlled by both parties, and thus presumably administratively cheaper and quicker, at least in the short term.[161] Because private landowners are more likely to opt into bilateral bargaining, this approach serves to ease dissatisfaction among the Services' most historically vocal political thorn.[162] Thus, the

155. Jeff J. Opperman & Paola Bernazzani, *Comparing Perspectives of Participants and Outside Commentators on Habitat Conservation Plans*, ENDANGERED SPECIES UPDATE, May/June 2003, at 79, 84.

156. *See* AENGST ET AL., *supra* note 112, app. at A-Clark County-6 (local administrator reporting that many stakeholders believed the steering committee provided a superior forum for resolving species-conservation disputes); ANDERSON & YAFFEE, *supra* note 88, at 13; Thomas, *supra* note 37, at 156.

157. *See* ANDERSON & YAFFEE, *supra* note 88, at 11, 13 ("HCPs with a greater level of public participation tend to have higher and broader levels of outside stakeholder satisfaction . . . ."); NATURAL HERITAGE INST., *supra* note 105, at 21 ("[T]he degree of public acceptance of an HCP is strongly related to the degree of public participation in the development of the plan.").

158. *See* AENGST ET AL., *supra* note 112, app. at A-Weyerhaeuser Willamette-7 ("'[P]articipation makes all the difference in the world in terms of product . . . .'" (quoting FWS official)); ANDERSON & YAFFEE, *supra* note 88, at 4; Ostermeier et al., *supra* note 123, at 170 (reporting that participants believed that a multilateral process led to "better conservation activities"); Dan Silver, *Natural Community Conservation Planning: 1997 Interim Report*, ENDANGERED SPECIES UPDATE, July/Aug. 1997, at 22, 24 (affirming the useful contributions provided by numerous stakeholder groups in a particularly inclusive HCP process).

159. Ostermeier et al., *supra* note 123, at 170.

160. *See* HCP Handbook Addendum, *supra* note 10, at 35,246.

161. *See* Karkkainen, *supra* note 125, at 213–14.

162. *See id.* at 214.

importance of bringing applicants to the table may at times support curbing participation opportunities of other stakeholders in the negotiation process.

Yet, these explanations cannot justify a reliance on a bilateral approach unless they outweigh the substantial benefits of participation. The Services have never offered any evidence supporting such a position. While it is possible that too much participation may paralyze the program or provide insufficient value compared to its costs, no evidence shows that the Services' existing approach of requiring limited and late public input leads to anything approaching an optimal level of participation.[163] Put another way, no evidence suggests that having the applicant assess the benefits of multilateral stakeholder participation against the strategic value of restricted participation is more likely to lead to optimal participation and information than having the Services perform that role.

The Services cannot reasonably contend that the applicant and the Services typically have more than enough information on which to formulate an adequate HCP without the benefit of additional data, or that they use the most rigorous methods for obtaining information. Many scientists have criticized the Services for ignoring scientific standards of independent peer review.[164] The Services rely primarily on the applicant's consultants to provide the biological information to support the HCP, with often overstretched Services scientists reviewing the information for adequacy.[165] These critics understandably question the scientific credibility of HCPs not evaluated by independent scientists.[166]

Substantively, scientists have consistently criticized the HCP-formation process as regularly lacking even basic scientific data. In-depth biological studies confirm that approximately half of approved HCPs are adopted without even minimally necessary information about basic trends of the species at issue[167] or even the proposed take's effect on

163. By leaving input to such a late step in the process, the Services likely are adding administrative costs to the process with little apparent benefit.

164. *See* PETER KAREIVA ET AL., NAT'L CTR. FOR ECOLOGICAL ANALYSIS & SYNTHESIS WORKING GROUP, USING SCIENCE IN HABITAT CONSERVATION PLANS 5 (1999); Francis C. James, *Lessons Learned From a Study of Habitat Conservation Planning*, 49 BIOSCIENCE 871 (1999); Jocelyn Kaiser, *Endangered Species: When a Habitat Is Not a Home*, 276 SCIENCE 1613, 1636 (1997).

165. *See* HOOD, *supra* note 33, at 80.

166. *See id*.

167. *See* Elaine K. Harding et al., NCEAS Habitat Conservation Plan Working Group, *The Scientific Foundations of Habitat Conservation Plans: A Quantitative Assessment*, 15 CONSERVATION BIOLOGY 488, 493 (2001); Watchman et al., *supra* note 15, at 354 ("[E]ven

the species.[168] A 2006 study revealed that all but one of the twenty-two multispecies HCPs evaluated failed to verify that all species included in the HCP were even present in the plan area, with a full 41 percent of the total species covered unconfirmed.[169] Additionally, studies have found that measures included in HCPs to minimize or mitigate the proposed take's impact often are not species-specific,[170] are based on insufficient data,[171] or even ignore existing data.[172] As a result, almost half of HCPs failed to include sufficient measures to offset the expected take,[173] sometimes leading to disastrous results.[174] Because of these inadequacies,

general trends (whether the species was improving or declining) were unknown for 49 percent of the species addressed by the reviewed HCPs.").

168. *See* KAREIVA ET AL., *supra* note 164, at 3 ("[F]or only 56% of the instances in which a listed species might be 'taken' by an activity was the predicted take quantitatively estimated. And only 25% (23 of 97) of species treatments included both a quantitative estimate of take and an adequate assessment of the impact of that take."); *id.* at 4 ("In many cases, we found that crucial, yet basic, information on species is unavailable for preparers of HCPs. . . . For example, in only one-third of the species assessments was there enough information to evaluate what proportion of the population would be affected by a proposed 'take.'"); Watchman et al., *supra* note 15, at 354–55 ("Forty-seven of the 97 cases examined presented no estimate of how many individuals would be taken as a result of the proposed activities, and an additional 21 cases gave estimates that were so vague as to provide little aid to planners."); Defenders HCP Data, *supra* note 129, at Questions 13, 14 (revealing that 50 percent of 274 HCPs did not estimate how many species would be killed or harmed, while 86 percent did not quantify the projected impact on the species' population on a local, regional, or global level). A 2005 investigative report found that 45 percent (forty-one of ninety-two) of HCPs failed to quantify the number of listed species in the plan area, and 57 percent (fifty-two of ninety-one) failed to quantify the number of species likely impacted by the proposed take. *See* Robert McClure & Lisa Stiffler, *Troubled Plans*, SEATTLE POST-INTELLIGENCER, May 4, 2005, at A12, *available at* http://seattlepi.nwsource.com/dayart/20050504/PIanalysisFIX1.gif.

169. Matthew E. Rahn et al., *Species Coverage in Multispecies Habitat Conservation Plans: Where's the Science?*, 56 BIOSCIENCE 613, 615 (2006).

170. *See id.* at 616 (finding that nearly two-thirds of species included in the HCP but unconfirmed to exist in the plan area lacked species-specific conservation measures).

171. *See* KAREIVA ET AL., *supra* note 164, at 3 ("Overall, particular mitigation measures commonly suffered from an absence of data indicating they were likely to succeed, leading to a situation in which 'unproven' mitigation measures were relied on in the HCPs."); Watchman et al., *supra* note 15, at 356 ("[T]he team also found that the specific mitigation strategies chosen often lacked sufficient data to demonstrate their efficacy."); Defenders HCP Data, *supra* note 129, at Question 25 (finding that 84 percent of 274 HCPs did not provide evidence or cite references that mitigation would work for each species listed on the permit).

172. *See* Watchman et al., *supra* note 15, at 356.

173. *See* KAREIVA ET AL., *supra* note 164, at 26 ("Overall . . . for only 57% of the species in the sample did mitigation measures proposed in the HCP address the primary threat to the species to a degree considered 'sufficient' or better.").

174. *See* Watchman et al., *supra* note 15, at 356 ("[S]everal HCPs relied heavily on relocation of threatened Utah prairie dogs . . . despite a study available to plan preparers concluding that nearly 80 percent of 480 Utah prairie dogs disappeared or died within three months following relocation. In this case, the proposed mitigation strategy was little better than killing the animals outright.").

a group of prominent conservation biologists concluded that many HCPs "have been developed without adequate scientific guidance" and aggravate rather than alleviate threats to endangered species.[175]

Given the insufficient data on which many HCPs are based, the Services cannot claim that requiring the participation of interested stakeholders and independent peer review would be wasteful and superfluous. Nor have they; the Services in some cases have recognized the usefulness of nonprofit organizations in providing information and assistance in managing habitat.[176] However, by systemically ignoring the available scientific resources, the Services not only raise questions about the objectivity of the data used to make HCP decisions but also contravene the statutory mandate to base permit decisions on the "best available scientific and commercial data."[177]

Finally, though the extent to which the Services have become subject to "regulatory capture"[178] may be difficult to ascertain through empirical evidence, it is clear that the Services' bilateral approach to the HCP program provides opportunities for capture that did not exist under section 9's strict and nonnegotiable prohibition. The potential for capture is certainly not reduced by the fact that courts are quite deferential in reviewing the Services' approval of HCPs.[179] Except in egregious situations,

175. Dennis Murphy et al., *A Statement on Proposed Private Land Initiatives and Reauthorization of the Endangered Species Act From the Meeting of Scientists at Stanford University*, *in* REED F. NOSS ET AL., THE SCIENCE OF CONSERVATION PLANNING: HABITAT CONSERVATION UNDER THE ENDANGERED SPECIES ACT 214, 214 (1997).

176. *See* Lee P. Breckenridge, *Nonprofit Environmental Organizations and the Restructuring of Institutions for Ecosystem Management*, 25 ECOLOGY L.Q. 692, 697 (1999).

177. Dennis Murphy et al., *supra* note 175, at 214, 219.

178. *See* RICHARD J. PIERCE, JR. ET AL., ADMINISTRATIVE LAW AND PROCESS 18 (4th ed. 2004) ("An agency is captured when it favors the concerns of the industry it regulates, which is well-represented by its trade groups and lawyers, over the interests of the general public, which is often unrepresented."). For an introduction to the extensive literature on regulatory capture, see MARVER H. BERNSTEIN, REGULATING BUSINESS BY INDEPENDENT COMMISSION 79–94 (1955); Thomas W. Merrill, *Capture Theory and the Courts: 1967–1983*, 72 CHI.-KENT L. REV. 1039, 1050–52 (1997); Sam Peltzman, *Toward a More General Theory of Regulation*, 19 J.L. & ECON. 211, 212–13 (1976); George J. Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. MGMT. SCI. 3 (1971).

179. *See* Loggerhead Turtle v. County Council of Volusia County, Fla., 120 F. Supp. 2d 1005, 1013 (M.D. Fla. 2000) ("Where, as here, an agency's special scientific expertise is involved, the Court must be most deferential. . . . [T]he Secretary's choices are entitled to a presumption of regularity." (internal quotation marks omitted)); *id.* at 1021–22; Nat'l Wildlife Fed'n v. Norton, No. CIV-S-04-0579 DFL JF, 2005 WL 2175874, at *7 (E.D. Cal. Sept. 7, 2005) (holding that in ESA cases, "[d]eference to the agency is especially appropriate [because] the challenged decision relies upon the agency's expertise"); Ctr. for Biological Diversity v. U.S. Fish & Wildlife Serv., 202 F. Supp. 2d 594, 663 (W.D. Tex. 2002) ("To the

courts do not serve as a significant restraint on negotiations between an applicant and the Services.[180] By providing applicants a crucial strategic role in shaping an HCP, the program grants such actors considerable influence over long-term policy decisions that substantially affect a wide range of interests. While applicant involvement may be benign and indeed valuable in determining the optimal conservation plan, the Services' delegation to the applicant of the primary role of determining who else can participate makes the applicant's disproportionate influence over conservation decisions foreseeable, if not inevitable.[181]

III. A RETICENCE TOWARD MONITORING AND ADAPTATION

In contrast with the Services' narrow interpretations of the role of the public and stakeholders in the HCP program, from the outset the Services incorporated requirements that at least facially promote monitoring of plan implementation and continued adaptation of HCPs. However, like the development of the HCP program's participation provisions, the Services' interpretations of the program's monitoring and adaptation requirements have provided applicants and the Services considerable flexibility and incentives to ignore monitoring and evade adaptation.

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extent the Center for Biological Diversity would prefer more protection, the law and standard of review which the Court is bound to apply are on the side of the developers and shoppers.").

180. Out of over 530 approved HCPs, *see* U.S. Fish & Wildlife Service, *supra* note 87, only five have been the subject of reported judicial opinions (with two HCPs subject to judicial review again after judicial invalidation). The opinions upholding permit approval demonstrate the wide discretion provided to the Services. *See Ctr. for Biological Diversity*, 202 F. Supp. 2d at 617–18 (upholding permit approval on the ground that absence of evidence that mitigation is not the maximum extent practicable is sufficient); *Loggerhead Turtle*, 120 F. Supp. 2d at 1024–25 (upholding permit approval despite evidence of repeated permit noncompliance by applicant); *Norton*, 2005 WL 2175874 (upholding revised Natomas Basin HCP).

