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Andrea K. Gerlak

Tanya Heikkila

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ANDREA K. GERLAK & TANYA HEIKKILA*

Comparing Collaborative Mechanisms in Large-Scale Ecosystem Governance

ABSTRACT

Collaborative approaches to environmental and natural resource management are on the rise in the United States. This article examines collaborative governance in four high-profile and large-scale ecosystems: the Northwest Power and Conservation Council's Fish and Wildlife Program in the Columbia River Basin, the Chesapeake Bay Program, the CALFED Bay-Delta Program in California's San Francisco Bay/Sacramento-San Joaquin River Delta, and the Florida Everglades Restoration Program. We compare the governance structures of these four institutional arrangements by examining how collaboration occurs or is organized at three different levels of decision making: constitutional, collective choice (or policymaking), and operational (or implementation). This includes an examination of governance and advisory bodies as well as coordinating and monitoring structures.

INTRODUCTION

Increasingly, collaborative resource management institutions are being used to address many of the environmental problems that span multiple jurisdictional boundaries and involve diverse stakeholders. As Bradley Karkkainen notes, "a distinctive problem-solving, polyarchic governance model is emerging in response to complex ecological problems that overwhelm the capacities of the sovereign state, conventionally understood, whether those problems occur within the state's territorial boundaries, or partially beyond them."¹ Such new collaborative governance models can be found at various scales from local watersheds and regional bays to large river systems. Many involve

* Andrea K. Gerlak is Director of Academic Development for the International Studies Association and Visiting Professor of Political Science at the University of Arizona. Tanya Heikkila is an Assistant Professor in Columbia University's School of International and Public Affairs.

1. Bradley C. Karkkainen, *Post-Sovereign Environmental Governance*, 4 GLOBAL ENVTL. POLITICS 72 (2004).

resource-user-based programs and land use planning including local partnerships, watershed councils, and river conservation initiatives.²

Collaborative resource governance can be defined as a group of diverse stakeholders, including resource users and government agencies, working together to resolve shared dilemmas. It is based on the premise that, if you bring together the appropriate people in constructive ways with good information, they will create effective, sustainable solutions to the problems they share.³ Several researchers note the benefits of collaborative governance arrangements. They have been found to promote public participation and policy dialogue.⁴ They can also lead to better informed, more creative, and enduring solutions⁵ and can rebuild a sense of trust in government institutions.⁶ But there are many institutional and political obstacles to collaboration, including conflicting agency goals and missions, inflexible administrative and legal procedures, and constrained financial resources.⁷ In particular, collaboration that involves multiple stakeholders can face great financial expense, complexity and scale dilemmas, and scientific uncertainty.⁸ Some literature has suggested that how effectively these collaborative institutions meet these challenges and ultimately succeed is related to how they are governed, organized, and funded.⁹

2. See PHILIP BRICK, DONALD SNOW & SARAH VAN DE WETERING, *ACROSS THE GREAT DIVIDE: EXPLORATIONS IN COLLABORATIVE CONSERVATION AND THE AMERICAN WEST* (2001); PAUL A. SABATIER ET AL., *SWIMMING UPSTREAM: COLLABORATIVE APPROACHES TO WATERSHED MANAGEMENT* (2005); TOMAS M. KOONTZ ET AL., *COLLABORATIVE ENVIRONMENTAL MANAGEMENT* 19–20 (2004); NAT'L ACAD. OF PUB. ADMIN., *TRANSFORMING ENVIRONMENTAL PROTECTION FOR THE 21ST CENTURY* (2000); see also Tomas M. Koontz, *We Finished the Plan, So Now What? Impacts of Collaborative Stakeholder Participation on Land Use Policy*, 33 *POL'Y STUD. J.* 459 (2005); Andrea K. Gerlak, *Federalism and U.S. Water Policy: Lessons for the Twenty-First Century*, 36 *PUBLIUS: J. FEDERALISM* 231 (2006).

3. See MATTHEW MCKINNEY & WILLIAM HARMON, *WESTERN CONFLUENCE: A GUIDE TO GOVERNING NATURAL RESOURCES* 202–03 (2004).

4. See, e.g., William D. Leach et al., *Stakeholder Partnerships as Collaborative Policymaking: Evaluation Criteria Applied to Watershed Management in California and Washington*, 21 *J. POL'Y ANALYSIS & MGMT.* 645 (2002); Sarah Connick & Judith Innes, *Outcomes of Collaborative Water Policy Making: Applying Complexity Thinking to Evaluation*, 46 *J. ENVTL. PLAN. & MGMT.* 177 (2003).

5. See MCKINNEY & HARMON, *supra* note 3, at 207.

6. See JULIA M. WONDOLLECK & STEVEN LEWIS YAFEE, *MAKING COLLABORATION WORK* 8 (2000).

7. See *id.* at 51–57.

8. See, e.g., KAREN E. VIGMOSTAD ET AL., *LARGE-SCALE ECOSYSTEM RESTORATION* (2005).

9. See, e.g., HELENA WILEY & DENNIS CANTY, *REGIONAL ENVIRONMENTAL INITIATIVES IN THE UNITED STATES: A REPORT TO THE PUGET SOUND SHARED STRATEGY* (2003); CYNTHIA KOEHLER & ELLEN BLAIR, *PUTTING IT BACK TOGETHER: MAKING ECOSYSTEM RESTORATION WORK* (2001); VIGMOSTAD ET AL., *supra* note 8; Jon Cannon, *Choices and Institutions in*

While some studies have described the governance and organizational structures of new collaborative approaches for managing water resources, much of this research is focused on single cases or local watershed associations. Few studies have looked at the design of large-scale multi-jurisdictional arrangements, which developed to address the management of regional watersheds and their ecosystems.¹⁰ Such large-scale collaborative watershed governance efforts can be found in California's Bay-Delta; the Florida Everglades; Lake Tahoe; along the Columbia, Colorado, Delaware, and Platte Rivers; and in coastal Louisiana and the Chesapeake Bay. Most recently, we have seen efforts to initiate new collaborative institutional arrangements in the Great Lakes region.¹¹

In this article we examine the governance and organizational structures of four large-scale collaborative resource governance institutions. We ask: *How does collaboration differ under diverse institutional designs?* To help identify the diversity (and similarities) among these institutional arrangements, we chose two older institutions—the Chesapeake Bay Program and the Northwest Power and Conservation Council's Fish and Wildlife Program in the Columbia River Basin—and two newer cases—the Florida Everglades Restoration Program and the CALFED Bay-Delta Program in California's San Francisco Bay/Sacramento-San Joaquin River Delta.

To compare the governance structures of these four institutional arrangements, we look at how collaboration occurs or is organized at three different levels of decision making: constitutional, "collective choice" (or policymaking), and operational (or implementation). Our comparative approach is guided by the Institutional Analysis and Development Framework, developed most notably by Elinor Ostrom and colleagues.¹² Policy scholar Mark Imperial has recently used this framework to study collaboration as a governance strategy across six watershed management programs, demonstrating the value of this

Watershed Management, 25 WM. & MARY ENVTL. L. & POL'Y REV. 379 (2000); Mark T. Imperial & Derek Kauneckis, *Moving from Conflict to Collaboration: Watershed Governance in Lake Tahoe*, 43 NAT. RESOURCES J. 1009 (2003).

10. See, e.g., John E. Thorson, *Visions of Sustainable Interstate Water Management Agreements*, 43 NAT. RESOURCES J. 358 (2003).

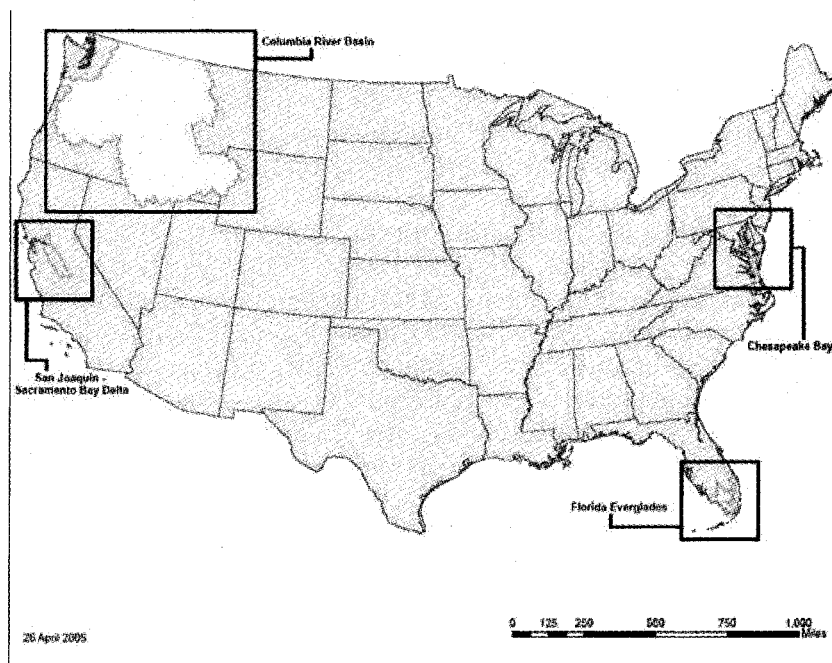
11. See Exec. Order No. 13,340, 69 Fed. Reg. 29,043 (May 18, 2004).

12. The Institutional Analysis and Development Framework distinguishes between constitutional, collective choice, and operational levels of institutional actions and rules. See Elinor Ostrom, *Institutional Rational Choice: An Assessment of the Institutional Analysis and Development Framework*, in THEORIES OF THE POLICY PROCESS 35-71 (Paul A. Sabatier ed., 1999); Larry L. Kiser & Elinor Ostrom, *The Three Worlds of Action: A Metatheoretical Synthesis of Institutional Approaches*, in STRATEGIES OF POLITICAL INQUIRY 179 (Elinor Ostrom ed., 1982).

framework for identifying and comparing collaborative institutions.¹³ Comparisons across institutions can contribute to the growing body of literature on this new breed of governance in the United States while also providing a basis for eventually comparing how the design of these institutions might relate to their outcomes.

By describing how these institutions are governed and organized, and how they operate differently across the constitutional, collective choice, and operational levels, we aim to provide a deeper understanding of how collaborative governance institutions operate. We found that in all four cases, multiple stakeholders have come to consensus on the goals and basic program rules through some sort of collaborative agreement. Despite this, the constitutional processes and choices reveal differences related to authorities for states and parties to collectively act to resolve grave ecological dilemmas. The collective choice structures in the four regions have similarities in that each involves some form of convening body that meets regularly to approve management plans or goals for the region. Yet, each has a slightly different organizational arrangement for making its collective choice decisions. In all four basins there are also citizen advisory and scientific advisory committees to inform the programs' collective choice decision making. In terms of the operational or day-to-day implementation of the four programs, the programs are even more "collaborative" in terms of the vast number of state, local, tribal, and federal players that participate in these programs. The programs have relied on their staff and scientific advisory bodies to conduct some of the programmatic monitoring, while program collaborators that do work on the ground also participate in monitoring. First, we provide a background on the ecological and community settings in each case to better understand the problems that these collaborative programs aim to address.

13. See Mark T. Imperial, *Using Collaboration as a Governance Strategy: Lessons from Six Watershed Management Programs*, 37 ADMIN. & SOC'Y 281 (2005).

Figure 1: Map of Four Regions¹⁴

CASE BACKGROUND

Facing Complex Environmental Dilemmas

Each of the four collaborative governance programs covers thousands of miles of ecologically diverse watersheds. Historically, each of these ecosystems has provided habitat for an abundance of diverse species of fish and wildlife and provided water resources for industry, agricultural and domestic consumption, and expansive areas for recreation. For example, along the Columbia River, salmon fishing has been a source of food and economic support to local communities for hundreds of years, while hydropower offers the principle source of low-cost electricity in the region.¹⁵ The Chesapeake Bay has supported world-class blue crab and oyster fishing, as well as shipping, recreation, and

14. Graphic provided by Emily Dubin, Graduate of Columbia University's MPA Program in Environmental Science and Policy.

15. See KAI N. LEE, *COMPASS AND GYROSCOPE: INTEGRATING SCIENCE AND POLITICS FOR THE ENVIRONMENT* 19-50 (1995).

other commercial fisheries for hundreds of years.¹⁶ Irrigation is of prime importance in California's Bay-Delta, supplying water to over four million acres of farmland, producing approximately 45 percent of the nation's fruit and vegetable production.¹⁷ It also supports 80 percent of the state's commercial salmon fishery.¹⁸ The Everglades region in south-central Florida has some of the most diverse habitat for plants and animals around the world while also supporting large-scale commercial agriculture, dominated by sugar cane.

All four regions have faced threats to the vitality of these rich ecosystems. As highlighted in Table 1 below, each of these ecosystems has been characterized by water quality problems, endangered species, and depleted fisheries. The problems in each region are complex and are intricately tied to the diverse and often competing demands that their surrounding communities place upon them.

Until the twentieth century, the Columbia River Basin was largely a wilderness area and provided the spawning grounds for the largest population of anadromous fish (salmon and steelhead) in the world. The basin is also rich in other species of fish, waterfowl, and wildlife that rely on the streams and wetlands in the basin for habitat. For the past 100 years, the Columbia River basin has been increasingly managed and controlled for hydropower and irrigation. The Columbia River and the Snake River (the Columbia's major tributary) alone have 18 dams, at least 250 reservoirs, and about 150 hydroelectric projects.¹⁹ The hydropower system has been a major contributor to the loss of habitat and inadequate flows for anadromous fish. By the late 1970s, runs had decreased to about 2.5 million fish, down from about 10 to 16 million a century prior.²⁰ In addition to the operation of dams, habitat degradation from logging, grazing, and dredging, water quality problems, and overfishing have all contributed to declining populations of salmon and other aquatic species.

16. HOWARD R. ERNST, CHESAPEAKE BAY BLUES: SCIENCE, POLITICS, AND THE STRUGGLE TO SAVE THE BAY 10-11 (2003); see also Robert Costanza & Jack Greer, *The Chesapeake Bay and Its Watershed: A Model for Sustainable Ecosystem Management?*, in BARRIERS AND BRIDGES TO THE RENEWAL OF ECOSYSTEMS AND INSTITUTIONS 169 (Lance H. Gunderson et al. eds., 1995).

17. Elizabeth Ann Rieke, *The Bay-Delta Accord: A Stride Toward Sustainability*, 67 U. COLO. L. REV. 341, 344 (1996).

18. See Ne. Midwest Inst., Large-scale Ecosystem Restoration Initiatives: Protecting and Restoring the San Francisco Bay-Delta, <http://www.nemw.org/calfed.htm> (follow "Ecosystem Users" hyperlink) (last visited Oct. 18, 2006).

19. See U.S. Army Corps of Eng'rs, Nw. Div., Fish Mgmt. Office, Columbia River Basin—Dams and Salmon, <http://www.nwd.usace.army.mil/ps/colbsnmap.asp> (last visited Oct. 18, 2006).

20. See NW. POWER PLANNING COUNCIL, BRIEFING BOOK 8 (2003), available at <http://www.nwncouncil.org/library/2003/2003-2.pdf>.

TABLE 1: ECOSYSTEM CHARACTERISTICS

	COLUMBIA BASIN	CHESAPEAKE BAY	CALIFORNIA BAY-DELTA	FLORIDA EVERGLADES
Physical Setting				
Physical Extent	1,214-mile long Columbia River mainstem and its tributaries, covering a 259,000 sq. mile drainage basin	193-mile long bay and drainage basin, covers 6 states and 64,000 sq. miles	California's Sacramento and San Joaquin River Delta and San Francisco Bay Estuary, covers 61,000 sq. miles	Southern Florida water resources, covers 16 counties and 18,000 sq. miles
Resource Problems	<ul style="list-style-type: none"> • Blockage of salmon passage by dams • Species decline • Habitat loss 	<ul style="list-style-type: none"> • Poor water quality from agriculture and urban run-off • Species decline • Habitat loss 	<ul style="list-style-type: none"> • Water supply shortages • Poor water quality from agriculture and urban run-off • Species decline • Habitat loss • Reduced flows from diversions and dams • High risk of levee breaches 	<ul style="list-style-type: none"> • Water supply shortages from dams and levees • Poor water quality from agriculture and urban run-off • Species decline • Habitat loss • Invasive species and exotic plants
Community Setting				
Population in Region	11 million	15 million	27 million	6.3 million
Primary Resource Uses	<ul style="list-style-type: none"> • Salmon fishing • Hydropower • Irrigation & urban water supply 	<ul style="list-style-type: none"> • Oyster, crab and other commercial fisheries • Shipping • Recreation 	<ul style="list-style-type: none"> • Irrigation • Urban water supply • Commercial fisheries • Shipping 	<ul style="list-style-type: none"> • Irrigation • Urban supply • Agriculture • Commercial fisheries
Institutional Setting				
Resource Management Authority	<ul style="list-style-type: none"> • Irrigation Districts • Port Authorities • Cities & counties (dozens) • State Fish & Wildlife Agencies (+/-17) • Federal Agencies (+/-12) • Columbia River Compact Commission • Intertribal Fish Commission • International Columbia River Board of Control 	<ul style="list-style-type: none"> • Primary cities (5) • Other cities, counties and townships (hundreds) • State Agencies (+/-15) • Federal Agencies (+/-20) 	<ul style="list-style-type: none"> • Irrigation Districts • Cities & counties (dozens) • State Agencies (+/- 13) • Federal Agencies (+/- 10) 	<ul style="list-style-type: none"> • Everglades Agricultural Area (EAA) • Cities & counties (dozens) • State Agencies (+/- 3) • Federal Agencies (+/- 7) • Tribal Entities (2)

+/- denotes estimate. Estimates are given because jurisdictional authority over resource management can change over time as policies and legal responsibilities change. Also, establishing lines of "authority" can be imprecise when some agencies operate as departments under larger administrative units.

In the Chesapeake Bay, the disposal of treated wastewater, run-off from industry and agriculture, and atmospheric pollution have diminished the quality of the bay's waters. The nutrients (mostly nitrogen and phosphorous) coming from these sources can lead to algal blooms and reduced dissolved oxygen levels, which are harmful to fish and the bay's underwater grasses that provide critical habitat for crabs and birds.²¹ Part of the problem can be attributed to the expansive population growth in this region—doubling between 1950 and 2000—as well as increasing intensification of agricultural practices in the upstream watersheds.²² Sedimentation, coming from urban development, agricultural practices, and overflows from upstream dams, has further inhibited water quality and species habitat throughout the bay's watershed. All of these factors, as well as growth and intensification of the fishing industry, have been associated with plummeting numbers of commercially and culturally important species like blue crab and oysters.

California Bay Delta's 700-square mile maze of islands and channels serves as the hub of the state's two largest water distribution systems, the Central Valley Project and the State Water Project, which pump water from the Delta for agricultural and municipal use throughout California.²³ Beginning in the 1930s, the Delta was re-engineered to divert some 60 percent of the natural flow into San Francisco Bay for urban, industrial, and agricultural uses.²⁴ A majority of Californians, some two-thirds of the state's residents, receive some or all of their drinking water from the Delta.²⁵ Despite the relative importance of the Delta, it faces serious ecological dilemmas. Fisheries are declining in the watershed at alarming rates. Migratory bird populations have decreased significantly. Saltwater intrusion and diversions of water from the Bay and Delta have negatively impacted the estuary's ecosystem and water quality. The vulnerability of the delta's levee system has resulted in considerable flood damage and increased salinity in the Bay.