Of the five HCPs, only two have been invalidated permanently. *See* Gerber v. Norton, 294 F.3d 173, 186 (D.C. Cir. 2002) (nullifying permit because the FWS did not allow public access to a key mitigation map for the HCP); Sierra Club v. Babbitt, 15 F. Supp. 2d 1274, 1281–82 (S.D. Ala. 1998) (invalidating two permits authorizing the take of the Alabama Beach Mouse in part because the FWS ignored expert opinions); Sierra Club v. Norton, 207 F. Supp. 2d 1310 (S.D. Ala. 2002) (enjoining permit approval for the take of the Alabama Beach Mouse again). Another HCP was initially invalidated only to be upheld after agency revision. *See* Nat'l Wildlife Fed'n v. Babbitt, 128 F. Supp. 2d 1274, 1292–93 (E.D. Cal. 2000) (invalidating the Natomas Basin HCP because the FWS failed to provide any economic analysis or even landowner representations supporting the decision that the chosen mitigation was the maximum extent practicable); *Norton*, 2005 WL 2175874 (upholding revised Natomas Basin HCP).

181. As one FWS official expressed, the Services expect staff to follow a "satisfied customer" approach to the HCP program, "with the applicant being considered the only customer." ANDERSON & YAFFEE, *supra* note 88, at 21, 23.

Consequently, as detailed in this Part, HCP monitoring and adaptation have both fallen exceedingly short of their potential.

A. Examining the Role of Monitoring

Because the HCP program relies so heavily on the permittees to be the principal monitor of the effect of the approved take and the effectiveness of adopted conservation measures, monitoring under the HCP program requires a high level of faith that permittees have both the incentive and the ability to assess conformity with public goals. To date, there is little evidence that such faith is warranted.

1. Devolving Monitoring Responsibilities

Reliable and proficient monitoring procedures are a minimum requirement for promoting compliance and ensuring the legitimacy of even traditional command-and-control regulation, and certainly are critical to an adaptive regulatory approach. Monitoring and adaptation of regulatory decisions serve the critical role of fostering accountability and legitimacy by ensuring that decisions account for the existence of uncertainty when the initial regulatory decision was made and the evolving character of complex systems.[182] An HCP can only be coherently adapted if the species' and habitat's condition, the take's impacts, and the adopted mitigation program are monitored to assess whether new information or changed circumstances arise.[183] This is particularly necessary in the common circumstance in which significant uncertainties regarding existing conditions, the project's effects, and the mitigation's effectiveness are present.[184] Indeed, the Services expressly acknowledge the various critical functions monitoring can serve in the regulatory process: (1) as a check to ensure HCP compliance; (2) to assess a permitted take's impacts on the species as compared to projected impacts, which might

182. *See* Camacho, *supra* note 3, at 271, 296.

183. *See* K. Shawn Smallwood et al., *Environmental Auditing: Indicators Assessment for Habitat Conservation Plan of Yolo County, California, USA*, 22 ENVTL. MGMT. 947 (1998) (discussing the need for assessment of ecological indicators in HCPs to ensure that the habitat remains suitable to sustain species); Watchman et al., *supra* note 15, at 356.

184. *See Habitat Conservations Plans: Hearings Before the Subcomm. on Fisheries, Wildlife, and Drinking Water of the S. Comm. on Env't and Pub. Works*, 106th Cong. 150 (1999) [hereinafter *Hearings*] (statement of Monica P. Medina, General Counsel, National Oceanic and Atmospheric Administration) ("Because HCPs are at the limits of our scientific capability and knowledge, extensive monitoring and adaptive management strategies are essential.").

require alteration of mitigation measures; (3) to signal when new conditions arise in the plan area that might require adaptation of the HCP; (4) to assess progress toward the HCP's biological goals and objectives, for possible adaptation of the HCP; and (5) to provide data for evaluation of existing HCP strategies for possible use by or modification of future HCPs or other regulatory programs.[185]

As a result, since 1985,[186] the Services' implementing regulations have required HCPs to specify the monitoring measures to be used during plan implementation "deemed necessary for determining whether [the ITP's] terms and conditions are being complied with."[187] Monitoring must be based on "sound science" and "previously established monitoring protocols," using a "multispecies approach when appropriate."[188] However, though monitoring procedures must be incorporated in all HCPs, neither the ESA nor the implementing regulations specify who must conduct the monitoring, leaving considerable discretion to the negotiating parties to shape an HCP's monitoring program. Conceivably, the Services might perform the monitoring functions exclusively or encourage various stakeholders to participate in oversight activities.

Through agency guidelines, however, the Services have opted to place key monitoring functions in the hands of permittees. The Services organize the HCP program's monitoring activities into "compliance monitoring" and "effect and effectiveness monitoring."[189] While compliance monitoring is limited to verifying permittee compliance with the HCP's terms, the bulk of monitoring activities falls within effect-and-effectiveness monitoring—including evaluating the development's effects on the plan area, the continued validity of "assumptions and predictions made when the HCP was developed and approved," and whether the HCP is "achieving the biological goals and objectives."[190] Despite the breadth of effects-and-effectiveness monitoring, the Services' regulations primarily assign such

185. *See id.* at 30, 52, 64–65, 150.

186. *See* Endangered and Threatened Wildlife and Plants; Prohibitions and Permits, 50 Fed. Reg. 39,681, 39,684, 39,688 (Sept. 30, 1985) (codified at 50 C.F.R. pts. 13, 17).

187. 50 C.F.R. § 17.22(b)(3) (2005) (endangered species); *id.* § 17.32(b)(3) (threatened species); *see also id.* § 222.307(d) (NMFS reporting and inspection regulations).

188. HCP Handbook Addendum, *supra* note 10, at 35,254.

189. *Id.* at 35,253.

190. *Id.*; *see also id.* at 35,254 ("Effects and effectiveness monitoring includes, but is not limited to, the following: 1. Periodic accounting of incidental take that occurred . . . ; 2. Surveys to determine species status . . . ; 3. Assessments of habitat condition; 4. Progress reports on fulfillment of the operating conservation program . . . ; and 5. Evaluations of the operating conservation program and its progress toward its intended biological goals.").

monitoring to the applicant and compliance monitoring to the Services.[191] Furthermore, just as for the HCP formation process, the Services' interpretations allow the applicant considerable discretion regarding whether to include others in the plan's monitoring protocols.[192]

2. Violating Monitoring Requirements

The limited evidence that exists on biological monitoring under the HCP program suggests that as a result of these interpretations, the vast majority of HCPs do not provide adequate monitoring programs.[193] The Services offer little assistance on how to construct a scientifically adequate monitoring program, leaving it to the applicant to develop.[194] The most exhaustive empirical study to date on the science of HCPs found that monitoring plans usually are nonexistent or inadequate as a tool for compliance.[195] Only half of the forty-three HCPs analyzed contained clear descriptions of effects-and-effectiveness monitoring programs.[196] Furthermore, only 5 percent adopted a monitoring strategy sufficient to evaluate the success of the HCP[197]—that is, the plan's effects on the listed species or overall habitat,[198] or the effectiveness of mitigation strategies.[199] Other analyses of HCP monitoring corroborate the limitations of current HCP monitoring protocols.[200]

191. *See id.* at 35,254.

192. At the applicant's discretion, HCPs may use oversight committees composed of "species experts and representatives of the permittee, the Services, and other affected agencies and entities" in order "to ensure proper and periodic review of the monitoring program and to ensure that each program properly implements the terms and conditions of the incidental take permit." *Id.* at 35,255. Additionally, if the parties so negotiate, nonpermittees may conduct all or portions of the monitoring. *See id.*

193. *See* Karkkainen, *supra* note 71, at 495; Thomas, *supra* note 37, at 144, 153–55.

194. *See* NATURAL HERITAGE INST., *supra* note 105, at 28.

195. *See* KAREIVA ET AL., *supra* note 164, at 28–29 (discussing a study funded by the American Institute for Biological Studies).

196. *See id.* at 28; Defenders HCP Data, *supra* note 129, at Question 36 (revealing that 35 percent of 274 HCPs failed to require effectiveness monitoring, 23 percent provided little description of the effectiveness monitoring program adopted, 33 percent provided only a general description of what would be monitored, and only 9 percent contained a detailed description of an effectiveness monitoring program).

197. *See* KAREIVA ET AL., *supra* note 164, at 28; Wilhere, *supra* note 36, at 21.

198. *See* Watchman et al., *supra* note 15, at 5.

199. *See* KAREIVA ET AL., *supra* note 164, at 28–29.

200. *See* Cameron W. Barrows et al., *A Framework for Monitoring Multiple-Species Conservation Plans*, 69 J. WILDLIFE MGMT. 1333, 1334–35 (2005) (asserting that most multispecies HCPs simply layer single-species monitoring measures on top of one another). A more recent but unscientific investigative report of large HCPs found that 29 percent (twenty-seven of ninety-two) of the HCPs reviewed failed to include any monitoring program. McClure & Stiffler,

For those HCPs that do include satisfactory monitoring and compliance programs, there is little evidence that adopted monitoring protocols are being implemented by applicants or enforced by the Services.[201] Monitoring information is not readily accessible, if it is publicly available at all.[202] However, substantial evidence exists that the Services do not employ sufficient staff to closely engage in the monitoring activities to which they have contractually committed.[203] In addition, HCPs regularly fail to reserve sufficient funding to engage in the adopted monitoring procedures. The ESA expressly requires adequate funding for all HCP activities prior to approval of the ITP, which ostensibly includes monitoring of HCP implementation.[204] Though most HCPs appear to at least identify some funding sources for HCP mitigation activities,[205] HCPs often fail to provide sufficient funds to monitor species and identify problems over the long term.[206] Even the seminal San Bruno plan has been subject to funding concerns as a result of unforeseen circumstances.[207]

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supra note 168; *see also* HOOD, *supra* note 33, at xiv, 35 (concluding that most of the twenty-four HCPs analyzed have insufficient monitoring); NOSS ET AL., *supra* note 175, at 59 (finding that HCPs typically either lacked monitoring procedures or included only a bare requirement that plans be modified based on monitoring data); PEDERZOLI, *supra* note 119, at 63, 105 (finding a clear monitoring plan proposed in only eighteen of the thirty HCPs studied); Defenders HCP Data, *supra* note 129, at Questions 26, 27, 38 (indicating that only 6 percent of 274 HCPs tied monitoring to biological goals, and 80 percent lacked specific criteria for determining the effectiveness of mitigation measures).

201. *See* Thomas, *supra* note 37, at 154–55.

202. *See infra* Part IV.A.

203. For example, one FWS official is tasked with (among other duties) overseeing compliance for eleven HCPs in the State of Washington covering nearly 2.2 million acres. *See* Robert McClure & Lisa Stiffler, *Too Often, Inadequate Science Hampers Habitat Planning*, SEATTLE POST-INTELLIGENCER, May 4, 2005, at A1.

204. *See* 16 U.S.C. § 1539(a)(2)(B)(iii) (2000).

205. *See* KAREIVA ET AL., *supra* note 164, at 28 (finding that 98 percent of the HCPs studied delineated funding sources for proposed mitigation, but only 77 percent had significant funds set aside to pay for mitigation when the HCP was adopted).

206. *See* HOOD, *supra* note 33, at 82; Defenders HCP Data, *supra* note 129, at Question 42 (finding that only 48 percent of 274 HCPs provided the funding for mitigation and other HCP activities before or at the time the take would occur); *id.* at 44, 45 (finding that though 22 percent of the HCPs analyzed depended on local, state, or federal government funding to implement mitigation, only 4 percent received public funding approval before the ITP was granted).

207. There have been growing concerns that the San Bruno plan is underfunded to address the evolution of the mountain from grasslands to coastal scrub that presents a risk to the endangered butterflies. *See* Emily Fancher, *Butterfly Paradise Lost?*, SAN MATEO COUNTY TIMES, July 22, 2004, at C1; Paul McHugh, *San Bruno's Mounting Challenge*, S.F. CHRON., Sept. 19, 2002, at C12.

When the Services actually engage in monitoring, they often use their substantial enforcement discretion to merely send noncompliance notices.[208] Unfortunately for some HCPs, the Services failed to reserve the power to seek damages or alternative remedies if the applicant violated the HCP or a related implementing agreement.[209] Unless the HCP itself establishes alternative enforcement mechanisms, the Services are left with the sole remedy of permit revocation, an empty threat when the most harmful taking activities usually occur early in HCP implementation.[210] Unsurprisingly, permit revocation has never occurred,[211] despite evident noncompliance.[212]

By spurning systematic monitoring, the Services cannot verify basic regulatory compliance, a common deficiency in administrative regulation generally.[213] Yet, for regulatory processes like HCPs, in which decisions are particularly provisional and based on incomplete information, inadequate monitoring has the additional consequence of limiting the Services' ability to understand the impact of HCPs and can exacerbate risks to sensitive species and habitat by increasing the difficulty of detecting problems.[214] Furthermore, by locating key monitoring functions with the applicant, the Services have made the temptation for an applicant to conceal unfavorable data incredibly strong.[215] These are precisely the concerns that collaborative innovations such as the HCP program were intended to counteract.[216]

B. Neglecting Adaptive Implementation

Similarly, though the Services' regulations and guidelines provide for the prospect of HCP adaptation throughout the implementation process,

208. *See* STANFORD ENVTL. LAW SOC'Y, *supra* note 86, at 153–54.

209. *See* Daniel A. Hall, *Using Habitat Conservation Plans to Implement the Endangered Species Act in Pacific Coast Forests: Common Problems and Promising Precedents*, 27 ENVTL. L. 803, 824 (1997).

210. *See* Lyons, *supra* note 51, at 102.

211. *See* Thomas, *supra* note 37, at 155; ECOS Conservation Plans and Agreements Database, http://ecos.fws.gov/conserv_plans/public.jsp (last visited Feb. 28, 2007) (indicating that there is no record of the FWS revoking a single ITP for over 450 listed HCPs).

212. *See, e.g.*, Loggerhead Turtle v. County Council of Volusia County, Fla., 120 F. Supp. 2d 1005, 1023–25 (M.D. Fla. 2000) (upholding decision not to revoke permit despite evidence of repeated applicant noncompliance).

213. *See* Freeman, *supra* note 3, at 16–17.

214. *See* Watchman et al., *supra* note 15, at 356.

215. *See, e.g.*, Rebecca J. McLain & Robert G. Lee, *Adaptive Management: Promises and Pitfalls*, 20 ENVTL. MGMT. 437, 444 (1996).

216. *See* Freeman, *supra* note 3, at 30–31.

the experience of the HCP program is that there is a lack of will and incentives for the Services and permittees to engage in earnest contingency planning or adaptive management.[217] With a few encouraging exceptions,[218] the Services have largely neglected the potential for systematic, rigorous evaluation and adaptation of HCPs.

1. Disincentives to Adaptation

In addition to monitoring, the Services have long claimed a commitment to HCP adaptation during implementation. The Services stress that the use of contingency planning, which attempts to manage uncertainty by adopting alternative strategies to address contingencies, has been a core objective of the HCP program since the San Bruno plan.[219] Existing regulations require contingency planning for changed circumstances[220] if they are foreseeable.[221] Moreover, since the first regulations implementing the program were adopted,[222] HCPs have been required to include measures for addressing unforeseen circumstances.[223] The Services state in their HCP Handbook, "HCP participants should ensure that techniques used are proven and reliable or, if relatively new, that contingency measures or adaptive management procedures are included to correct for failures."[224] These procedures have the potential for ensuring that new information obtained through monitoring is used to adapt an HCP's original assessments and measures.[225]

More recently, the Services have also provided for the possibility of more systematic regulatory adaptation during implementation by

217. *See* Wilhere, *supra* note 36, at 21.

218. *See infra* note 249 and accompanying text.

219. *See* HCP Handbook Addendum, *supra* note 10, at 35,248.

220. Changed circumstances are defined as "circumstances that can be reasonably anticipated." *Id.* at 35,253.

221. *See* 50 C.F.R. §§ 17.22(b)(5), 17.32(b)(5) (2006).

222. *See* Endangered and Threatened Wildlife and Plants; Prohibitions and Permits, 50 Fed. Reg. 39,681 (Sept. 30, 1985) (codified at 50 C.F.R. Pts. 13, 17); *id.* at 39,684 ("Incorporation of modification procedures into a conservation plan at the outset should ensure both that the affected species will be conserved regardless of changed conditions and that the applicant's activities are not unduly interrupted when the new conditions take effect.").

223. *See* 50 C.F.R. § 17.22(b)(1)(iii); *id.* § 17.32(b)(1)(iii) (FWS); *id.* § 222.307(g) (NMFS). The HCP and ITP also must describe the agreed range of management and mitigation strategies and the process by which management and funding decisions are made and implemented. *See* HCP Handbook Addendum, *supra* note 10, at 35,253.

224. HCP HANDBOOK, *supra* note 45, at 3-22.

225. *Cf.* Camacho, *supra* note 3, at 294; Freeman, *supra* note 3, at 28–30 (discussing the value of provisional solutions).

introducing to the HCP program a more rigorous, methodical approach referred to as adaptive management. Adaptive management was originally proposed by scientists in the 1970s as an alternative approach to natural resource management in response to the significant uncertainty that regularly exists in ecosystems.[226] As described by the Services, adaptive management is "a method for examining alternative strategies for meeting measurable biological goals and objectives, and then, if necessary, adjusting future conservation management actions according to what is learned."[227] Proposals to integrate adaptive management into regulatory processes have recently become fashionable,[228] and the Services introduced adaptive management into the HCP program in response to sustained calls for its incorporation.[229]

In the context of HCPs, adaptive management emphasizes methodically addressing information gaps in the HCP formation process by including a systematic procedure for obtaining more data after HCP approval to use in choosing among various conservation strategies.[230] The focus of adaptive management in the HCP program, then, is on obtaining further information before deciding on an ultimate conservation strategy. By integrating scrupulous evaluation and adjustment of an HCP's preliminary conservation strategies, adaptive management has the potential for injecting a more systematically responsive and effective approach to regulation.

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226. *See* HCP Handbook Addendum, *supra* note 10, at 35,252.

227. *See id.* The Services distinguish between passive and active adaptation:

> Passive adaptation is where information obtained is used to determine a single best course of action. Active adaptation is developing and testing a range of alternative strategies . . . . [A]n active approach may pose too much of a risk to the species; therefore, a more passive approach may be the best course of action.

Id. (citation omitted).

228. *See, e.g.*, National Environmental Policy Act Revised Implementing Procedures, 69 Fed. Reg. 10,866, 10,880 (Mar. 8, 2004) (making adaptive management an explicit goal of the NEPA, 42 U.S.C. §§ 4321–4370f (2000)); National Environmental Policy Act Procedures, 72 Fed. Reg. 45,998 (proposed Aug. 16, 2007) (to be codified at 36 C.F.R. pt. 220) (proposing to incorporate adaptive management into the U.S. Forest Service's NEPA regulations).

229. *See* HCP Handbook Addendum, *supra* note 10, at 35,245.

230. As stated by the Services, adaptive management strategies

> [(1)] identify the uncertainty . . . ; (2) develop alternative strategies and determine which experimental strategies to implement; (3) integrate a monitoring program that is able to detect the necessary information for strategy evaluation; and (4) incorporate feedback loops that link implementation and monitoring to a decisionmaking process (which may be similar to a dispute-resolution process) that result in appropriate changes in management.

Id. at 35,252.

Under their interpretation of the statute, however, the Services have created significant disincentives for both the Services and permittees to either reduce any uncertainty that exists in species-conservation disputes or engage in rigorous adaptive-management protocols. First, the HCP program only requires adaptive-management strategies "for HCPs that would otherwise pose a significant risk to the species at the time the permit is issued due to significant data or information gaps."[231] In other words, rather than incorporate systematic adaptive-management techniques to make the regulatory process more responsive based on the most up-to-date information, the Services only require adaptive-management strategies in HCPs that otherwise would not qualify for an ITP because the risk to the species of granting the permit is too high.[232] Thus, the Services have essentially dismissed more thorough HCP adaptation except in rare cases. The Services are frank that, as with their construal of the participation and monitoring provisions, the limited use of adaptive management results from their decision to grant primary discretion over plan design to permittees.[233]

Second, although the Services promulgated regulations requiring the incorporation of contingency measures for all foreseeable changed circumstances, these regulations provide that such circumstances need only include those specifically delineated in the HCP at the time the HCP was adopted.[234] Even if a foreseeable event occurs, a permittee is only responsible for subsequent action if new data demonstrate a need for such mitigation.[235] This interpretation produces a strong disincentive for permittees to engage in research and monitoring, "because such an investment may result in additional costs for future mitigation."[236] Furthermore, these regulations serve as a strong incentive for a permittee, as the primary

231. *Id.* ("Possible significant data gaps that may require an adaptive management strategy include, but are not limited to, a significant lack of specific information about the ecology of the species or its habitat . . . , uncertainty in the effectiveness of habitat or species management techniques, or lack of knowledge on the degree of potential effects of the activity on the species covered in the incidental take permit.").

232. *See id.* at 35,248–49 ("We believe that an HCP that fails to address significant data gaps will not meet the issuance criteria of the ESA.").

233. *See id.* at 35,252 (stating that because "stakeholder involvement in the development of many HCPs, including the adaptive management design, is largely at the discretion of the applicant," this can inhibit experimental design and thus the effectiveness of the adaptive-management approach).

234. *See id.* at 35,253 ("When an HCP [or] permit . . . incorporate[s] an adaptive management strategy, it should clearly state the range of possible operating conservation program adjustments due to significant new information, risk, or uncertainty. This range defines the limits of what resource commitments may be required of the permittee.").

235. *See* 50 C.F.R. §§ 17.22(b)(5), 17.32(b)(5) (2006).

236. Wilhere, *supra* note 36, at 27.

architect of the HCP, to limit the list of foreseeable circumstances for which contingency measures are necessary.[237] By allowing applicants to strictly limit the participation of other stakeholders in the HCP formation process, the Services are left with the full responsibility of (1) delineating from the outset the potential circumstances that might warrant integration of contingency planning; and (2) establishing during implementation that new data demonstrate a need for additional mitigation.

As for unforeseen circumstances—quite common in the HCP context given the substantial uncertainty typically present when an HCP is approved—the Services adopted the controversial No Surprises rule[238] to encourage potential applicants to participate in the HCP program.[239] This rule places the financial burden on the Services if unforeseen circumstances arise during implementation requiring alterations to the HCP.[240] Thus, in addition to providing applicants the incentive to limit adaptation from the outset, the HCP program's regulations furnish the Services with a strong financial disincentive to engage in adaptation beyond the few circumstances provided for in the initial HCP.

2. Ignoring Adaptation

Similar to the extent of participation in and monitoring of HCPs, there is limited evidence to date of how often HCPs incorporate adaptive mechanisms or whether such measures are used. Yet, the evidence that does exist suggests that, consistent with the implementation framework developed by the Services, most HCPs do not attempt to use contingency planning or adaptive management to adjust mitigation or conservation procedures. The only detailed scientific analysis, conducted in 1999, determined that merely one-third of the forty-three HCPs reviewed included "some mechanism for mid-course correction as additional information was obtained."[241] This evidence cannot be dismissed on the presumption that HCPs without adaptive measures did not need them

237. *See* Christopher S. Mills, Note, *Incentives and the ESA: Can Conservation Banking Live Up to Potential?*, 14 DUKE ENVTL. L. & POL'Y J. 523, 532–34 (2004).

238. 50 C.F.R. §§ 17.22(b)(5), 17.32(b)(5).

239. *See* Fred P. Bosselman, *The Statutory and Constitutional Mandate for a No Surprises Policy*, 24 ECOLOGY L.Q. 707, 722–23 (1997).

240. *See* 50 C.F.R. §§ 17.22(b)(5), 17.32(b)(5).

241. *See* Watchman et al., *supra* note 15, at 358; *see also* Defenders HCP Data, *supra* note 129, at Questions 26–27, 38–40 (finding that 22 percent of 274 HCPs explicitly tied monitoring to adaptive management, 35 percent incorporated adaptive management into the HCP, and 11 percent provided a procedure for modifying the level of take or mitigation based on specific criteria).

because they relied on sufficient data up front; plans with insufficient data were actually less likely to integrate adaptive or contingent strategies into the HCP's provisions than those relying on adequate data.[242] Predictably, the few HCPs that included comprehensive adaptive-management protocols consistently integrated clear and scientifically defensible monitoring programs.[243]

Little is known about the extent to which more recently approved HCPs have adopted contingency planning or adaptive-management procedures. Astonishingly, the only recent multi-HCP investigation of adaptation in HCPs was conducted by a Seattle newspaper in a series of articles aiming to repeat some of the 1999 study's analysis for all large HCPs approved from 1995 to 2004 that were not analyzed in the original scientific study.[244] The investigation reported that only 27 percent of the eighty-eight HCPs reviewed included any criteria for determining the effectiveness of mitigation protections, and only 28 percent included provisions for modifying the HCP if mitigation protections fail.[245]

Furthermore, high-level Services officials recently acknowledged that insufficient resources are spent on implementation activities given their importance to the HCP program,[246] a fact that the U.S. General Accounting Office confirmed.[247] Although hardly conclusive, the existing

242. *See* KAREIVA ET AL., *supra* note 164, at 41 (finding that 45 percent of the thirty-eight cases with insufficient data included a discussion of adaptive management, while 77 percent of the forty-eight cases with adequate data did so); Watchman et al., *supra* note 15, at 358.

243. *See* KAREIVA ET AL., *supra* note 164, at 29 (finding that 88 percent of HCPs incorporating adaptive-management protocols had clear monitoring programs, while less than 30 percent of HCPs without adaptive management included adequate monitoring procedures).

244. *See* Robert McClure & Lisa Stiffler, Special Report, *A License to Kill*, SEATTLE POST-INTELLIGENCER, May 3–5, 2005, *available at* http://seattlepi.nwsource.com/specials/licensetokill. The report analyzed ninety-eight HCPs covering plan areas of at least one hundred acres. *Id*.

245. *See* McClure & Stiffler, *supra* note 168.

246. Rick Sayers, head of the FWS's HCP program, recently stated: "Once the permits get approved, we tend to move quickly on to what's the next permit that needs to be looked at and reviewed, rather than spending a lot of time and energy working with the approved permits making sure everything is going the way it should go." McClure & Stiffler, *supra* note 203; *see also id*. ("'That whole cluster of issues [HCP monitoring and evaluation] didn't really get the attention it deserved. . . . We never got around to it.'" (quoting former Secretary of the Interior Bruce Babbitt)).