While agricultural and urban run-off also has played a role in affecting the water quality conditions in the other three cases, dams and levees, which provide water supply to industry and agriculture, are major sources of resource degradation in the Florida Everglades. In

21. Chesapeake Bay Program, Nutrient Pollution, <http://www.chesapeakebay.net/nutr1.htm> (last visited Oct. 18, 2006).

22. See ERNST, *supra* note 16, at 24–25, 54.

23. See Sue McClurg, *A Briefing on the Bay-Delta and CALFED*, WATER EDUC. FOUND., <http://www.water-ed.org/calfeddeltabriefing.asp> (last visited Dec. 18, 2006).

24. David J. Hayes, *Federal-State Decisionmaking on Water: Applying Lessons Learned*, 32 ENVTL. L. REP. 11,253, 11,253 (2002).

25. Patrick Wright, *Fixing the Delta: The CALFED Bay-Delta Program and Water Policy Under the Davis Administration*, 31 GOLDEN GATE U. L. REV. 331, 333 (2001).

response to serious hurricane flooding in the 1940s, the Army Corps of Engineers (Corps of Engineers) constructed the Central and Southern Florida Project, a complicated system of levees that resulted in large-scale drainage of the Everglades. As a result, the Everglades have been reduced by 70 percent, and, on average, some 1.7 billion gallons of water are discharged to the ocean every day.²⁶ One of the more dramatic changes has been the transformation of the farming region called the Everglades Agricultural Area just south of Lake Okeechobee. These wetlands have been transformed into fields of rice, sod, sugarcane, and winter vegetables.²⁷ The sugar industry dominates in this region, often exerting its political and economic muscles with significant social and environmental consequences.²⁸ The once-claimed "River of Grass,"²⁹ where shallow waters flowed southward from Lake Okeechobee to the south Florida coast, has become a fragmented collection of water "conservation areas" and public parks.³⁰ Today, south Florida is considered to be the largest hydrologically controlled system in the world.³¹ Ecological impacts from the extensive land-cover changes and habitat fragmentation include animal species decline and vegetative change.³² Reduced southward flows have caused hypersalinity in the southern estuaries, which has, in turn, devastated valuable fisheries and marine breeding grounds. Saltwater intrusion into groundwater basins in the region also threatens urban water supplies.

Although various resource management efforts have been undertaken over the years in each region to address some of the

26. See Florida Department of Environmental Protection, *About the Everglades*, <http://www.dep.state.fl.us/secretary/everglades/about.htm> (last visited Apr. 15, 2006).

27. G.H. Synder & J.M. Davidson, *Everglades Agriculture: Past, Present and Future*, in EVERGLADES 85-115 (S.M. Davis & J.C. Ogden eds., 1994).

28. See Mark Engler, *Cattail Country*, NEW INTERNATIONALIST, Dec. 2003, at 363. Engler chronicles human rights violations that occurred at the hands of sugar barons in Florida. *Id.* See also OpenSecrets.org, *The Politics of Sugar: The Battle of the Everglades*, http://www.opensecrets.org/pubs/cashingin_sugar/sugar09.html (last visited Oct. 18, 2006) (exploring the role of the sugar industry in the cleanup, with a keen look at federal campaign contributions).

29. MARJORY STONEMAN DOUGLAS, *THE EVERGLADES: RIVER OF GRASS* 6 (1947).

30. Carl Walters et al., *Experimental Policies for Water Management in the Everglades*, 2 ECOLOGICAL APPLICATIONS 189, 189 (May 1992).

31. Don Hinrichsen, *Waterworld*, 17 AMICUS J. 23, 23 (1995).

32. See Robert Walker & William Solecki, *South Florida: The Reality of Change and the Prospects for Sustainability*, 37 ECOLOGICAL ECON. 333, 333-37 (2001). The Florida panther, American crocodile, and Snail Kite have all experienced great declines in this region. Cattail marshes have replaced sawgrass, spreading extensively. Curtis Morgan, *Phosphorus Threat at Center of Debate on Florida Everglades Renewal*, MIAMI HERALD, May 12, 2003.

problems identified above,³³ the complexity of these problems and the multiple and competing uses of resources have often led to conflict in these regions. For example, in the Columbia Basin during the 1970s, groups were quite fragmented and politically contentious, with a "legacy of locally-driven water policy and long-held 'prior' claims."³⁴ In the Chesapeake Bay, states have feuded over policies and strategies to clean up the bay and protect species, while agricultural and development interests have fought vociferously against land management policies that would reduce the pollutants entering the bay.³⁵ Likewise, in California's Bay-Delta, "each of the major interest groups have been powerful enough to block each other in court or at the ballot box, but none has been powerful enough to enact their own agenda."³⁶ The Everglades also have been characterized by conflict:

Disputation is endemic to relations among agencies and people connected to the Everglades. The Corps of Engineers, the National Park Service, and the Fish and Wildlife Service have their territorial and cultural rivalries with each other and with outsiders. The Micosukkee tribe brings a lot of lawsuits against the other participants. The State of Florida and the federal government have differing views on the benefits to be delivered by restoration. The environmentalists oppose the sugar industry, and vice versa. The farmers in South Dade County are usually ticked off at the SFWMD [South Florida Water Management District] and the Everglades National Park.³⁷

INSTITUTIONAL DESIGN AND "CONSTITUTIONAL" STRUCTURE

In response to the ecosystem and institutional dilemmas discussed above, state, federal, and local actors have come together in

33. See Tanya Heikkila & Andrea K. Gerlak, *The Formation of Large-Scale Collaborative Resource Management Institutions: Clarifying the Roles of Stakeholders, Science, and Institutions*, 33 POL'Y STUD. J. 583, 583-612 (2005).

34. JOHN M. VOLKMAN, *A RIVER IN COMMON: THE COLUMBIA RIVER, THE SALMON ECOSYSTEM, AND WATER POLICY* 173 (1997) (Report to the Western Water Policy Advisory Commission).

35. ERNST, *supra* note 16, at 74-78, 81-84, 100-05.

36. Wright, *supra* note 25, at 332.

37. Mary Doyle, *Implementing Everglades Restoration*, 17 J. LAND USE & ENVTL. L. 59, 62 (2001).

each region to collaborate on policy and management actions.³⁸ This section briefly presents the “constitutional” structure of the four collaborative institutions—or the authorizing policies and agreements that founded these programs—as well as their overall missions or rules. The two more mature programs, the Northwest Power and Conservation Council’s Fish and Wildlife Program and the Chesapeake Bay Program, date back to the 1980s, while restoration of California’s Bay-Delta and the Florida Everglades can be traced to the 1990s. Table 2 provides an overview of each program’s mission and its authorizing policy.

TABLE 2: PROGRAM MISSION AND AUTHORIZING POLICY

	NWPCC Fish & Wildlife Program	Chesapeake Bay Program	CALFED Bay-Delta Program	Everglades Restoration Plan
Program Mission	Develop plans every 5 years to protect and rebuild fish and wildlife affected by hydropower in the Columbia basin & tributaries	Improve and protect water quality, fish, plants and other aquatic resources in the Bay’s estuarine system	Improve water supply and effectively implement environmental protections in California’s Bay Delta	Restore, preserve and protect the South Florida ecosystem as well as flood protection and water supply
Authorizing Policy & Year	Northwest Power Act (1980) & Interstate Agreement	Chesapeake Bay Agreements (1983, 1987, & 2000)	Record of Decision and Final Environmental Impact Report and Statement (2000)	Water Resources Development Act (2000)

The oldest of the four programs, the Northwest Power and Conservation Council (originally the Northwest Power Planning Council), was authorized by the 1980 Northwest Power Act³⁹ [Northwest Power Act], and prompted Oregon, Washington, Idaho, and Montana to enter into an interstate agreement for devising basin-wide planning for energy conservation and fish and wildlife protection in the Columbia River basin. One of the goals of the Council is to bring together the many actors involved in fisheries management in the Columbia basin for

38. It is important to note that each of these programs has emerged over time and they have taken concerted efforts to develop. Coordination has been facilitated by prior and related organizational efforts, substantial leadership, and extensive science and research on problem identification. *See generally* Heikkila & Gerlak, *supra* note 33 (discussing the factors shaping the creation and evolution of these programs).

39. Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act), 16 U.S.C. §§ 839(a)-(h) (1988 & Supp. IV 1992).

restoration planning and collaboration. These agencies include numerous federal agencies (U.S. Fish and Wildlife Service, Bureau of Reclamation, Corps of Engineers, Bureau of Land Management), state fish and wildlife departments, Bonneville Power Administration (BPA), irrigation districts, port districts, city governments, the Pacific Fisheries Management Council, and the Columbia Inter-tribal Fish Commission.⁴⁰ For the development of a basin-wide management plan for fish and wildlife, the Pacific Fisheries Management Council is required by the Northwest Power Act to integrate recommendations from these agencies while also taking into account the region's needs for an "efficient, economical, and reliable power supply."⁴¹ Because BPA (a federal authority) operates most of the dams on the Columbia River, the Northwest Power Act tasked BPA with funding the costs for the Council's Fish and Wildlife Program. Other federal agencies involved in managing the basin's dams and hydropower, like the Corps of Engineers, are responsible for acting in accordance with the plans devised by the council.

The Chesapeake Bay Program (CBP) also formed as a means to facilitate the coordination and implementation of a number of agreements among state, local, and federal actors. These agreements establish the basic goals that the program partners are supposed to collectively achieve. The first Chesapeake Bay Agreement, formed in 1983 among the governors of Virginia, Maryland, and Pennsylvania; the Mayor of Washington, D.C.; and the U.S. Environmental Protection Agency (EPA), aimed to coordinate plans "to improve and protect the water quality and living resources of the Chesapeake Bay estuarine systems."⁴² This very general, two-page agreement was expanded in 1987 to include 28 specific goals for water quality, aquatic species, population growth and development, public information and participation, and governance of the members.⁴³ Reducing levels of phosphorous and nitrogen entering the bay by 40 percent by the year 2000 was a major focus. The partners then set out a new agreement in June 2000 with five

40. VOLKMAN, *supra* note 34. See also U.S. GAO, COLUMBIA RIVER BASIN: A MULTILAYERED COLLECTION OF DIRECTIVES AND PLANS GUIDES FEDERAL FISH AND WILDLIFE ACTIVITIES (2004) (Report to Committee on Indian Affairs, U.S. Senate).