247. The U.S. Government Accountability Office (GAO), changed in 2004 from the General Accounting Office, reported that the Services allocated $2 million in fiscal year 2001 for all HCP monitoring and implementation (a small sum considering the more than 450 HCPs nationwide), and that field staff spend only 2 percent of their time on monitoring activities. *See* U.S. GEN. ACCOUNTING OFFICE, ENDANGERED SPECIES PROGRAM: INFORMATION ON HOW FUNDS ARE ALLOCATED AND WHAT ACTIVITIES ARE EMPHASIZED 12, 17 (2002), http://www.gao.gov/new.items/d02581.pdf.

evidence suggests that the Services do not treat implementation activities—and adaptation particularly—as a significant component of the HCP program.

For those HCPs that include provisions allowing for adaptation, no systematic study has been undertaken assessing whether and to what extent such provisions actually have been used to adapt HCPs.[248] To be sure, there appear to be a number of positive examples that incorporate comprehensive monitoring and adaptation procedures.[249] Yet, adaptive management and contingency planning are still the exception rather than the rule in the HCP program.[250]

The Coachella Valley fringe-toed lizard provides an illustration of the harmful consequences of the Services' failure to monitor and adapt. In 1986, the Services and local officials crafted a plan to protect the sand dunes in which the lizard lives, as well as the sources of sand that would replenish areas diminished by erosion. The plan failed to account for a significant source of sand, and the oversight was not discovered for twenty years. At least in part as a result, the lizard's habitat shrunk from 170,000 acres in 1986 to just 27,000 acres today.[251]

Because of limited public funding for implementation activities and the Services' allocation of responsibility, it is hardly surprising that monitoring and adaptation activities go unattended. Through the Services' promulgation of the No Surprises rule, the HCP program places overwhelming duties on the Services relative to resources—not only to monitor and make changes to the conservation program, but also to fund necessary modifications directly.[252] Existing evidence suggests that the risk to species has been significant, as most HCPs are adopted under conditions of substantial uncertainty about the listed species, ecosystem, proposed take, and efficacy of mitigation,[253] which may not become apparent until after the HCP has been approved.[254] Indeed, because of these burdens and the Services' resource limitations, many independent scientists have repeatedly concluded that the No Surprises regulatory assurances, though

248. *See* Thomas, *supra* note 37, at 152–54.

249. *See* Barrows et al., *supra* note 200, at 1334; Marj Nelson, *The Changing Face of HCPs*, ENDANGERED SPECIES BULL., July/Aug. 2000, at 4 (describing several HCPs that successfully integrated adaptive-management programs).

250. *See* Barrows et al., *supra* note 200, at 1335 (asserting that few multispecies HCPs use adaptive ecosystem-based monitoring, and those that do rely on flawed assumptions).

251. *See* McClure & Stiffler, *supra* note 203.

252. *See* Bosselman, *supra* note 239, at 723–26; *supra* notes 238, 240 and accompanying text.

253. *See supra* notes 167–175 and accompanying text.

254. *See* NATURAL HERITAGE INST., *supra* note 105, at 24.

not necessarily antithetical to adaptive regulation,[255] pose substantial limitations to HCP adaptation and thus significant risks to listed species.[256] Absent an increase in Services resources or an alteration of existing incentives for developing a more adjustable framework for implementing regulatory decisions, the HCP experimental approach to conservation will remain largely unsuccessful.

IV. THE MALADAPTIVE MANAGEMENT OF THE HCP PROGRAM

Perhaps the most problematic deficiency of the Services' administration of the HCP program is that the Services have never seriously treated the experimental regulatory program like an experiment.[257] The HCP program was adopted as a novel approach to regulation that significantly departed from the established command-and-control model.[258] The shift was based on providing a more pragmatic but untested regulatory alternative to governance that relied on reconciling environmental conservation and economic-development goals by allowing for site-specific, collaborative negotiation and subsequent adaptation. Though this program has served as a regulatory vanguard, catalyzing other eco-pragmatic regulatory programs over the past twenty-five years,[259] the Services have never rigorously examined whether the new approach actually is more effective at achieving the core environmental, economic, and democratic goals of the experimental program.

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255. *See* John Kostyack, *Reshaping Habitat Conservation Plans for Species Recovery: An Introduction to a Series of Articles on Habitat Conservation Plans*, 27 ENVTL. L. 755, 764 (1997); J.B. Ruhl, *Taking Adaptive Management Seriously: A Case Study of the Endangered Species Act*, 52 U. KAN. L. REV. 1249, 1279–80 (2004) (stating that the No Surprises rule is essentially a risk-allocation measure among private and public sources). *But see* John Kostyack, *Surprise!*, 15 ENVTL. F. 19, 21 (1998); Parenteau, *supra* note 120, at 299; Thomas, *supra* note 37, at 167–68 (recommending repeal of the No Surprises rule as antithetical to adaptive management).

256. *See, e.g.*, NATURAL HERITAGE INST., *supra* note 105, at 32–35; K. Shawn Smallwood et al., *Using the Best Scientific Data for Endangered Species Conservation*, 24 ENVTL. MGMT. 421 (1999); Watchman et al., *supra* note 15, at 357.

257. *See The Endangered Species Act: The Role of Habitat Conservation: Hearing Before the Subcomm. on Env't and Nat. Resources of the Comm. on Merchant Marine and Fisheries*, 103d Cong. 150 (1993) (statement of Michael Bean, Chairman, Wildlife Program, Environmental Defense Fund) ("Because HCPs are new, they represent a sort of experiment in new approaches to conservation. Intelligently judging the success or failure of that experiment will require a significant commitment to monitoring the actual implementation of approved plans.").

258. *See supra* Part I.B.

259. *See, e.g.*, Negotiated Rulemaking Act of 1990, 5 U.S.C. §§ 561–70 (2000); Environmental Protection Agency's Project XL, Regulatory Reinvention (XL) Pilot Projects, 60 Fed. Reg. 27,282 (May 23, 1995); *see also* Freeman, *supra* note 3, at 36–37.

A. An Untested and Uncontrolled Experiment

For any regulatory program to be effective, the responsible agency must collect and respond to information learned about the program during its implementation.[260] Unfortunately, little attention has been given by the Services to the design of HCP decisionmaking processes, either at the program or individual-HCP level. Other than requiring an application submittal and a minimum public comment period on the draft application, the Services let applicants formulate process-design questions regarding data gathering and decisionmaking.[261] Such an approach is not necessarily incongruent with an evolutionary regulatory structure, as long as (1) structural issues are required to be addressed when each HCP is developed; and (2) a program-wide framework is developed for allowing later negotiations to learn from earlier ones. Yet, neither of these conditions exists in the HCP program.

First, only rarely do the negotiating parties develop a structure for the decision process as each HCP is being developed. One study found that only 6 percent of HCPs analyzed included discussion and approval of a process framework for information sharing and decisionmaking.[262] For most HCPs, the parties improvised as the HCP process progressed.[263] This extemporized approach often resulted in inefficiency in the decisionmaking

260. *See* Barry L. Johnson, *Introduction to the Special Feature: Adaptive Management—Scientifically Sound, Socially Challenged?*, 3 CONSERVATION ECOLOGY (1999), http://www.consecol.org/vol3/iss1/art10 ("[A]daptive management considers change and cooperation as inherent to management. . . . To help develop new institutional arrangements, we might apply adaptive management experiments not just to the resource, but also to institutions themselves."); Ruhl, *supra* note 85, at 935 n.221.

261. *See* HCP HANDBOOK, *supra* note 45, at 3-6 ("[The Services'] function as agency representatives is to provide guidance about statutory and policy standards and to help facilitate development of a suitable mitigation program that satisfies the requirements of section 10; it is not to dictate every element in the HCP. The option to ignore or modify Service recommendations remains with the applicant . . . .").

262. *See* Ostermeier et al., *supra* note 123, at 171 ("[I]n the vast majority of HCPs evaluated, little up-front attention appears to have been given to designing and/or clarifying HCP management processes. For example, in only two cases did participants indicate significant early discussion, and subsequent approval, of an overall framework for establishing and clarifying roles, setting guidelines, sharing assumptions and expectations, and establishing rules for role implementation, including who would play the roles.").

263. *See id.* ("[P]rocess management and a decision framework normally evolved as cases progressed with a default strategy of 'deciding as we go.'").

process, as confusion and conflict between stakeholders arose about the process and the various roles of participants.[264]

Second and more significantly, the Services and Congress have wholly failed to develop a systematic and coordinated framework for learning about HCP decisionmaking processes, making it impossible to evaluate and adapt the program's data-gathering, participation, monitoring, and adaptation methods. Although the HCP program is well over two decades old, with hundreds of HCPs in existence, no centralized clearinghouse exists for gathering and accessing even basic HCP documents and biological data, let alone information about HCP participation, monitoring, and adaptive-implementation protocols. Despite various appeals for data gathering on HCPs,[265] including bills proposed in the U.S. House of Representatives[266] and the U.S. Senate[267] and even draft guidance by the Services,[268] still no such comprehensive database exists.[269] As detailed earlier,[270] the limited number of studies on the HCP process have been piecemeal and conducted by outside researchers, not by the agencies with the ability to manage and adapt the program.

Much of what would be helpful—at least collecting and organizing existing information on HCPs and making it publicly available—would

264. *See id.* ("In the absence of open clarification, assumptions about roles and who would play them were made by both service and non-service participants, and problems often surfaced when these assumptions were inconsistent.").

265. *See, e.g.*, *Hearings*, *supra* note 184, at 9–10 (statement of Peter Kareiva, NMFS) (calling for a centrally organized and publicly available database on existing HCPs); Jamison E. Colburn, *The Indignity of Federal Wildlife Habitat Law*, 57 ALA. L. REV. 417, 452 n.142 (2005).

266. *See* Endangered Species Recovery Act of 1997, H.R. 2351, 105th Cong. (1997). This bill would have required permittees to submit an annual report (to be made public) detailing the status of species in the affected area, the take's impacts on the species, and whether the biological goals of the HCP were being met. *Id.* § 108(a)(2)(D)(i), (ii). The Secretary of the Interior would have had to review and report on the progress of each HCP every three years. *Id.* § 108(a)(3)(A). The bill also would have created a "Community Assistance Program" that would include a regional office liaison for property owners and local governments. *Id.* § 108(a)(12).

267. *See* Endangered Species Recovery Act of 1997, S. 1180, 105th Cong. § 5(k) (1997) (proposing a National Academy of Sciences review and report on the development and implementation of HCPs).

268. *See* Notice of Availability of a Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process, 64 Fed. Reg. 11,485, 11,488 (Mar. 9, 1999). The proposed guidance required a database "to track incidental take permit issuance and compliance," including summary information about each HCP and suggested inclusion of information on the monitoring program, reporting deadlines, the incidental take's nature and effect, the conservation program's status, periodic audits, and field visits. *Id.*

269. The final Services guidance omitted without explanation any mention of such a database. *See* HCP Handbook Addendum, *supra* note 10; John D. Leshy, *The Babbitt Legacy at the Department of the Interior: A Preliminary View*, 31 ENVTL. L. 199, 212 (2001).

270. *See supra* notes 112, 124, 129, 167–169, 171 and accompanying text.

not be technologically difficult or expensive.[271] Yet, the current administration has actually been actively eliminating databases and library networks that compile environmental research and technical information unavailable elsewhere.[272] As such, even obtaining a copy of an HCP remains quite onerous.[273]

The FWS did develop an Environmental Conservation Online System,[274] which includes a database that serves as the only centralized, publicly available location for information on HCPs that either of the Services compiles.[275] However, this database just includes the most rudimentary data, such as plan location, size, application status, permit-issuance date, species covered, and duration for individual HCPs.[276]

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271. *See Hearings*, *supra* note 184, at 9 (statement of Peter Kareiva, NMFS) ("There's a lot of information out there that we already have, and it's not as though we have to undergo a national initiative for great basic research. Part of the challenge is just organizing that information with a little bit of energy."); *id.* at 10; *id.* at 27 (statement of Stuart Pimm, Professor, University of Tennessee) ("[The FWS] would seem to be an obvious place to deposit Habitat Conservation Plans . . . . [T]his should not be a particularly onerous task. The plans themselves are documents that can very simply be uploaded onto a website or assembled onto CDs.").

272. *See, e.g.*, EPA LIBRARY NETWORK WORKGROUP, EPA LIBRARY NETWORK: CHALLENGES FOR FY 2007 AND BEYOND (2005), http://www.peer.org/docs/epa/06_9_2_library_network.pdf; Press Release, Pub. Employees for Envtl. Responsibility, EPA Closing Its Headquarters Library October 1 (Sept. 21, 2006), *available at* http://www.peer.org/news/news_id.php?row_id=751; Press Release, Pub. Employees for Envtl. Responsibility, EPA Closing Its Midwest Library (Mar. 16, 2006), *available at* http://www.peer.org/news/news_id.php?row_id=660. Though the administration claims it hopes to eventually increase access by making collections available online, some libraries have already disposed of their holdings, and scarce funds have been allocated to digitize current collections. *See* Darren Samuelsohn, *EPA: Sen. Boxer Clashes With Administrator Over Library Closures*, GREENWIRE, Feb. 6, 2007, http://www.eenews.net/Greenwire/2007/02/06#1; Press Release, Pub. Employees for Envtl. Responsibility, EPA Hastily Disposing of Its Library Collections (Nov. 20, 2006) [hereinafter Press Release, EPA Disposing], *available at* http://www.peer.org/news/_id.php?row_id-786. Ironically, the EPA is spending more money closing libraries than it asserted it would save from the closures. *See* Press Release, EPA Disposing, *supra*; *cf.* Rebecca Renner, *Scientists Set to Lose Access to EPA Libraries*, 40 ENVTL. SCI. & TECH. 5831 (2006) (describing that the operations of the libraries saved researchers and the public money).