41. Northwest Power Act, 16 U.S.C. § 839(2).

42. Chesapeake Bay Program, 1983 Chesapeake Bay Agreement (1983), available at <http://www.chesapeakebay.net/pubs/1983ChesapeakeBayAgreement.pdf>. Congress formally authorized the EPA's participation in the program by enacting section 117 of the Clean Water Act (the Water Quality Act of 1987, Pub. L. 100-4 (codified at 33 U.S.C. ch. 26, § 1267 (2000))) and directing the EPA to add the Chesapeake Bay Program Office.

43. See Chesapeake Bay Program, 1987 Chesapeake Bay Agreement (1987), <http://www.chesapeakebay.net/pubs/199.pdf>.

overarching goals and over 100 strategic goals including increasing oyster populations, expanding the linkage of contiguous forests through conservation easements, removing the bay and tributaries from EPA's list of "impaired waters," and lowering the rate of conversion of forest and agricultural lands to development.⁴⁴ The program partners relied on substantial stakeholder involvement from hundreds of citizens, resource managers, scientists, and policymakers in establishing these goals.⁴⁵

The CALFED Program is intended to provide a roadmap for the management of California water and to resolve years of conflict over water use and environmental protection. CALFED began in 1994 as a forum in which federal and state agencies could develop a single, comprehensive plan for the region. As a plan developed, CALFED evolved into a forum where agencies could coordinate their management actions and produce collaborative plans.⁴⁶ Today, this collaborative process involves 23 state and federal agencies with responsibilities for managing water supplies and protecting natural resources. The mission of the CALFED Bay-Delta Program is "to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta State."⁴⁷ The Record of Decision (ROD) and Final Environmental Impact Report and Statement (EIR/EIS) is the comprehensive plan for management of the Delta, addressing water supply reliability, water quality, ecosystem restoration, and levee system integrity.⁴⁸ The plan represents a compromise enabling the parties to move forward with studies for the

44. See Chesapeake Bay Program, Chesapeake 2000 Agreement (2000), <http://www.chesapeakebay.net/agreement.htm> (last visited Nov. 4, 2006).

45. Chesapeake 2000 Agreement, General Information (2000), <http://www.chesapeakebay.net/c2k.htm> (last visited Nov. 4, 2006).

46. CALFED developed historic and extraordinary proposals in a largely collaborative manner, institutionalizing a new approach to water management that is both flexible and outcome-oriented. See Connick & Innes, *supra* note 4, at 183.

47. Cal. Bay-Delta Auth., Mission Statement, <http://calwater.ca.gov/AboutCalfed/AboutCalfed.shtml> (last visited Oct. 21, 2006).

48. See generally CALFED BAY-DELTA PROGRAM, FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT REPORT (2000) (EIS/EIR prepared in compliance with the National Environmental Policy Act). The ROD includes plans to build at least three million acre-feet of new storage in the Sacramento Valley, 250,000 acre-feet of storage on the delta, and two million acre-feet of new storage in the San Joaquin Valley. It provides for feasibility studies on 14 projects to help identify the three to five most feasible projects. The EIR and the ROD do not approve specific actions, however. Specific projects will be subject to the required environmental review under CEQA and NEPA when they are actually funded and considered for governmental permits or approvals. CALFED BAY-DELTA PROGRAM, PROGRAMMATIC RECORD OF DECISION (ROD), (Aug. 28, 2000), available at <http://calwater.ca.gov/Archives/GeneralArchive/rod/ROD.pdf> [hereinafter CALFED BAY-DELTA PROGRAM ROD].

most promising storage projects with the agreement that a final decision to proceed with a specific project would be made later with plenty of opportunity for public comment.⁴⁹ The CALFED Program has come under intense scrutiny by the state in the past few years, which will likely impact the collaborative institutions and processes there.

Similar to CALFED, the Comprehensive Everglades Restoration Plan (CERP) is a joint federal-state restoration effort. Considered by some to be one of the largest and most expensive ecological restoration efforts underway,⁵⁰ the details of this plan span some 4,000 pages in ten volumes.⁵¹ CERP is the result of the Central and Southern Florida Project Comprehensive Restudy, a full review of the region's water management scheme conducted by the Corps of Engineers as mandated by Congress beginning in the early 1990s.⁵² Congress asked the Corps of Engineers to make recommendations for restoring and preserving the remaining wetlands in Loxahatchee National Wildlife Refuge and the Everglades National Park while at the same time making more water available to expanding urban areas and the Everglades Agricultural Area. The objective of the Plan is to restore and protect the South Florida ecosystem while also providing for other water-related needs of the region, including water supply and flood protection.⁵³ When fully implemented, it is expected to bring an additional 1.7 billion gallons of fresh water per

49. Between January 2000 and summer 2000, negotiations between the stakeholders hastened because of the 2000 presidential election. See generally Wright, *supra* note 25 (providing a summary of the negotiations and the reactions that followed). The ROD focuses on raising and enlarging existing dams and reservoirs to increase surface water storage supplies. It promotes a staged solution for through-Delta conveyance where, during the first seven years, steps would be taken to improve the existing through-Delta conveyance by widening key channels, installing new fish screens, and boosting pollution prevention programs. If these efforts do not provide enough fish protection and drinking water quality, the parties will turn to constructing an isolated channel around the estuary. CALFED BAY-DELTA PROGRAM ROD, *supra* note 48.

50. Alice L. Clarke & George H. Dalrymple, *\$7.8 Billion for Everglades Restoration: Why Do Environmentalists Look So Worried?*, 24 POPULATION & ENV'T 541, 541 (2003).

51. See U.S. ARMY CORPS OF ENG'RS & S. FLA. WATER MGMT. DIST., CENTRAL AND SOUTHERN FLORIDA PROJECT COMPREHENSIVE REVIEW STUDY: FINAL INTEGRATED FEASIBILITY REPORT AND PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (1999).

52. Water Resources Development Act of 1992, Pub. L. No. 102-580 § 309(l), 106 Stat. 4797, 4844-45.

53. U.S. ARMY CORPS OF ENG'RS & S. FLA. WATER MGMT. DIST., A VISION STATEMENT FOR THE COMPREHENSIVE EVERGLADES RESTORATION PLAN 1 (2003), available at http://www.evergladesplan.org/pm/pm_docs/cerp_vision_statement.pdf. Florida's Department of Environmental Protection notes that "[n]ot only are these goals complementary, they are intrinsically intertwined and cannot be separated by man or nature." Everglades Forever Act, About the Comprehensive Everglades Restoration Plan, <http://www.dep.state.fl.us/evergladesforever/restoration/cerp.htm> (last visited Dec. 18, 2006).

day to South Florida and restore approximately 2.4 million acres of the Everglades ecosystem.⁵⁴

POLICYMAKING IN COLLABORATIVE INSTITUTIONS: COLLECTIVE CHOICE STRUCTURES

To achieve the missions of each of these programs, participants must collectively decide upon the rules and policies for implementing the program. In the following sections we consider how those “collective choice” or program policy decisions are structured. We first describe the main governing or collective choice bodies and then describe the advisory bodies that inform these decision makers. Table 3 provides a snapshot of the characteristics of the four programs, which we further describe below.

Collective Choice Structure: Governing Bodies

1. *Columbia River*

The Northwest Power and Conservation Council, which formulates and approves fish and wildlife and electric power plans in the Columbia basin, includes eight appointed representatives (two from each member state). One member serves as chair and another as vice-chair. Their terms of membership vary by state.⁵⁵ The Council also has committees—Executive, Fish and Wildlife, Power, and Public Affairs—that the members sit on. The Council members approve program plans for power and fish and wildlife (updated every five years). A staff of about 45 professionals, including an Executive Director appointed by the Council, help administer the program’s offices, coordinate program implementation, and address legal issues and public affairs. The Council meets once per month in an open public meeting to make decisions on program planning and implementation issues.⁵⁶

54. Press Release, The White House, Another Step Forward for Everglades Restoration (Jan. 9, 2002) (on file with author).

55. Nw. Power & Conservation Council, Council Members, <http://www.nwcouncil.org/contact/members.asp> (last visited Nov. 4, 2006).

56. See Nw. Power & Conservation Council, News, <http://www.nwcouncil.org/news/Default.asp> (follow “Meetings” hyperlink).