273. *See, e.g.*, Gerber v. Norton, 294 F.3d 173, 177 (D.C. Cir. 2002) (stating that the plaintiff was forced to request copies of HCP documents through a Freedom of Information Act (FOIA) request); Thomas, *supra* note 37, at 164 ("Anyone who has searched for an HCP . . . understands the transparency problem. One can purchase copies . . . but this is an expensive and time-consuming proposition."); Telephone Interview by Dan Cory with Robert McClure, Reporter, Seattle Post-Intelligencer (July 21, 2006) (recounting that in attempting to collect documents for almost one hundred HCPs, some regional FWS offices required FOIA requests or in-person document review).

274. *See* U.S. Fish & Wildlife Serv., Environmental Conservation Online System, http://ecos.fws.gov/ecos_public/index.do (last visited Feb. 28, 2007).

275. *See* U.S. Fish & Wildlife Serv., ECOS: Conservation Plans/Agreements Reports, http://ecos.fws.gov/conserv_plans/public.jsp (last visited Oct. 5, 2007).

276. *See id.* (follow a region hyperlink under the "Habitat Conservation Plans" column; then select an individual report or the "Regional (Summary) Report").

Additionally, these data are only provided for each individual HCP separately; the database neither offers a search engine for examining the limited data nor aggregates the data into a programmatic summary.[277] Furthermore, only a few HCPs are sporadically available through the database.[278] Other than providing the total number of HCPs and ITPs issued to date, this database does not compile any systematic information about the HCP program itself.[279] Thus, the database is of marginal value and cannot serve as a valuable learning tool.

Because of concerns regarding the Services' failure to develop a comprehensive database on HCPs, some private organizations have endeavored to develop a private resource pool "to enable independent scientific expertise to be brought into HCP negotiations on behalf of conservation interests and local communities."[280] Unfortunately, this initiative to create an "HCP Resource Center" never became operational, though seed money had been gathered and some Services field staff expressed support for such a center.[281] High-level Services officials ultimately resisted this independent effort, claiming it was unnecessary and unwise, and proponents were unable to collect sufficient funds to establish the database.[282] Thus, when biological data on species or habitats are gathered during the HCP formation or implementation processes, it is generally not readily accessible by interested parties for subsequent HCP applications.[283]

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277. *See id*.

278. *See* U.S. Fish & Wildlife Serv., ECOS Conservation Plans and Agreements Database, Regions 3, 6, http://ecos.fws.gov/conserv_plans/public.jsp (follow the "Region 3" and "Region 6" hyperlinks) (last visited July 7, 2007). Regions 3 and 6 are the only offices that provide any documents (for three and nineteen HCPs, respectively) for viewing through the Environmental Conservation Online System (ECOS). *See id*. Region 2 also supplies its own online library that includes some HCP-related documents. *See* U.S. Fish & Wildlife Serv., FWS Southwest Region (Region 2) Ecological Services Electronic Library, http://www.fws.gov/southwest/es/library (last visited July 7, 2007).

279. *See* U.S. Fish & Wildlife Serv., ECOS Conservation Plans and Agreements Database, Choose a Habitat Conservation Plans Report, http://ecos.fws.gov/conserv_plans/servlet/gov.doi.hcp.servlets.PlanReportSelect?region=9&type=HCP (follow the "Regional (Summary) Report" hyperlink) (last visited July 7, 2007).

280. NATURAL HERITAGE INST., *supra* note 105, at 23.

281. *See* Telephone Interview with Greg Thomas, President, Natural Heritage Institute (June 27, 2006).

282. *See id*.

283. *See* Thomas, *supra* note 37, at 155. The Nature Conservancy has created NatureServe.org, a publicly available electronic database that serves as a repository of scientific data about endangered and threatened species. *See* NatureServe, http://www.natureserve.org (last visited Feb. 28, 2007). However, no data on HCPs is included in the database. *See id*.

The essential information that the Services have failed to collect, circulate, and evaluate is by no means limited to substantive data about regulated species and ecosystems. More importantly, the Services have never attempted to gather data about the range of procedural strategies utilized under the HCP program—monitoring, adaptive-implementation, or participation techniques—to adjust the program to account for the results. For example, the Services do not systematically assess the relative effectiveness of adopted mitigation and recovery measures in minimizing a take's effect on an existing species. The Services have also never systematically compiled data about the costs and benefits of different monitoring and adaptation procedures or more conventional implementation protocols. Nor have they evaluated the relative efficacy of different adaptive processes in distinct implementation contexts in order to assess the value of different forms of adaptation in circumstances with varying levels of certainty.[284]

In the same way, the Services do not observe or evaluate the effect and effectiveness of various types of participation used in HCP processes. These may range from transparency measures (open negotiations or document access) to indirect participation by stakeholders (opportunities to comment or receive responses to such comments) to direct stakeholder involvement (steering committees). The Services have never systematically explored the value of these participation alternatives for different types of HCPs, looking at such variables as the number and range of interested stakeholders, the type of species or habitat involved, the form of proposed take, the type of applicant (public versus private), or the novelty of the proposed take being considered. The Services have also not assessed the value of these different forms of participation in the various stages of the regulatory process: the initial scoping of issues and alternatives, the development of a process framework, plan negotiations, the postnegotiation comment period, or implementation.

The Services simply speculate that participation is vaguely valuable, but leave questions regarding the forms of participation for a particular HCP process to individual applicants without providing any rigorous data about different types of participation in different contexts. Thus, in

284. For example, it might be reasonable for an HCP to adopt a contingency-planning measure instead of a more comprehensive adaptive-management protocol on the assumption that it is more effective when the HCP relies on substantial reliable information about the effect of a proposed take on a listed species. Yet, without monitoring and assessing the effectiveness of the adopted process as compared to those adopted for other HCPs, such an assumption is never tested.

the rare circumstance when an applicant is motivated to integrate other parties into the regulatory process, the applicant's at best limited experience with HCPs undoubtedly leads to a less cost-effective process than one informed by the aggregated experiences of hundreds of previously adopted HCPs.[285] Given this inefficiency, it is unsurprising that the chief criticism of HCPs from applicants is the administrative cost of the approval process.[286]

To be sure, Services staff assigned to negotiate an HCP likely rely on some previously ascertained data, and they may provide such information to applicants in the negotiation process. However, there is no comprehensive network to facilitate the dissemination of this information in other than a haphazard, and likely inefficient, way. HCP negotiation and implementation are conducted by regional and field offices without any centralized or even decentralized coordination.[287] Moreover, the high turnover of Services staff exacerbates this fragmentation problem by further limiting the ability to draw on prior experience.[288] As such, there is, at best, limited cross-pollination of data among HCPs about affected species and habitat, and certainly far less than could occur.[289]

Similarly, the Services have infrequently modified the HCP program requirements. Most notably, the Services adopted the Addendum to the

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285. Generally, each applicant must rely primarily on her own experiences, with at best incomplete data on what practices might be most cost effective to implement. As in other regulatory contexts, an HCP process may involve a repeat player such as an attorney representing successive applicants in negotiating HCPs. Such a participant of course would inform an HCP process with her experience (for example, by relying on language from previously negotiated HCPs when drafting later ones). Although this experience may make the process more economical, it would almost certainly fall short of a more systematic, comprehensive approach to regulatory learning.

286. *See, e.g.*, BEAN ET AL., *supra* note 50, at 13 ("[T]he complexity, duration, and sheer magnitude of the process often limit participation by small landowners, environmental interests, and other 'shallow-pocketed' parties. Indeed, the inability of such parties to participate in the time-consuming, highly technical, and costly process may be more of a problem than having so many of them as to make the process difficult to manage."); Albert C. Lin, *Participants' Experiences With Habitat Conservation Plans and Suggestions for Streamlining the Process*, 23 ECOLOGY L.Q. 369, 398 (1996) (finding insufficient biological knowledge as the most frequent cause of delay).

287. *See* Karkkainen, *supra* note 71, at 495 ("[R]esponsibility for negotiating HCPs and enforcing their terms was a responsibility assigned to regional and field offices, each operating largely by its own lights.").

288. The FWS has reported substantial staff attrition due to the overwhelming workloads that result from insufficient funding. *See Hearings*, *supra* note 184, at 119, 387 (statement of then FWS Director Jamie Rappaport Clark).

289. *See id.* at 11 (statement of Dr. Dennis Murphy, University of Nevada, Reno) ("My sense is that we can infer greatly from other systems and other species, and we're losing that opportunity.").

HCP Handbook[290] and the No Surprises rule[291]—ostensibly to tailor the program to be more effective. Thus, they presumably have engaged in some form of reflection on and adaptation of the program, perhaps to account for data acquired during the program's implementation. However, the Services never offered any systematic evaluation of the HCP program that was then used to support such programmatic changes. Even if the Services relied in part on the experiences of some Services officials in determining that the regulatory changes adopted were warranted, any conclusions about the program's effectiveness were at best based on anecdotal evidence rather than a rigorous analysis rooted in a commitment to regulatory experimentation.

B. The Value of Adaptive Regulation

Though increasing participation and adapting individual HCPs without program adaptation would likely improve the HCP program, adaptively managing the program itself is necessary to better understand the regulatory process and work toward obtaining an optimal regulatory program. Substantial evidence suggests that by requiring the involvement of a range of perspectives, the Services can develop HCPs based on better data, more effectively combat concerns regarding agency capture, and foster a more cooperative and perhaps even more cost-effective approach to regulation.[292] Similarly, by monitoring biological data about species, habitat, and mitigation for an individual HCP, the Services can both improve compliance and enforcement and tailor more effective conservation activities.

However, only by gathering information about the HCP program itself can the Services, Congress, and the public better understand and evaluate the regulatory process. By experimenting with and persistently monitoring forms of participation, the Services can better understand the value of participation and explore what would be the optimal participation approach or approaches for a particular context. Likewise, by examining information about the HCP program's use of monitoring and adaptation protocols, the Services can better understand the value of different implementation approaches. Through adaptively managing the regulatory process, fundamental questions that are incapable of answer

290. HCP Handbook Addendum, *supra* note 10, at 35,242–57.
291. 50 C.F.R. §§ 17.22(b)(5), 17.32(b)(5) (2004).
292. *See supra* notes 152–160 and accompanying text.

at the outset—how much participation is optimal, what type of monitoring protocol should be used—can begin to be resolved.

More significantly, an adaptive regulatory approach requires the repeated consideration of the cost effectiveness of administrative processes and effectiveness of the regulatory program in meeting statutory goals. Adaptive regulatory management allows the agency, Congress, and the public to judge regulatory outcomes—to consider the critical but heretofore unanswered question of what is the most effective way to balance the development and conservation goals of the HCP program. With a public, comprehensive information apparatus, institutional actors can compare the relative merits of an HCP in balancing economic development and environmental conservation—to learn to tailor the optimal reconciliation of these principles thoroughly and openly.[293]

Finally, it should be noted that by requiring the Services to monitor and adapt the regulatory process, adaptive regulation allows the program's implementation to itself be monitored and evaluated by both Congress and the public.[294] This is necessary not only to develop HCPs that are better able to meet program goals, but also to promote accountability and limit the vulnerability of decisionmaking processes to capture. As noted by some scholars, collaborative processes are certainly vulnerable to capture, and may even be more vulnerable than conventional front-end static approaches because there are more opportunities for privileged participants to affect decisions.[295] The potential for agency bias, however, is not a product of an adaptive regulatory approach. Rather, providing for adaptation merely brings to the surface the vulnerability to bias that exists for any regulatory decision in which participation is a feature.[296]

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293. It is important to recognize that regulatory adaptation does not merely serve to increase conservation and participation. The Services' regulatory program must be adaptively managed to ensure that it is not needlessly costly as well. An adaptive approach considers the benefits and costs of regulatory processes, including the administrative costs of implementing participatory or adaptive requirements. In doing so, an adaptive HCP program would focus on how to optimize the effectiveness and cost effectiveness of participation and adaptation in promoting environmental, economic, and democratic goals.

294. *See* Ruhl, *supra* note 255, at 1278 ("[T]he agency's use of adaptive management itself must be continuously monitored and evaluated to guard against opportunistic abuses.").

295. *See* Holly Doremus, *Adaptive Management, the Endangered Species Act, and the Institutional Challenges of "New Age" Environmental Protection*, 41 WASHBURN L.J. 50, 71–74 (2001); Ruhl, *supra* note 255, at 1278.

296. *See* Ruhl, *supra* note 255, at 1278 ("'[F]ront end' regulatory instruments . . . can be manipulated just as easily [as adaptive-management processes] . . . to open the possibility of politically-motivated implementation.").

Indeed, the experience of the HCP program is that the Services' existing bilateral model makes agency bias almost inevitable.