TABLE 3: CHARACTERISTICS OF LARGE-SCALE COLLABORATIVE GOVERNANCE

	NWPCC Fish & Wildlife Program	Chesapeake Bay Program	CALFED Bay-Delta Program	Everglades Restoration Plan
Collective Choice Body	Northwest Power & Conservation Council	Chesapeake Bay Program Executive Council	California Bay-Delta Authority	South Florida Ecosystem Restoration Task Force
Structure of Collective Choice Body	<ul style="list-style-type: none"> • Two representatives appointed by governors from each state (OR, WA, ID, MT) to Council. • Council appoints Executive Director, and hires 45 professional staff for research and planning 	<ul style="list-style-type: none"> • Governors of VA, PA, MD, Mayor of DC, EPA rep, and the Chair of the Chesapeake Bay Commission comprise Executive Council (EC). • EC agrees on program goals and appoints professional staff. • Implementation Committee & 8 subcommittees support EC 	<ul style="list-style-type: none"> • Representatives from 6 state and 6 federal agencies; 5 regional, public members appointed by the governor; a member of the Bay-Delta Public Advisory Committee and 2 at-large public members appointed by chairs of the Assembly and Senate water committees • Authority hires 65 professional staff (state employees) and 15 federal staff (under Bureau of Reclamation) 	<ul style="list-style-type: none"> • 7 members appointed by federal agencies, 2 state members recommended by the governor, 1 member from the South Florida Water Management District, 2 members from local governments recommended by the governor, and 2 tribal members • Task force hires Executive Director, who may appoint staff or borrow staff from member agencies
Advisory Bodies	<ul style="list-style-type: none"> • Independent Science Advisory Board • Independent Economic Analysis Board • Independent Scientific Review Panel 	<ul style="list-style-type: none"> • Scientific and Technical Advisory Committee • Citizen Advisory Committee • Local Government Advisory Committee 	<ul style="list-style-type: none"> • Science Program • Independent Science Review Board • Ecosystem Restoration Program Science Review Board • Public Advisory Board 	<ul style="list-style-type: none"> • Water Resources Advisory Committee • South Florida Ecosystem Restoration Science Coordination Group • REstoration COordination and VERification Team • Committee on Restoration of the Greater Everglades Ecosystem • Independent Scientific Review Panel

Decisions about program plans are not made by the Council's members and staff alone. Public input and external agency consultation have been formally established within the governance structure of the Council under the Northwest Power Act. The Council is directed to seek recommendations for the Fish and Wildlife Plan from various tribal,

state, and federal fish and wildlife agencies. Hearings must also be held in each member state before adoption of the Council's plans.⁵⁷

The collaborative planning process and participation by the public in the Council's Fish and Wildlife Plans have evolved over the years. During the 1980s, the Fish and Wildlife Plan focused heavily on improving passage for salmon at mainstem dams, and the Council was criticized for failing to take into account many stakeholder interests. By the early 1990s, as a result of lawsuits against the Council, as well as some endangered species rulings, the Council began a series of revisions to its Fish and Wildlife Plan.⁵⁸ The Council included input from a federal appeals court and from federal agencies, state water and land managers, and numerous tribes in its 1994/1995 Plan.⁵⁹ More recently, the Council has had even more extensive input in decision making in coming up with its 2000 Plan. The plan received over 2,000 pages in feedback from stakeholders.⁶⁰

2. Chesapeake Bay

The Chesapeake Bay Program's (CBP) governance structure has some similarities to the Northwest Power and Conservation Council in that it has an appointed council from its member governments as well as a staff of 70, hired under the U.S. EPA's Chesapeake Bay Program Office, to aid in implementing the program. Like the Northwest Power and Conservation Council, the CBP has an Executive Council that is comprised of the governors of Virginia, Maryland, and Pennsylvania; the Mayor of Washington, DC; as well as a representative from the U.S. Environmental Protection Agency (EPA) and the Chair of the Chesapeake Bay Commission. The Executive Council meets yearly to set broad program goals and establish program policies, which are

57. The Council has been criticized for not paying adequate attention to the interests of outside stakeholders. During the 1980s, for example, some have noted that the structure of the council really catered to the interests of the states and governors, and tribes and wildlife agencies did not have much input. See Douglas W. Dompier, *Commentary*, in *THE NORTHWEST SALMON CRISIS: A DOCUMENTARY HISTORY 203-05* (Joseph Cone & Sandy Ridlington eds., 1996). Additionally, lawsuits were brought against the Council in the early 1990s for its salmon recovery plans. See *NW. POWER & CONSERVATION COUNCIL, 1994 COLUMBIA RIVER BASIN FISH AND WILDLIFE PROGRAM 1-3* (Council Doc. 94-55, 1994), available at <http://www.nwcouncil.org/library/1994/Default.htm>; see also *Nw. Res. Info. Ctr., Inc. v. Nw. Power Planning Council*, 35 F.3d 1371 (9th Cir. 1994) (case consolidating the various lawsuits).

58. *NW. POWER & CONSERVATION COUNCIL, BRIEFING BOOK 14-26* (2005), <http://www.nwcouncil.org/library/2005/2005-1.pdf>.

59. *Id.* at 40.

60. *Id.* at 15.

voluntary agreements.⁶¹ The program commits program partners to establishing various regulatory and non-regulatory tools that can be used to collectively meet its goals.

To support the decision-making processes of the Executive Council, an Implementation Committee coordinates the development and evaluation of management plans for the Bay. The Implementation Committee meets every six weeks and includes representatives from the Bay Agreement signatories, federal agencies, and chairs of subcommittees.⁶² A Federal Agencies Committee and Budget Steering Committee report to the Implementation Committee in order to assist in coordination among program partners. The Executive Council also has a Principal's Staff Committee, which includes policy and environmental representatives appointed by the governors, mayor, the EPA regional administrator, and the Bay Commission.

The committee system that underlies the Chesapeake Bay Program allows for a relatively decentralized input process on program planning and decisions. Much of the information that feeds into the Implementation Committee, in fact, comes from the Program's eight subcommittees (including Nutrients, Toxics, Monitoring, Modeling, Living resources, Land-growth, Communications, and Management Information) and numerous workgroups (the number of which vary depending on need).⁶³ Voluntary participation on these committees and groups typically comes from the various resource management agencies in the member jurisdictions as well as universities. Program staff also serve on committees and workgroups to provide needed technical and administrative support. The committees meet individually, typically on a monthly basis and report annually to the Program's Executive Council, Staff Committee, and Implementation Committee. Often subcommittees report more frequently on upcoming issues at the regular Implementation Committee meetings. For example, the Monitoring Subcommittee has a primary role in establishing priorities for monitoring, organizing,

61. See Chesapeake Bay Program, Executive Council, <http://www.chesapeakebay.net/committee.htm> (follow "Executive Council" hyperlink) (last visited Sept. 15, 2006); Interview with Rebecca Hanmer, U.S. EPA, Chesapeake Bay Program Office Dir. (June 16, 2005).

62. Chesapeake Bay Program, *supra* note 61 (follow "Implementation Committee" hyperlink) (last visited Dec. 18, 2006).

63. See Chesapeake Bay Program, Committee Activities Information, <http://www.chesapeakebay.net/committee.htm> (last visited Sept. 15, 2006). Recently, the Implementation Committee began to consider proposals to reorganize its subcommittees and workgroups to focus on emerging priorities in the bay, particularly tributary strategies and development related issues. Chesapeake Bay Program, Meeting Minutes for the Chesapeake Bay Program's Implementation Committee 4-5 (2005), available at http://www.chesapeakebay.net/pubs/calendar/IC_10-19-05_Minutes_1_5516.pdf.

and integrating data collection and analysis for the different internal and external actors involved in the Chesapeake Bay Program. By doing so, the subcommittee is able to frequently update the Implementation Committee on pertinent monitoring issues. This structure is by no means set in stone. In October of 2005, the Implementation Committee began discussing possible ways to reorganize the CBF's committee structure in order to address some of the emerging challenges in the Bay, such as stormwater management, more effectively.⁶⁴

3. California Bay-Delta – Sacramento and San Joaquin Rivers

The CALFED process produced agreement on the design of this commission of diverse stakeholders to oversee the state water management effort. In 2003, the California Bay-Delta Authority (the Authority), a consortium of federal and state agencies, was charged with managing water supplies and ecosystems within the Sacramento-San Joaquin Delta and overseeing implementation of a Record of Decision.⁶⁵ The Authority has met four to five times a year to discuss critical financial issues, report on implementation progress, and outline the pertinent scientific findings for the region.⁶⁶ The Authority is designed to provide accountability, ensure balanced implementation, track and assess program progress, ensure the use of sound science, assure public involvement and outreach, and coordinate and integrate related government programs.⁶⁷ Housed in Sacramento, the executive director manages a senior staff of almost a dozen. The 24-member Authority includes representatives from state and federal agencies, regional bodies, and public members appointed by the governor.⁶⁸ Similar to the

64. *Id.* The Implementation Committee followed up with a more in-depth discussion of options for reorganization in December of 2005 and has agreed to conduct a more formal investigation of the various options. Chesapeake Bay Program, Meeting Minutes for the Chesapeake Bay Program's Implementation Committee 5-8 (2005), available at http://www.chesapeakebay.net/pubs/calendar/IC_12-15-05_Minutes_1_5520.pdf.

65. California Bay-Delta Authority Act, CAL. WATER CODE §§ 79,400-79,476 (West 2004). In 2004, Congress passed legislation formally authorizing the participation of the federal agencies on the Authority. Water Supply, Reliability, & Environmental Improvement Act, Pub. L. No. 108-361, 118 Stat. 1681 (2004).

66. All meeting and presentation materials are available at <http://calwater.ca.gov/CBDA/CBDAMeetingMaterialsPast.shtml> (last visited Aug. 20, 2006).

67. Cal. Bay-Delta Auth., Facts, http://calwater.ca.gov/CBDA/adobe_pdf/CBDA_FactSheet.pdf.

68. The six state agencies participating include California Resources Agency, Department of Water Resources, Environmental Protection Agency, Department of Fish and Game, Department of Health Services, and Department of Food and Agriculture. The six federal participants include Bureau of Reclamation, Fish and Wildlife Service, Department of the Interior, Environmental Protection Agency, Army Corps of Engineers,

Northwest Power and Conservation Council's and the Chesapeake Bay Program's collective choice bodies, the Authority does not have any regulatory power, but serves to play a coordinating and supervisory role over all of the CALFED agencies. Unlike the Northwest Power and Conservation Council and the Chesapeake Bay Program, however, the Authority does not have a particularly stable funding source.⁶⁹

In recent years, some state officials have been critical of the CALFED Program and the Authority.⁷⁰ In summer 2005, amidst a fish collapse in the Delta and some dissatisfaction with the progress of the CALFED Program, Governor Schwarzenegger initiated a review of the Program.⁷¹ The Authority's first Executive Director, Patrick Wright, resigned amidst the controversy.⁷² Morale at the Authority fell to an all time low.⁷³ The Governor's review was a three-pronged approach that involved an examination of CALFED governance issues by the Little Hoover Commission, a program and fiscal review by the California Department of Finance, and an independent consultant firm's analysis of stakeholder priorities and expectations.

In November 2005, the Little Hoover Commission released its report, calling for a significant modification of CALFED's governance structure. The report was particularly critical of the Authority. It found that, "[b]ecause of faulty design, the CBDA [California Bay-Delta Authority] cannot effectively coordinate activities, push agencies to perform, or provide rigorous oversight. It is unable to control or

and National Marine Fisheries Service. The federal members are currently non-voting participants. A member of the Bay-Delta Public Advisory Committee and two at-large public members appointed by chairs of the Assembly and Senate water committees also serve on the Authority. See Cal. Bay-Delta Auth., California Bay-Delta Authority Members, <http://calwater.ca.gov/CBDA/CBDAMembers.asp> (last visited Nov. 4, 2006).

69. Executive Director Joseph Grindstaff argues that the lack of a stable funding source for the Authority threatens ecosystem restoration in the region. Interview with Joseph Grindstaff, Exec. Dir., Cal. Bay-Delta Auth., in Sacramento, Cal. (Aug. 9, 2005).

70. See Hank Shaw, *Closing Down CalFed: Funding for Delta Water Project Likely to Get Yanked*, STOCKTON REC., Apr. 20, 2005, available at <http://online.recordnet.com/articlelink/042005/news/articles/042005-gn-3.php>; Mike Taugher, *Despite Spending Billions, CalFed Can't Fix Delta*, CONTRA COSTA TIMES, May 1, 2005, at A1.

71. Cal. Bay-Delta Auth., Revitalizing CALFED—Independent Review, <http://calwater.ca.gov/content/NewPages/IndependentReview.shtml> (last visited Nov. 4, 2006). See also Jody Freeman & Daniel A. Farber, *Modular Environmental Regulation*, 54 DUKE L.J. 795, 872-73 (2005) (questioning Governor Schwarzenegger's commitment to CALFED).

72. Press Release, State of Cal. Resources Agency, CALFED Director Patrick Wright Reassigned to Resources Agency (May 25, 2005), available at http://calwater.ca.gov/Newsroom/NewsReleases_2005/Resources_Agency_Wright_Grindstaff_Announcement_5-25-05.pdf; see also Mike Taugher, *Bay-Delta Authority Head Exits*, CONTRA COSTA TIMES, May 26, 2005, at A1.

73. Based on author's observations from August 2005 visit to the region.

cajole.”⁷⁴ The Commission recommended replacing the Authority with a new governance structure, highlighted by a policy group of high-level state and federal officials, co-chaired by the U.S. Secretary of the Interior and the California Secretary of Resources.⁷⁵ The report also called attention to the need for strong leadership, independent frequent program review, and better public involvement mechanisms.⁷⁶ Some see these recommendations as a return to the old “traditional governance model, with a lot of talk about authority; accountability; clear, predefined goals; performance measures; and exhortations for top-down leadership.”⁷⁷

The program review conducted by the California Department of Finance also found significant coordination difficulties related to the CALFED Program.⁷⁸ In a fairly comprehensive review of each of

74. LITTLE HOOVER COMM'N, STILL IMPERILED, STILL IMPORTANT: A REVIEW OF THE CALFED BAY-DELTA PROGRAM 1 (2005), available at <http://www.lhc.ca.gov/lhcdir/183/report183.pdf> (providing a letter from Michael E. Alpert, Chairman, to Governor Schwarzenegger and members of the Legislature (Nov. 17, 2005)).

75. *Id.* at xi. The recommended policy group is similar to CALFED's old governance structure prior to the creation of the CALFED Bay-Delta Authority. The precursor to the Authority was the Policy Group, a coalition of state and federal agencies that has met regularly since 1995 to develop a long-term solution for the region. The Policy Group was co-chaired by the Department of the Interior's Assistant Secretary for Water and Science and the California Resources Agency Secretary and included the heads of the CALFED agencies. The Policy Group oversaw the preparation of the Programmatic EIS and worked for five years with various representatives to develop the final EIS/EIR. Agencies met to discuss and share priorities, work plans, and budgets to ensure effective implementation. The Policy Group was superseded by the Authority when it took effect in 2003. JUDITH E. INNES ET AL., *COLLABORATIVE GOVERNANCE IN THE CALFED PROGRAM: ADAPTIVE POLICY MAKING FOR CALIFORNIA WATER* 16-17 (Inst. of Urban & Regional Dev., Univ. of Cal., Berkeley & Ctr. for Collaborative Pol'y, Cal. State Univ., 2006), available at http://www.csus.edu/ccp/publications/collab_governance_CALFED_abstract.htm.

76. See LITTLE HOOVER COMM'N, *supra* note 74, at v-ix.

77. Judith E. Innes et al., Inst. of Urban & Reg'l Dev., *Collaborative Governance in the CALFED Program: Adaptive Policy Making for California Water* 50 (Inst. of Urban & Reg'l Dev., Working Paper No. 2006-01, 2006), available at <http://repositories.cdlib.org/cgi/viewcontent.cgi?article=1044&context=iurd>.

78. CAL. DEPT OF FIN., DRAFT REPORT: IMPLEMENTATION STATUS OF THE CALFED BAY-DELTA PROGRAM, YEARS 1 THROUGH 5, at 7 (2005), available at http://www.calwater.ca.gov/Revitalizing_CALFED/Cal_Fed_Report_11-05.pdf.

In some cases, the management staff at the Authority did not appear actively engaged with implementing agency staff....In another case, implementing agency staff indicated that they did not view the ROD as a guiding document nor perceive their agency to be an implementing agency. We also observed that although the Authority provides an effective forum for the CALFED agencies to meet and discuss interrelated program issues, the time and resource required for interagency coordination as well as consensus building may result in inefficiencies in the implementation process.

CALFED's eleven program areas, their report highlighted implementation achievements only in the areas of increased groundwater storage and watershed management.⁷⁹ The Department of Finance's fiscal review found "state implementing agencies lack sufficient procedures for recording and reporting complete and accurate expenditures by program element."⁸⁰ They suggested several ways to improve financial accounting for both state implementing departments and the CALFED Bay-Delta Authority.⁸¹ The independent consulting firm hired to review the internal management of the CALFED Bay-Delta Authority found considerable uncertainty related to the CALFED Program's governance doctrine, which defines organizational structure, authority, funding, and the roles and responsibilities of all participating agencies.⁸²

Following these independent reviews of the CALFED Program, the Authority released a 10-year action plan in December 2005 to provide its direction for the Program's future. The plan embraces many of the recommendations of the Little Hoover Commission, including the establishment of a new executive council (similar to the Commission's proposed policy group) and a new state advisory committee.⁸³ Under their plan, Authority staff would be moved to the state Resources Agency, under the direction of the Secretary for Resources, in order to better support the executive council.⁸⁴ The Plan focuses on "direct

Id. at 7.

79. *Id.* at 3-4.

80. *Id.* at i-ii (providing a letter from Michael C. Genest, Acting Director to Michael Chrisman, Secretary of California's Resources Agency (Nov. 17, 2005)); see also Cal. Dep't of Fin., *Fiscal Review 1* (November 2005), available at http://calwater.ca.gov/Revitalizing_CALFED/CALFED_Fiscal_Review_11-05.pdf.

81. CALFED Bay-Delta Authority, California Department of Finance, *Fiscal Review, Observations 11-12* (Nov. 2005), available at http://calwater.ca.gov/Revitalizing_CALFED/CALFED_Fiscal_Review_11_05.pdf.

82. KPMG, *CALFED Interview and Survey Findings 2* (Oct. 17, 2005), available at http://www.calwater.ca.gov/Revitalizing_CALFED/KPMG_CALFED_Survey_10-17-05.pdf. The consulting firm also found that one of the "most frequent achievements of the CALFED Program identified by stakeholders was the reduction in litigation surrounding the Delta." *Id.* at 2.

83. CALFED Bay-Delta Program, *10-Year Action Plan Framework 2* (Dec. 15, 2005), available at http://www.calwater.ca.gov/CBDA/AgendaItems_12-20-05/Meeting_Materials_12-20-05.pdf. The Plan also recommends significant program and fiscal management changes, *id.* at 3, the development of a 100-year Delta Vision that includes improved scientific and public participation mechanism, *id.* at 10-11, the creation of a Habitat Conservation Plan for the region, *id.* at 11, and the establishment of the "beneficiary pays" principle, *id.* at 12-13.

84. *Id.* at 2.

actions" that can be implemented in the short term to keep the Program moving forward.

4. Florida Everglades

In the Florida Everglades, the South Florida Ecosystem Restoration Task Force, composed of federal, state, local, and tribal representatives, is charged with coordinating and facilitating the overall restoration effort.⁸⁵ The Task Force traces its roots to the Water Resources Development Act of 1992, when Congress authorized the creation of the Interagency South Florida Ecosystem Restoration Task Force and directed the Corps of Engineers to initiate a comprehensive review of the Central and South Florida Project.⁸⁶ In 1996, the Interagency Federal Task Force was expanded to become the South Florida Ecosystem Restoration Task Force and was charged with coordinating restoration efforts.⁸⁷ The Task Force evolved over the years, clarifying its mission, promoting public participation, and incorporating social and scientific research.⁸⁸ The Task Force has three goals: (1) restoring more natural hydrologic functions of the ecosystem while still providing adequate water supply and flood control; (2) restoring and enhancing the natural system, including lost habitats, halting the spread of invasive species, and recovering threatened and endangered species; and (3) transforming the built environment by rebuilding and revitalizing urban cores to curtail outward sprawl.⁸⁹

The Task Force includes a Florida-based Working Group, whose mission is to support the Task Force's efforts to achieve the restoration, preservation, and protection of the ecosystem while promoting a sustainable South Florida.⁹⁰ Among other things, the Working Group is

85. See S. Fla. Ecosystem Restoration Task Force, <http://www.sfrestore.org> (last visited Oct. 26, 2006). The Task Force is composed of 14 members: seven representing federal agencies, two tribal representative, two representing the state of Florida, and three local governmental representatives. See *id.* (follow "Task Force" hyperlink; then follow "Membership" hyperlink).