A key role of transparency and inclusive stakeholder participation, then, is to alleviate legitimate concerns regarding agency bias by providing those most affected by regulatory decisions a mechanism for fostering agency accountability.[297] By subjecting program implementation to ongoing, open monitoring and evaluation, not only by Congress but also by the public, adaptive regulation serves to curb opportunities for bias that otherwise are present through existing opaque and bilateral negotiation processes. By providing an open framework for evaluating a regulatory program, adaptive regulation can enlist the public and Congress to help the regulatory process evolve.

V. MAKING REGULATION EVOLVE

For any species to survive, it must adapt to its ecosystem. Regulatory programs adapt to their environments as well, but not necessarily to better achieve their stated substantive goals. In fact, the experience of the HCP program is that there is a distinct lack of adaptive pressure toward direct achievement of regulatory goals. Existing studies[298] reveal—and recent Inspector General investigations corroborate[299]—that the most acute evolutionary pressures on the ESA have been political rather than biological factors, a phenomenon echoed in other regulatory programs.[300]

297. *See* J.B. Ruhl, *Prescribing the Right Dose of Peer Review for the Endangered Species Act*, 83 NEB. L. REV. 398, 411–12 (2004).

298. *See* J.R. DeShazo & Jody Freeman, *The Congressional Competition to Control Delegated Power*, 81 TEX. L. REV. 1443, 1468 (2003) (finding that institutional identities had a more significant effect on ESA listing and funding decisions than biological factors); Holly Doremus, *The Purposes, Effects, and Future of the Endangered Species Act's Best Available Science Mandate*, 34 ENVTL. L. 397, 402 n.21 (2004); Andrew Metrick & Martin L. Weitzman, *Patterns of Behavior in Endangered Species Preservation*, 72 LAND ECON. 1, 12 (1996) (concluding that more charismatic species receive more ESA funding).

299. *See* OFFICE OF THE INSPECTOR GEN., DEP'T OF THE INTERIOR, INVESTIGATIVE REPORT ON ALLEGATIONS AGAINST JULIE MACDONALD, DEPUTY ASSISTANT SECRETARY, FISH, WILDLIFE AND PARKS (2007), http://www.doioig.gov/upload/Macdonald.pdf (finding that a Interior Department political appointee had improperly edited scientific reports to discourage the classification of endangered species).

300. *See, e.g.*, Terry M. Moe, *The Politics of Structural Choice: Toward a Theory of Public Bureaucracy*, *in* ORGANIZATION THEORY: FROM CHESTER BARNARD TO THE PRESENT AND BEYOND 116 (Oliver E. Williamson ed., 1990) (describing a study of the Occupational Safety and Health Administration, which found that fluctuations in elected officials' preferences resulted in changes in agency policymaking); Susan K. Snyder & Barry R. Weingast, *The American System of Shared Power: The President, Congress and the NLRB*, 16 J.L. ECON. & ORG. 269, 269–70 (2000) (summarizing empirical literature on the political influence on

This Article proposes that the HCP program, and regulation generally, must evolve—in the sense of increasing the program's fitness in addressing the ESA's environmental and democratic goals. Accordingly, the challenge that this Part modestly begins to address is fashioning legislative correctives that will put more pressure on achieving the HCP program's substantive goals, and less on simply dampening or displacing political controversy.

Ironically, distancing the HCP program from political pressures must begin in Congress.[301] Congress is once again[302] presented with a variety of substantial amendments that seek to adapt, if not overhaul, the ESA.[303] As was the case for most previous amendment proposals,[304] it is quite possible that no amendment will be adopted in the immediate future.

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regulation); Barry R. Weingast & Mark J. Moran, *Bureaucratic Discretion or Congressional Control? Regulatory Policymaking by the Federal Trade Commission*, 91 J. POL. ECON. 765 (1983) (describing the political influence on the implementation of policies by the Federal Trade Commission).

301. Though some may be understandably skeptical that Congress may be interested in making the HCP program more rigorously self-reflective, there are nonetheless credible reasons to believe the political branches should find it attractive. Beyond the direct argument that systematic program monitoring and evaluation is sensible, there is evidence of a mounting political recognition of the value of cultivating regulatory program accountability through systematic program monitoring and assessment. Certainly, the increasing influence of the Office of Management and Budget (OMB) in regulatory oversight substantiates this. *See* John D. Graham et al., *Managing the Regulatory State: The Experience of the Bush Administration*, 33 FORDHAM URB. L.J. 953, 965–75 (2006) (analyzing the George W. Bush Administration's management of federal regulation through OMB oversight). Specifically, in February 2006, the OMB launched ExpectMore.gov and its Performance Assessment Rating Tool (PART) aimed not only at assessing but also publicizing the successes and failures of all regulatory programs. *See generally* ExpectMore.gov Home Page, http://www.whitehouse.gov/omb/expectmore/index.html (last visited Feb. 27, 2007).

302. *See* Endangered Species Act Amendments of 1988, Pub. L. No. 100-478, 102 Stat. 2315 (1988); Endangered Species Act Amendments of 1982, Pub. L. No. 97-304, 96 Stat. 1426 (1982); Endangered Species Act Amendments of 1979, Pub. L. No. 96-159, 93 Stat. 1225 (1978).

303. *See, e.g.*, Endangered Species Recovery Act of 2007, S. 700, 110th Cong. (2007) (approved by Senate Finance Committee, Sept. 21, 2007); Endangered Species Reform Act of 2007, S. 658, 110th Cong. (2007); Endangered Species Compliance and Transparency Act of 2006, H.R. 4857, 109th Cong. (2006); Threatened and Endangered Species Recovery Act of 2005 (TESRA), H.R. 3824, 109th Cong. (2005); Collaboration and Recovery of Endangered Species Act (CRESA), S. 2110, 109th Cong. (2005); Critical Habitat Enhancement Act of 2005, H.R. 1299, 109th Cong. (2005).

304. *See, e.g.*, Sound Science for Endangered Species Act Planning Act of 2002, H.R. 4840, 107th Cong. (2002); Common Sense Protections for Endangered Species Act of 2000, H.R. 3160, 106th Cong. (2000); The Endangered Species Recovery Act of 1997, S. 1180, 105th Cong. (1997); Endangered Species Conservation and Management Act of 1995, H.R. 2275, 104th Cong. (1995).

Even so, congressional oversight hearings on ESA implementation[305] and regulatory changes[306] appear likely. Though how the ESA should be altered is still very much a subject of debate in congressional circles,[307] there appears to be consensus among a wide range of observers and congressional leaders that modifying the Act in some substantial way would be beneficial.[308] Many from all sides of the debate concur that the ESA's emphasis on preventing development rather than focusing on recovery is misplaced and ineffective,[309] pointing out that both listed species and candidates to be listed continue to deteriorate.[310]

Recognizing the past limitations of the original ESA's command-and-control framework, a wide range of scholars agree on the need to focus not only on legislative mandates, but also on adjusting the incentives for developers to participate in governance.[311] However, existing congressional and agency proposals almost exclusively concentrate on merely increasing direct subsidies to private landowners to engage in species recovery,[312] sidestepping the fundamental limitations of the existing regulatory process. Over the past quarter century, the Services' implementation of the pioneering but rudderless HCP program has exposed three basic flaws that serve as valuable lessons for formulating not only

305. *See* Allison A. Freeman, *Sen. Lincoln Sees More Room for ESA Tax Incentives Next Year*, ENV'T & ENERGY DAILY, Nov. 15, 2006, http://www.eenews.net/EEDaily/2006/11/15#7 [hereinafter Freeman, *ESA Tax Incentives*]; Allison A. Freeman, *Oversight, Not Rewrite, in Store for ESA*, ENV'T & ENERGY DAILY, Nov. 9, 2006, http://www.eenews.net/EEDaily/2006/11/09#6.

306. *See* Barringer, *supra* note 7.

307. *See* KEYSTONE CTR., THE KEYSTONE WORKING GROUP ON ENDANGERED SPECIES ACT: HABITAT ISSUES—FINAL REPORT 16 (2006), http://www.keystone.org/spp/documents/ESA%20Report%20FINAL%204%2025%2006%20(2).pdf; Allison A. Freeman, *Sen. Inhofe Ready to Take Over ESA Rewrite*, E&ENEWS PM, Apr. 4, 2006, http://www.eenews.net/eenewspm/2006/04/04#2.

308. *See* KEYSTONE CTR., *supra* note 307, at 13–15; Steven A. Burns & Jeffrey H. Wood, *Moving Toward Recovery: A Southeastern Analysis of the Threatened and Endangered Species Recovery Act of 2005 (H.R. 3824)*, 21 J. LAND USE & ENVTL. L. 23, 48–51 (2005); Freeman, *ESA Tax Incentives*, *supra* note 305.

309. *See* Burns & Wood, *supra* note 308, at 25, 30; Colburn, *supra* note 265, at 444; Kostyack, *supra* note 255, at 760.

310. As of the FWS's most recent report to Congress, a majority of listed species (63 percent) are considered to be of uncertain or declining status or are possibly extinct. *See* U.S. FISH & WILDLIFE SERV., RECOVERY REPORT TO CONGRESS: FISCAL YEARS 2001–2002, at 10 (2002), http://www.fws.gov/endangered/pdfs/2001-2002_full_report.pdf.

311. *See* Threatened and Endangered Species Recovery Act of 2005, H.R. 3824, 109th Cong. § 13 (2005); KEYSTONE CTR., *supra* note 307, at 19–23; Freeman, *supra* note 305.

312. *See, e.g.*, Endangered Species Recovery Act of 2007, S. 700, 110th Cong. (2007); Threatened and Endangered Species Recovery Act of 2005, H.R. 3824, 109th Cong. § 13 (2005); U.S. GEN. ACCOUNTING OFFICE, USDA CONSERVATION PROGRAMS: STAKEHOLDER VIEWS ON PARTICIPATION AND COORDINATION TO BENEFIT THREATENED AND ENDANGERED SPECIES AND THEIR HABITATS (2006), http://purl.access.gpo.gov/GPO/LPS78714.

an improved ESA, but regulatory processes more generally. As detailed in this Part, in designing and adapting any regulatory program, Congress must recognize that only by attending to agency resources, legislative directives, and applicant incentives can an adaptive regulatory program have a chance to succeed.

A. Resources: Making Evolution Possible

A straightforward but nonetheless vital lesson of the Services' implementation of the HCP program is that without sufficient resources directed toward information gathering, monitoring, and adaptation, a regulatory agency is unable to implement adaptive regulatory management. For any regulatory program to be successful, Congress must appropriate sufficient funding to engage in the required administrative functions.[313] Given the persistent weak financial support provided to the Services to engage in habitat conservation (and in particular implementation activities[314]) as compared to their workload,[315] it is not surprising that the Services neglect those activities they view as less celebrated and more resource intensive in the short term, such as managing stakeholder participation, enforcement, and implementation of HCPs.[316] Indeed, in a 1998 survey, 95 percent of FWS enforcement agents reported that the FWS law enforcement program is insufficiently staffed to fulfill its

313. *See, e.g.*, *Hearings*, *supra* note 184, at 119 (statement of Donald J. Barry, Assistant Secretary for Fish and Wildlife and Parks) ("Without increased funding, we will not be able to adequately monitor HCPs to the extent desired by both supporters and critics of the HCP program.").

314. *See supra* note 247 and accompanying text.

315. *See* Thomas, *supra* note 37, at 155. Though not incontrovertible, it is telling that in a 2005 survey, 92 percent of 414 FWS scientists reported that they did not believe the agency "has sufficient resources to adequately perform its environmental mission," and 85 percent reported that funding to implement the ESA is inadequate. UNION OF CONCERNED SCIENTISTS & PUB. EMPLOYEES FOR ENVTL. RESPONSIBILITY, U.S. FISH & WILDLIFE SERVICE SURVEY SUMMARY 2 (2005), http://www.peer.org/pubs/surveys/2005_fws_survey.pdf (internal quotation marks omitted). Similarly, 81 percent of 124 NMFS scientists responded that the NMFS lacked sufficient resources "to adequately perform its environmental mission." UNION OF CONCERNED SCIENTISTS & PUB. EMPLOYEES FOR ENVTL. RESPONSIBILITY, NOAA FISHERIES SURVEY SUMMARY 2 (2005), http://www.peer.org/pubs/surveys/2005_noaa_survey.pdf (internal quotation marks omitted).

316. *Land and Money Mitigation Requirements in Endangered Species Act Enforcement: Oversight Hearing Before the H. Comm. on Resources*, 106th Cong. 102 (1999) (statement of then FWS Director Jamie Rappaport Clark) ("We don't, quite frankly, have the resources to go back and evaluate whether the terms of these HCPs that have been . . . negotiated and approved, are actually being carried out."); AENGST ET AL., *supra* note 112, app. at A-Weyerhaeuser Willamette-10 (quoting FWS biologist as stating that most HCP staff recognize the irritations and difficulties of participation but disregard its usefulness).

wildlife-protection mission, and 99 percent reported that enforcement expenditures and staffing have failed to keep pace with other FWS programs.[317] Surely, Services officials could more effectively engage in their regulatory functions if additional funding were provided. Such funding is necessary for direct resource management and recovery activities by the Services as well,[318] particularly for addressing unforeseen circumstances in which the permittee is not required to engage in adaptive management.[319]

Although existing funding for Service-program management is inadequate, it is nonetheless short sighted to assume (as the Services appear to do[320]) that providing early participation and adaptation is substantially more resource intensive than the HCP program's existing bilateral and static approach. Though adaptive implementation initially may be more resource intensive given the lack of an existing framework, as the adaptive apparatus develops and HCP information is disseminated, even the Services appear to agree that costs will decrease as new HCPs rely on the data of earlier ones.[321] Similarly, though not extensively tested in the HCP-program context, there is at least some evidence that litigation costs are reduced and implementation is made smoother in contexts in which there are earlier, more rigorous

317. *See* PUB. EMPLOYEES FOR ENVTL. RESPONSIBILITY, 1998 PEER SURVEY OF USFWS SPECIAL AGENTS, at Questions 2, 3 (1998), http://www.peer.org/pubs/surveys/1998_usfws_lawenforcement.pdf.