86. See Water Resources Development Act of 1992, Pub. L. No. 102-580, 106 Stat. 4797.

87. See Water Resources Development Act of 1996 § 528, 110 Stat. at 3767.

88. STUART LANGTON & WALTER A. ROSENBAUM, FLA. CTR. FOR ENVTL. STUDIES, HISTORICAL HIGHLIGHTS OF THE SOUTH FLORIDA ECOSYSTEM TASK FORCE (2000), available at <http://www.sfrestore.org/tf/HISTORICAL%20HIGHLIGHTS.pdf> (discussion aide).

89. U.S. GAO, SOUTH FLORIDA ECOSYSTEM RESTORATION: SUBSTANTIAL PROGRESS MADE IN DEVELOPING A STRATEGIC PLAN, BUT ACTIONS STILL NEEDED 5 (2001) (Report to the Subcommittee on Interior and Related Agencies, Committee on Appropriations, U.S. Senate).

90. Water Resources Development Act of 1996 § 528(f)(2)(D), 110 Stat. at 3771 (including 25 federal, state, local, and tribal representatives). See S. Fla. Ecosystem

responsible for providing the Task Force with draft biennial progress reports, financial plans, and updates to the strategic plan.⁹¹ Pertinent issues related to restoration are targeted in Special Issue Teams created by the Working Group, such as aquifer storage and recovery, dispute resolution, land acquisition, and sustainable agriculture. There are also Regional Restoration Coordination Teams for Biscayne Bay, Kissimmee Valley, and Southwest Florida. The Task Force does not include any non-governmental members.

Collective Choice Structure: Advisory Bodies

1. Columbia River

Each of the four programs has advisory bodies that provide guidance to the collective choice bodies just discussed. In the case of the Northwest Power and Conservation Council, three formal advisory bodies were established in the mid-1990s for outside input into Council decision making. First, the Council has an Independent Scientific Advisory Board (ISAB), which is designed to provide recommendations on fisheries and wildlife recovery efforts in the basin, focusing specifically on the scientific merits of the Council's long-term plans. The Council and NOAA Fisheries (formerly National Marine Fisheries Service) created the eleven-member ISAB in 1996 to provide advice to both agencies (and now the Columbia Basin Indian Tribes as well) on Columbia River fish and wildlife management.⁹² To ensure that the ISAB is independent, the National Academy of Sciences must review recommended board members. In addition to broad programmatic reviews of management plans, the ISAB can commission "on call" groups who can assess more specific questions, such as the impact of hatchery fish on native salmon stocks. The ISAB meets regularly, as needed, to develop and produce reports that go to the Council.⁹³ ISAB members are paid for their service on the board.

Restoration Task Force, http://www.sfrestore.org/wg/workinggroup_members.html (last visited Oct. 23, 2006).

91. See ANN R. KLEE, S. FLA. ECOSYSTEM RESTORATION TASK FORCE, CHARTER, SOUTH FLORIDA ECOSYSTEM RESTORATION WORKING GROUP 1 (2003), available at <http://www.sfrestore.org/wg/2003wgcharter.pdf>.

92. The precursor to the ISAB was an Independent Scientific Group (ISG), which was created under the Council's 1994 Fish and Wildlife Plan.

93. The ISAB coordinates some of its work with NOAA Fisheries' Recovery Science Review Panel (RSRP) and Technical Recovery Teams (TRTs), which also provide scientific advice on salmon management and recovery issues in the region. Interview with Erik Merrill, Nw. Power & Conservation Council's ISAB & ISRP Coordinator, in Portland, Or. (July 12-14, 2005).

The Council has a second scientific advisory body for the Fish and Wildlife Program whose role is focused on guiding the Council's approval process for specific implementation projects. The 11-member Independent Scientific Review Panel (ISRP) was set up under 1996 amendments to the Northwest Power Act specifically to review projects proposed under the Council's Fish and Wildlife Plan.⁹⁴ Like the ISAB, the ISRP members must be approved by the National Academy of Sciences. The ISRP's mandate is to determine if projects are "based on sound science principles; benefit fish and wildlife; and have clearly defined objective and outcome with provisions for monitoring and evaluation of results."⁹⁵ The Council is then required to "fully consider the recommendations of the Panel when making final recommendations of projects" and "must respond in writing reasons for not accepting ISRP recommendations."⁹⁶ The ISRP receives support from a Peer Review Group (a pool of 100 scientists) who can participate in review processes as needed on an ad hoc basis.

Also created in 1996, the Council's Fish and Wildlife Program relies on input from an Independent Economic Analysis Board (IEAB). Eight economists sit on the board and aid with analyzing the cost-effectiveness of fish and wildlife recovery measures. IEAB members are nominated and reviewed by a panel of "peer economists" and are required to be free of conflicts of interest with Council activities.⁹⁷ Like the other three bodies, these members are paid for their work for the Council.

2. Chesapeake Bay

The Chesapeake Bay Program also has three advisory committees – Citizens, Scientific and Technical, and Local Government – designed to facilitate "external" input and communication into the program's decision-making structure. Each of the three committees meets quarterly in open public meetings and reports annually to the Executive Council and periodically to the Implementation Committee.

94. Northwest Power Act, Pub. L. No. 96-501, 94 Stat. 2697 (1980), amended by Pub. L. No. 104-206, § 512(4)(h)(10)(D)(ii), 110 Stat. 2984, 3005 (1996).

95. *Id.* § 512(4)(h)(10)(D)(iv).

96. *Id.* For a comprehensive review of the ISRP's review process and its decisions, see INDEP. SCI. REV. PANEL, RETROSPECTIVE REPORT 1997-2005 (2005), available at <http://www.nwcouncil.org/library/isrp/isrp2005-14.pdf>.

97. See JUDI DANIELSON, PAC. NW. ELEC. POWER & CONSERVATION PLANNING COUNCIL, CHARTER OF THE INDEPENDENT ECONOMIC ANALYSIS BOARD, <http://www.nwcouncil.org/fw/ieab/charter.htm> (last visited Oct. 23, 2006).

The Citizens Advisory Committee (CAC), which started in 1984, advises the CBP on stakeholder interests and concerns with the Bay's restoration and health.⁹⁸ The CAC includes 25 voting members from diverse community interests, including agriculture, industry, business, and conservation. In addition to communicating their interests to the CBP, they also aim to further their community's familiarity with and support of the program.

The Scientific and Technical Advisory Committee (STAC), which also started in 1984, provides scientific advice, including reports, workshops, and assistance with organizing programmatic reviews to the CBP.⁹⁹ While it reports to the Executive Council annually and periodically to the Implementation Committee, the STAC is set up so that it can respond quickly to CBP subcommittee and workgroup requests for scientific advice. The STAC has two to three appointees for each member state, the District of Columbia, and the headwater states, as well as six federal appointees and 18 at-large appointees. Appointees largely come from universities and some federal agencies.

Unlike the other three programs, the Chesapeake Bay Program utilizes a local government advisory body in addition to its scientific and citizen advisory bodies. The Chesapeake Bay Local Government Advisory Committee (LGAC), which started in 1988, has the goal of improving "the role local governments play in Bay restoration efforts" and creating "strategies to broaden local government participation in the Chesapeake Bay Program."¹⁰⁰ Members are appointed by the governors of the member states and the mayor of Washington, D.C.

3. California Bay-Delta – Sacramento and San Joaquin Rivers

The CALFED Program, like the Chesapeake Bay Program, has advisory bodies for both citizen and scientific input. The California Bay-Delta Public Advisory Committee (the Advisory Committee), established in 2001 by the California Bay-Delta Authority (the Authority), is a 30-member committee charged with advising state and federal CALFED agencies on all aspects of program implementation.¹⁰¹ The committee

98. See CHESAPEAKE BAY PROGRAM EXECUTIVE COUNCIL, CITIZENS ADVISORY COMMITTEE BYLAWS (1984), available at http://www.chesapeakebay.net/pubs/subcommittee/cac/CAC_Bylaws.pdf.

99. Chesapeake Bay Program, Scientific and Technical Advisory Committee, <http://www.chesapeake.org/stac/stacinfo.html> (last visited Oct. 23, 2006).

100. Chesapeake Bay Program, Local Government Advisory Committee, <http://www.chesapeakebay.net/committee.htm> (follow "Local Government Advisory Committee" hyperlink) (last visited Oct. 23, 2006).

101. Cal. Bay-Delta Auth., Public Advisory Committee, <http://calwater.ca.gov/BDPAC/BDPAC.shtml> (last visited Oct. 23, 2006).

boasts representatives from environmental, tribal, water, and industry groups.¹⁰² Presently, there are nine subcommittees. These include Delta Levee Habitat, Drinking Water Quality, Ecosystem, Environmental Justice, Steering Committee, Water Use Efficiency, Watershed, Water Supply, and Working Landscapes. The Advisory Committee is expected to exist through the end of Stage 1 of program implementation or the first seven years of the 30-year program.¹⁰³ The Bureau of Reclamation provides administrative and logistical support for the Committee. The Little Hoover Commission recently suggested the establishment of more meaningful public participation mechanisms including public forums and meetings to better raise public awareness in the region.¹⁰⁴ They also suggested replacing the current federally chartered Public Advisory Committee with a new state advisory committee.¹⁰⁵

CALFED's scientific advisory process is organized differently than its citizen advisory body. In 2003, CALFED's Science Program helped establish an Independent Science Board with scientists who provide external peer review on the various program elements.¹⁰⁶ The Board is designed to advise on the science relative to program implementation and provide insights on the science underlying CALFED's program goals rather than assess the success or failure of such programs. With over a dozen members, the Board includes academics who specialize in water policy, fisheries, engineering, geology, and oceanography. The Board has met a dozen times since its inception.¹⁰⁷

In addition to the Independent Science Board, there are also two independent science boards related to specific components of the CALFED Program. First, there is a science board for CALFED's Ecosystem Restoration Program. Convened by the Ecosystem

102. Cal. Bay-Delta Auth., Public Advisory Committee Members, http://calwater.ca.gov/BDPAC/BDPAC_Members.asp (last visited Oct. 23, 2006).