318. *See Hearings*, *supra* note 184, at 23 (statement of Dr. Dennis Murphy, University of Nevada) ("[W]e're never going to get [to recovery] if we have to go through an appropriations process to respond to crises; that we really do need a pool of money, an endowment of sorts that can be tapped, hopefully conservatively, to resolve problems.").

319. *See* NATURAL HERITAGE INST., *supra* note 105, at 29 (proposing a federal trust for funding conservation activities beyond those required of applicants to meet biological goals). In this vein, a 1997 Senate bill proposed a Habitat Conservation Insurance Program that would provide up to $10 million of federal funding for additional mitigation measures to address unforeseen circumstances. Endangered Species Recovery Act of 1997, S. 1180, 105th Cong. § 5(m) (1997); S. REP. NO. 105-128, at 46 (1997).

320. *See, e.g.*, HCP Handbook Addendum, *supra* note 10, at 35,252; AENGST ET AL., *supra* note 112, at 5-15 ("USFWS staff strongly felt that public participation increased the cost and length of HCPs . . . .").

321. *See Hearings*, *supra* note 184, at 97 (statement of Donald J. Barry, Assistant Secretary for Fish and Wildlife and Parks) ("[We should] be able to develop more of a template HCP that could be utilized readily, pulled off the shelf in a particular area for certain species, and use that as a way of streamlining the cost and the process."); *id.* at 10 (statement of Peter Kareiva, NMFS) ("[I]f we did produce data bases, if we put energy into that, subsequent efforts would go much faster . . . . Any data that you put in a computer data base for any of those HCPs will inform future conservation plans that touch on those same species."); Wilhere, *supra* note 36, at 27 ("The information obtained from one HCP can be applied to future HCPs and other conservation programs. The amount of research and monitoring needed by future HCPs could be reduced and the efficiency of conservation measures could be increased.").

opportunities for participation.[322] These decreased costs serve to offset at least in part any administrative costs of increasing early participation in the regulatory process.

More importantly, any increased administrative costs must be considered in light of the substantive benefits of such activities. These include improved HCPs based on more reliable information, more democratic processes viewed as more satisfactory to stakeholders, and ultimately more effective and cost-effective species conservation.[323] Thus, though increasing the Services' budget would enhance the Services' ability to engage in HCP program management, even with limited funds, the Services' efforts to increase adaptation and participation may not significantly increase administrative costs, and in any event may be worthwhile given the inadequate information upon which most HCPs are based.

B. Legislative Directives: Making Evolution Plausible

Though sufficient funding for the Services to perform their statutory mandate is necessary, the availability of resources alone does not increase the plausibility that the Services will attempt to cultivate transparent information gathering, meaningful participation, and adaptive implementation.[324] A second key lesson from the HCP program is that with only vague legislative guidance to promote participation and an adaptive, experimentalist framework, administrative officials will not scrupulously foster participation or engage in regulatory adaptation. Whether due to regulatory capture, an overreliance on agency expertise manifested as a disregard for the value of participation, or simply an aversion to accountability, the Services' interpretation and implementation of the HCP program quickly stifled the potential for adaptive regulation.

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322. *See supra* notes 154–156 and accompanying text; *cf.* Camacho, *supra* note 3, at 312 (summarizing empirical data suggesting that implementing additional collaborative procedures in environmental and land use regulation may decrease administrative costs in the long run); Jody Freeman, *Extending Public Law Norms Through Privatization*, 116 HARV. L. REV. 1285, 1339–40 (2003) (discussing the ways in which increased public participation, though potentially more costly up front, can reduce overall costs by minimizing future conflicts among the affected parties).

323. *See* Wilhere, *supra* note 36, at 22 ("The costs of research and monitoring make adaptive management seem relatively expensive. But if all costs are considered, then adaptive management may be relatively inexpensive over the long run. In theory, investments in reliable information should yield excellent returns in the sustainable use of natural resources."); *supra* note 155 and accompanying text.

324. *Cf.* Freeman, *supra* note 3, at 17 (arguing that the EPA's failure to adequately address its enforcement responsibilities is a product of not only inadequate resources but also institutional incentives).

As such, the statute itself must provide a framework for regulatory experimentation that mandates early and meaningful opportunities for participation and a framework for HCP adaptation.[325] In this vein, Congress should amend the HCP program to require the Services to provide for stakeholder involvement in HCP formation, implementation, and enforcement in order for an applicant to receive an ITP exception. Drawing on the most commonly used method to obtain substantial stakeholder input in the existing HCP program, the default avenue for participation should be a steering committee of interested stakeholders,[326] with independent scientists to review the applicant's submitted biological data.[327] The committee would help the applicant and the Services develop the plan, monitor performance, and adjust HCP activities. Short of requiring all HCPs to form a steering committee, the program could offer incentives, such as streamlined administrative review and more deferential judicial review, to induce applicants to adopt steering committees.[328]

It is important to note that providing interested stakeholders additional, early opportunities for input is not inevitably unmanageable. Congress could require, subject to judicial review, a demonstrated good faith willingness and capacity to contribute to HCP formation or implementation before inclusion in a steering committee.[329] As already occurs for a few HCPs, the Services could provide financial support to

325. *Cf.* Natural Community Conservation Planning Act, CAL. FISH & GAME CODE §§ 2800–2835 (West 1998 & Supp. 2006) (codifying the California habitat conservation program, which includes detailed public participation, monitoring, and adaptive-management requirements).

326. *Cf.* Doremus, *supra* note 111, at 715–16 (discussing the oversight role of advisory committees).

327. *See Hearings*, *supra* note 184, at 212–13 (statement of Gregory Thomas, Natural Heritage Institute); Watchman et al., *supra* note 15, at 358 ("A . . . precautionary approach would be to build more independent scientific review into the HCP development process. Teams of qualified scientists could be assembled to review topics such as data gaps for species commonly addressed by HCPs or the evidence of the efficacy of specific management and mitigation techniques. Such scientific reviews could reduce uncertainty for both landowners and imperiled species by vastly improving the information available for future plans.").

328. *Cf.* Harter, *supra* note 3, at 103 (suggesting that a negotiated rule should be "sustained to the extent that it is within the agency's jurisdiction and actually reflects a consensus among the interested parties"); Lawrence Susskind & Gerard McMahon, *The Theory and Practice of Negotiated Rulemaking*, 3 YALE J. ON REG. 133, 164 (1985); Patricia M. Wald, *ADR and the Courts: An Update*, 46 DUKE L.J. 1445, 1468 (1997).

329. *See* NATURAL HERITAGE INST., *supra* note 105, at 20 ("Demonstrated ability to contribute substantively to the issues on the table without undue delay may be made the price of admission.").

key underresourced[330] community groups that qualify as stakeholders in order to assist them in participation.[331] Regardless of whether steering committees are required for all HCPs or not, those precluded from direct participation should nonetheless be allowed to observe key HCP negotiations and examine any principal-drafted documents used during negotiations or developed during implementation.

To address the Services' current indifference to adaptation, Congress certainly should insist on systematic, periodic adaptation[332] by making HCP approval contingent on the inclusion of monitoring and biological criteria to account for new information and changed circumstances that would trigger mitigation modification if not met. Just as important, however, are legislative directives that tap private resources to assist in the implementation process. For example, Congress should require applicant-monitoring reports not only to be prepared by consultants approved or selected by the Services, but also to be made public.[333] Doing so provides a moderate level of independent oversight with minimal administrative cost to permittees and the Services. In addition, stakeholder participation in implementation may include sequential steering committee review or provision in the HCP for third-party enforcement.[334]

Of course, as the Services and Congress learn about the relative value of particular participation, monitoring, and adaptation techniques by adaptively managing the HCP program, the particular parameters of new HCPs could be tailored to address distinctive characteristics. In this vein, Congress should mandate the development of a comprehensive framework for regulatory learning. As its core component, this framework would

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330. *See, e.g.*, AENGST ET AL., *supra* note 112, app. at A-Riverside-9 ("'You might have very few environmental people and a preponderance of property owners and Building Industry Association and Farm Bureau folks. And that . . . was because the environmental groups were all volunteers, it was very difficult for them to attend the monthly meetings.'" (quoting a local official)).

331. *See id.* at 5-2 (finding that for six of thirty-five HCPs, the applicant or the FWS "provided citizens with financial support to participate").

332. *See* Watchman et al., *supra* note 15, at 358 ("[U]ncertainty could be further minimized by providing greater opportunities to adjust plans during implementation in response to new information or changing environmental conditions.").

333. *See* Thomas, *supra* note 37, at 167.

334. *See* AENGST ET AL., *supra* note 112, at 5-2; *cf.* Sean P. Ociepka, Casenote, *Protecting the Public Benefit: Crafting Precedent for Citizen Enforcement of Conservation Easements*, 58 ME. L. REV. 226, 230–33 (2006) (discussing the recent judicial recognition of citizen enforcement of conservation easements notwithstanding unclear statutory provisions and limited precedents). Alternatively, the National Research Council or another outside reviewer could serve as a valuable source of accountability in HCP implementation.

include a publicly accessible information clearinghouse that would gather and circulate biological data and information on individual HCP negotiations and implementation activities. Finally, required publication of periodic reports assessing the program's progress would serve not only to promote the Services' adaptation of the regulatory program, but also to foster accountability to Congress and the public.[335]

In adopting a more multilateral regulatory approach, the Services rather than the applicant would be rightly established as the hub or convenor of the regulatory process,[336] not merely a negotiating counterweight to applicants. The Services would be charged with convening stakeholders, marshalling data from disparate sources, balancing the interests of affected stakeholders and the public, making the required statutory findings, and enlisting private actors to assist in implementation. Undoubtedly, there will be challenges in integrating the range of interested parties, deciding who to allow direct participation, assembling data, and overseeing episodic HCP adjustment. However, existing evidence suggests that at least some Services personnel can and have successfully performed this convenor function—even in circumstances in which rival stakeholders did not like or even trust each other.[337] Beyond mandating the convenor role, Congress can cultivate this orientation through training of agency personnel[338] and supplying resources to the Services to provide educational and technical assistance to applicants and other interested parties to engage in the collaborative process.[339] Ultimately, though the role may be difficult, the Services are the regulatory actors best placed to make such hard but not insurmountable decisions—certainly better than the applicant, with whom such functions currently rest—and no evidence exists that the existing bilateral approach is more effective.[340]

335. Though the Services could administer these functions, Congress could also lodge such responsibilities with the GAO, which has experience in serving a coordinating and assessment role for regulatory programs.

336. *See* NATURAL HERITAGE INST., *supra* note 105, at 20, 37.

337. *See* Leigh Raymond, *Cooperation Without Trust: Overcoming Collective Action Barriers to Endangered Species Protection*, 34 POL'Y STUD. J. 37 (2006) (evaluating two multilateral HCP negotiations and concluding that the Services served a critical role as mediator, directing hostile parties toward an agreeable solution).

338. *See* Endangered Species Recovery Act of 1997, S. 1180, 105th Cong. § 7(b)(5) (1997) (proposing training of federal personnel on conflict resolution and improving HCP implementation on private property).

339. *See id.* § 7(a) (proposing a program to provide educational materials and technical assistance to parties interested in developing HCPs and conservation measures).

340. *Cf.* AENGST ET AL., *supra* note 112, app. at A-CLARK COUNTY-9 ("'Keeping it totally open and inclusive has the typical downsides: people get irritated, it takes forever, and costs more—but there is no other way.'" (quoting a local HCP administrator)).

Significantly, placing the Services in this more facilitative role instead of as bilateral negotiator would address many of the weaknesses of the HCP program. First, by doing so, the Services would be considerably less dependent on the applicant for information on the proposed take's potential impacts or the possible mitigation and recovery alternatives,[341] in turn reducing the likelihood of capture. A robust participatory process serves as the only check on an otherwise insulated decisionmaking process.[342]

Second, requiring the Services to provide opportunities for participation would shift the responsibility and burden for implementation to private actors who already have incentives to monitor applicant compliance. Involving interested stakeholders in monitoring can serve as an effective resource for ensuring compliance with the HCP without substantial new costs. Indeed, despite the limited access that nonapplicant stakeholders have in HCP processes, even now Services officials state that third parties are their largest information source on HCP noncompliance.[343] By providing third parties access to negotiations and implementation, the HCP program can more systematically harness available private resources to further the program's public goals.[344]

Third and most importantly, the Services are more likely to be effective in the role of an active convenor than an isolated negotiator or a monitor of applicant activities. To be sure, by relying on the scientific capacities of Services biologists, the Services may be able to generate biological data about a species or a proposed take's impacts, alternatives, and mitigation without engaging any stakeholders (including the applicant).[345] However, many of the analyses that the Services are required to undertake in developing an HCP are not knowable solely

341. *See* ANDERSON & YAFFEE, *supra* note 88, at 13 (finding that public participation increased the information available to develop HCPs).

342. *See* Dorf & Sabel, *supra* note 3, at 288 (stating that participation in evaluating regulatory provisions can serve to increase the accountability of regulatory agencies).

343. *See* McClure & Stiffler, *supra* note 203 ("'Our biggest source of information is third party input—people writing letters saying someone didn't get a permit or take an action.'" (quoting Bob Pine, Austin FWS habitat conservation director). This official acknowledged that his regional department rarely does its own inspecting. *See id.*

344. *Cf.* Freeman, *supra* note 1, at 663.

345. Even so, it is not at all clear that such an approach is the most effective, or even an effective, method for gathering and assessing scientific data. Certainly, a model that relies on the input of those most affected by the particular decision, as well as the input of independent scientists, may allow for consideration of more data than that developed by the Services alone or the more cost-effective collection of data. Indeed, existing evidence suggests that participation provides valuable information to the Services in developing HCPs. *See supra* notes 153, 159–160 and accompanying text.

by reference to biological data.[346] For example, the proposal and assessment of viable alternatives to a proposed take require the compilation of not only scientific data, but also information about economic and social objectives and stakeholder preferences.[347]

Similarly, several findings required for Services approval of an ITP necessitate a balancing of economic and conservation interests. For instance, whether the HCP mitigates the impact on a species or habitat "to the maximum extent practicable"[348] is at least in part an assessment of the economic impact of potential mitigation on the applicant. Far from claiming an expertise in analyzing economic feasibility, the Services essentially ignore this area of data gathering,[349] just as they neglect monitoring and assessment during implementation.

In short, the resource-allocation questions embodied in an HCP ultimately turn on public policy choices that require substantial information—not only from the applicant and Services, but also from others affected by the decision. As demonstrated by the HCP program experiment, only by legislatively refashioning the Services' role from negotiator to convenor, and providing other interested stakeholders the ability and responsibility to serve as sources of accountability, will Congress make regulatory evolution plausible.

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346. *See Hearings*, *supra* note 184, at 296 (statement of Don Rose, Manager, Land Planning and Natural Resources, Sempra Energy) ("About 90 to 95 percent . . . of the professionals in the wildlife agency, the service, are biologists. They do not have the other disciplines necessary, in my opinion, to carry out what is needed for a comprehensive HCP."); STEVEN LEWIS YAFFEE, PROHIBITIVE POLICY: IMPLEMENTING THE FEDERAL ENDANGERED SPECIES ACT 162 (1982) ("While science can and should inform choice, rarely can it do so definitively. Most policy choices involve fundamental questions of social value—issues for which technicians have only one voice among many. The central issues of the endangered species case—determining what is ethical behavior and what is valuable to protect at what cost—require individual and group assessments of what is moral and what is valued. Economics and biology only help us slightly in making those choices.").

347. *See, e.g.*, Gerber v. Norton, 294 F.3d. 173, 185–86 (D.C. Cir. 2002) (finding that the Services, and not just the developers, must determine that the alternatives proposed are impracticable based on economic and other considerations); HCP HANDBOOK, *supra* note 45, at 3-35.

348. 16 U.S.C. § 1539(a)(2)(B)(ii) (2000).

349. *See* Wilhere, *supra* note 36, at 23 (stating that the Services do not require applicants to provide financial data on draft HCPs for Services to make a "maximum extent practicable" finding). In the same way, whether the applicant provides "adequate funding," 16 U.S.C. § 1539(a)(2)(B)(iii), for implementation of the HCP is an economic assessment. Even the finding of whether a take "will not appreciably reduce the likelihood of the survival and recovery of the species," *id.* § 1539(a)(2)(B)(iv), involves a judgment as to whether a species' reduction is indeed "appreciable," a determination for which no widely accepted scientific criteria has been developed, *see* Wilhere, *supra* note 36, at 26.

C. Incentives for Applicants: Making Evolution Probable

Finally, the HCP program experiment has demonstrated that even mandates for procedures that foster adaptation—such as the HCP program's monitoring requirements—are far from guarantees of successful regulatory adaptation. Furthermore, though the Services' No Surprises rule provided the impetus for many applicants to participate in the HCP program, it also created significant incentives for applicants to thwart monitoring and adaptive implementation.[350] The experience of the HCP program is that providing incentives for applicants to actively assist in the governance process and contribute to information generation is critical to cultivating a truly adaptive and participatory regulatory program.[351]

Just as the agency should share responsibility to further regulatory goals with third parties, consistent with their stake and abilities,[352] it is particularly imperative to enlist the applicant to bear a portion of the costs of its activities by contributing to the furtherance of public goals. As the entity typically with the most direct access to information about regulated species and habitat, applicants are usually the actors best placed to engage in information collection about HCP activities.[353] The applicant is also an essential party to enlist in adaptive-implementation protocols during HCP implementation.[354] While the No Surprises rule shows that exclusively focusing on developer incentives can undermine efforts to address other statutory goals,[355] Congress must nonetheless examine ways to encourage applicants to assist in making the HCP program evolve.

Even if the Services' aim to induce applicant involvement in the HCP program through the No Surprises rule is understandable, the program must balance the No Surprises incentives with sufficient incentives for developers to reduce uncertainty, increase participation, and perform

350. *See supra* notes 238–240, 254–256 and accompanying text.

351. *See* Doremus, *supra* note 295, at 71–72 ("Providing appropriate incentives for the generation and disclosure of information . . . is critical to the effective protection of endangered species on private land.").

352. *See* Lobel, *supra* note 3, at 377; *cf.* John Kostyack, *supra* note 309, at 764 ("To ensure adequate funding for corrective action, the Administration should ensure that responsibility is properly divided between private and public sources.").

353. *See* AENGST ET AL., *supra* note 112, at 5-10 (indicating that 71 percent of survey respondents said that the applicant was the primary catalyst of the HCP effort).

354. *See id.* at 5-3 ("Applicants were moderately or actively involved in 91% of HCPs . . . before the NEPA comment period, 83% during the comment period, and 85% after HCP approval.").

355. *Cf.* J.B. Ruhl & James Salzman, *The Effects of Wetlands Mitigation Banking on People*, NAT'L WETLANDS NEWSL., Mar.–Apr. 2006, at 1 (finding that the wetlands mitigation banking program's emphasis on permittee incentives led to larger-scale distributive effects).

monitoring and adaptive implementation. Such incentives could include direct federal loans,[356] grants,[357] or tax credits[358] to permittees who engage in adaptive implementation that provides valuable information for future conservation activities.[359] In conjunction with more rigorous HCP monitoring, penalties could be levied on permittees for noncompliance and serve to fund the incentive program.[360] Alternatively, Congress could develop a credit program that allows permittees to reduce their costs for mitigation in exchange for generating and disseminating reliable data that benefit regional or national conservation efforts.[361] The HCP program could also offer applicants a streamlined administrative review process and more deferential judicial review if the HCP process adopted in-depth participatory protocols.[362]

For larger, regional HCPs that provide an economy of scale, Congress could also alter the current disincentives for permittees to engage in data generation and adaptive implementation by requiring applicants to supply a bond in an amount that compensates for the worst-case risk scenario given the uncertainty that exists at the time the HCP is adopted.[363] Only rarely have HCPs required permittees to furnish a performance bond or other funding source for unanticipated implementation costs.[364] Key to

356. *See, e.g.*, Endangered Species Recovery Act of 1997, S. 1180, 105th Cong. § 5(h) (1997) (proposing the Habitat Conservation Planning Loan Program, which would have provided no-interest loans to states and municipalities to assist in plan development).

357. *See id.* § 5(m) (proposing grants to HCP parties to perform additional mitigation measures to address unforeseen circumstances).

358. *Cf.* Endangered Species Recovery Act of 2007, S. 700, 110th Cong. (2007) (introduced Feb. 28, 2007) (proposing tax credits and deductions for landowners who engage in habitat conservation efforts on their property).

359. *See* Thomas, *supra* note 37, at 167; Wilhere, *supra* note 36, at 27 ("More and better adaptive management would be encouraged by compensating permittees for the reliable information they produce . . . that benefits the conservation of a species.").

360. *See Endangered Species Act: Incentives to Encourage Conservation by Private Landowners: Hearing Before the Subcomm. on Environment and Natural Resources of the H. Comm. on Merchant Marine and Fisheries*, 103d Cong. 81 (1993) (statement of Larry McKinney, Texas Parks and Wildlife Department) (describing an unadopted proposal for a "federal tax penalty, or severance tax . . . levied on lands converted to uses not compatible with the support of endangered, threatened and candidate species, or significant biodiversity habitat. . . . Moneys from the tax penalty would help fund the various incentive programs").

361. *See* Jonathan Remy Nash, *Trading Species: A New Direction for Habitat Trading Programs*, 32 COLUM. J. ENVTL. L. 1 (2007) (discussing habitat-conservation trading schemes generally); Wilhere, *supra* note 36, at 27.

362. *See supra* Part V.A.

363. *See* Wilhere, *supra* note 36, at 27.

364. *See* Defenders HCP Data, *supra* note 129, at Question 46 (finding that the permittee posted a performance bond or other funding source to pay for unanticipated additional costs in fewer than 10 percent of the 274 HCPs studied).

such an instrument would be the fact that portions of the bond would be reimbursed to the permittee whenever she demonstrated that the worst-case damages were less than had been conservatively anticipated when the HCP was adopted.[365] Such a bond would thus provide the applicant—the participant with the most direct control over information gathering—a direct financial incentive to collect and supply information and thus reduce uncertainty by engaging in adaptive implementation.

The incentives provided to permittees certainly do not have to be an all-or-nothing proposition. Congress and the Services can also induce participation, adaptation, or information gathering by providing incentives on a sliding scale based on the quality of the information generated or conservation value provided by an HCP. For example, Congress can stimulate species-recovery efforts by correlating the regulatory assurances granted to applicants with the extent of the biological benefit conferred by the HCP.[366] An HCP could be structured to provide either a more substantial or longer-term guarantee of nonliability to a permittee the more that an HCP induces the recovery of a listed species. Similarly, the more an HCP is based on reliable data and analyses, the more extensive the regulatory assurances that could be provided to an applicant.[367] By calibrating the regulatory assurances provided to applicants to the information and conservation value of the HCP, regulators can more directly foster the adaptation in regulatory processes that thus far has proved elusive in the HCP experiment.

CONCLUSION

Through their interpretation and implementation of the HCP program, the Services have failed to adaptively manage the regulatory process. Rather than promoting the diffusion of information, transparency, participation, and adaptation of regulatory decisions, the Services have allowed the HCP program to serve as an avenue for fragmented, long-term, and inert regulatory decisions that rely on inadequate information and little stakeholder participation. They have resisted taking on a role of

365. *See* Wilhere, *supra* note 36, at 27 ("Ultimately, the entire bond could be returned with interest when it is demonstrated that an HCP will not result in any unacceptable damages. Such a demonstration would depend on a satisfactory reduction in uncertainty, which might be obtained only through adaptive management.").

366. *See* NATURAL HERITAGE INST., *supra* note 105, at 17.

367. *See id.* Conversely, HCPs should require more extensive mitigation when there are significant information gaps about a species' condition or the proposed take's effect.

facilitator and eschewed even a minimal framework for regulatory learning. The HCP program serves as a valuable lesson that sufficient resources, clear legislative directives, and institutional incentives for applicants and agencies alike must be provided for adaptive regulation to have a chance.

Undoubtedly, multilateral, agreement-based processes that develop up-to-date scientific information and actively adapt regulatory decisions are expensive and difficult to implement. The success of such processes in furthering environmental conservation and participatory democracy, balanced with sustainable development, largely depends on sufficient resources, a rigorous adherence to a participatory, evolutionary approach to regulation, and the provision of incentives to institutional actors to assist in the governance process. Yet, the rapid proliferation of HCPs and increased reliance on HCP processes in the administration of the ESA—transforming this pilot program into the regulatory norm for ESA permitting—has not been reinforced with sufficient funding and attention to foster meaningful participation, oversight, and adaptation in this pioneering regulatory process. By using the HCP program as a way to authorize development with little oversight or adaptation of plans during implementation, the HCP program has facilitated the further degradation of wildlife and their habitat. Unsurprisingly, the primary beneficiary of this lack of public participation, enforcement, and adaptation are developer-applicants.

As with all regulation, ultimately the environmental, economic, and democratic benefits of a fully collaborative and adaptive HCP process may not outweigh the administrative costs, or may do so for only certain types of HCP decisions. Perhaps there are certain participation and adaptive-regulation tools that would provide the most cost-effective method for fostering quality HCPs in a particular context. However, because Congress and the Services have never attempted to adaptively manage the regulatory process, the HCP program illustrates the failure of administrative processes to unlock the latent but abundant information that would begin to answer the fundamental questions of regulatory programs: Is the program working, and how can it be improved? In order to really examine the success of a regulatory program, the Services—indeed, any regulatory agency—must be provided the incentives to engage in systematic experimentation in the design of the regulatory program. By incorporating an adaptive-learning framework into the regulatory process itself, regulatory agencies like the Services, charged with administering complex, unproven laws, can finally begin to help make regulation evolve.