103. U.S. DEP'T OF INTERIOR, BUREAU OF RECLAMATION, CALIFORNIA BAY-DELTA PUBLIC ADVISORY COMMITTEE CHARTER (2003), available at http://calwater.ca.gov/BDPAC/BDPAC_and_Authority_Meeting_Packet_12-11-03.pdf.

104. LITTLE HOOVER COMM'N, *supra* note 74, at viii.

105. *Id.* at ix.

106. Authority to do so comes from the California Bay-Delta Authority Act (2003): The lead scientist shall nominate, and the authority shall establish, a board of independent scientists, to be known as the Independent Science Board [ISB], that shall advise and make recommendations to the authority and the Bay-Delta Public Advisory Committee, as appropriate, on the science relative to implementation of all program elements.

California Bay-Delta Authority Act, CAL. WATER CODE, § 79470(a) (West 2006).

107. Cal. Bay-Delta Auth., Meeting Agendas and Minutes, http://www.science.calwater.ca.gov/sci_tools/isb.shtml (last visited Oct. 23, 2006).

Restoration Program in 1999, it meets quarterly with program staff, the Science Program, and the public to discuss activities related to that program. A review panel has also been established for the Environmental Water Account, an innovative component of the CALFED Program. A variety of technical panels have also convened for short periods of time to address specific issues, such as mercury contamination, fish migrations and listings, in-delta storage, and levee breaches, to name a few.¹⁰⁸

4. Florida Everglades

The Comprehensive Everglades Restoration Plan also has set up an advisory structure to inform program planning and decision making, focusing on stakeholder input and science. To facilitate stakeholder input, in 2001 the South Florida Water Management District Governing Board established the Water Resources Advisory Commission (WRAC). Composed of citizens and business, agriculture, state, federal, local, and Indian Tribal government representatives, this stakeholder body is charged with the duty to recommend consensus-based solutions to water resource protection, water supply, flood protection, and Everglades restoration issues.¹⁰⁹ The South Florida Water Management District's Governing Board appoints members to the WRAC for two-year terms.¹¹⁰ The WRAC meets monthly and convenes "issue workshops" that are focused on specific issues. These workshops function like sub-committees where issues are presented and recommendations made.

In addition to the newly formed Water Resources Advisory Commission, there are presently two scientific groups that play an advisory role in the Everglades restoration effort.¹¹¹ The South Florida

108. Cal. Bay-Delta Auth., Boards & Panels—Technical Panels, http://science.calwater.ca.gov/sci_tools/standing_expert.shtml (last visited Oct. 23, 2006).

109. WATER RES. ADVISORY COMM'N, STANDARD OPERATING PROCEDURES 1 (2005).

110. Water Res. Advisory Comm'n, Water Advisory Committee—April 2005–March 2007, http://www.sfwmd.gov/gover/wrac/ref_mat/wrac_members.pdf; see also Water Res. Advisory Comm'n, Meeting Agendas and Minutes, <http://www.sfwmd.gov> (follow "governing board" hyperlink, then "WRAC" hyperlink, then "Agendas and Minutes" hyperlink) (last visited Oct. 23, 2006).

111. Following years of friction between the Task Force and the Committee on Restoration of the Greater Everglades Ecosystem (CROGEE), the oldest and original science advisory group, CROGEE was disbanded with the release of the new federal programmatic regulations in 2004. Email from John Ogden, Chief Environmental Scientist, Office of RECOVER, South Florida Water Management District, to author (Feb. 6, 2006, 10:46:35 AM MST) (on file with author). CROGEE was established in 1999 by the Department of the Interior in response to concerns raised by some in the environmental community. See generally Cyril T. Zaneski, *Big Ecological Guns Fault Plans for Everglades*, MIAMI HERALD, Jan. 30, 1999, at A1 (discussing environmentalist concerns). Working under the auspices of the

Ecosystem Restoration Science Coordination Group (SCG), established in 2003 in response to a critical Government Accounting Office (GAO) report, is designed to coordinate the scientific aspects of the various plans and programs and research associated with restoration of the South Florida ecosystem.¹¹² The SCG consists of both senior scientists and managers from the various federal, tribal, state, and local agencies.¹¹³

The REStoration COOrdination and VERification Team (RECOVER) is the second formal mechanism for incorporating science into the restoration efforts. An interdisciplinary, interagency team designed to develop tools to evaluate, monitor, and improve restoration, RECOVER is charged with applying scientific and technical information to ensure the success of the Everglades restoration program.¹¹⁴ Because it is focused primarily on the Plan, it has a much narrower mission than that of the SCG, but it also enjoys far greater funding than the SCG. Co-chaired by representatives from the South Florida Water Management District and the Corps of Engineers, and coordinated by a Leadership Group, RECOVER conducts its work in three technical teams: assessment, evaluation, and planning. “[Its] goals are to evaluate and assess plan performance, recommend improvements in the plan’s design

Water Science and Technology Board and the Board on Environmental Studies and Toxicology of the National Research Council, CROGEE provided a review of various aspects of CERP. Its mandate was to provide the Task Force with scientific overview and technical assessment of the restoration activities and plans “occurring at the federal, state, and nongovernmental levels.” NAT’L RESEARCH COUNCIL, DOES WATER FLOW INFLUENCE EVERGLADES LANDSCAPE PATTERNS? 2 (2003), available at <http://www.nap.edu/catalog/10758.html> (follow “Read this book online, free” hyperlink”) (last visited Oct. 23, 2006).

112. See KLEE, *supra* note 91. The SCG replaced the Science Coordination Team (SCT) established in 1997. Composed of only scientists from the Working Group, this group operated without a budget and relied on the volunteer services of their core members, agency officials who perform SCT work in addition to their other agency activities. The GAO highlighted these financial constraints in a 2003 report, noting that the Task Force has failed to give the Team any clear direction or sufficient resources to ensure that scientific activities are adequately coordinated. U.S. GAO, SOUTH FLORIDA ECOSYSTEM RESTORATION: TASK FORCE NEEDS TO IMPROVE SCIENCE COORDINATION TO INCREASE THE LIKELIHOOD OF SUCCESS 38–44 (2003), available at <http://www.gao.gov/new.items/d03345.pdf>. A member of both the earlier Science Coordination Team and the new Science Coordination Team cites communication difficulties over the nature of a “science plan” as the essence of the problem. Interview with Anonymous Interviewee (Aug. 15, 2005).

113. Approximately two-thirds of the SCG members are scientists, with the remaining one-third managers. Email from Terence “Rock” Salt, Executive Director, South Florida Ecosystem Restoration Task Force, to author (Aug. 3, 2005, 11:42:53). This is in sharp contrast to the disbanded Science Coordination Team composed of only senior agency scientists. S. Fla. Ecosystem Restoration Task Force, Science Coordination Group Membership, http://www.sfrestore.org/scg/scg_members.pdf.

114. Restoration Coordination & Verification (RECOVER), RECOVER’s Mission Statement, available at http://www.evergladesplan.org/pm/recover/recover_docs/recover_mission.pdf (n.d.).

and operational criteria, review the effects of other restoration projects on the plan's performance, and ensure a system-wide perspective."¹¹⁵

In addition to these two operating scientific advisory groups, the federal government and the state of Florida signed an agreement in 2004 to create an independent scientific review panel following publication of the final programmatic regulations.¹¹⁶ Efforts to establish a National Academy of Sciences peer review panel under the auspices of the South Florida Ecosystem Restoration Task Force have been rocky. In particular, there is the contentious question of what issues the panel would look at and who would determine the panel's work agenda. Recently, provisional committee members were chosen for the new Independent Scientific Review Panel.¹¹⁷

IMPLEMENTING AND MONITORING COLLABORATIVE INSTITUTIONS: OPERATIONAL STRUCTURES

The previous section discussed the governance or collective decision-making structures of the institutions that allow actors to decide upon shared restoration goals and establish the plans for achieving those goals. In this section, we consider how the four institutional arrangements engage in operational decision making for implementation and monitoring. As in the previous section, we are particularly interested in the ways in which collaboration across program participants and stakeholders occurs in implementation and monitoring.

Organizing Implementation

1. Columbia River

Implementation of the Northwest Power and Conservation Council's Fish and Wildlife Program requires participation by agencies or stakeholders that have responsibility for any activities that can affect the health or management of fish in the Columbia Basin (e.g., land management agencies, state and federal fish and wildlife agencies, land owners, and local governments). The Bonneville Power Administration

115. NAT'L RESEARCH COUNCIL, *supra* note 111, at 37.

116. See Establishment of an Independent Scientific Review Panel Pursuant to Section 601 of the Water Resources Development Act of 2000, U.S. Dep't of the Army-U.S. Dep't of the Interior-Fla., June 14, 2004, available at [http://www.sfrestore.org/tf/minutes/2004_meetings/feb04tfmtg/021604_Independent Science Review Panel MOA1.pdf](http://www.sfrestore.org/tf/minutes/2004_meetings/feb04tfmtg/021604_Independent%20Science%20Review%20Panel%20MOA1.pdf).

117. Provisional committee members are listed and public comment is available. See Nat'l Acad., Independent Scientific Review of Everglades Restoration Progress, <http://www8.nationalacademies.org/cp/projectview.aspx?key=WSTB-U-03-04-A> (last visited Oct. 23, 2006).

(BPA) then provides the funding for implementing the program through revenues from electricity rates; it currently spends about \$139 million in revenues on the Council's Fish and Wildlife Program.¹¹⁸

Operational decision making for the Council's program presently works in somewhat of a two-pronged approach. First, the traditional operating approach of the program is that the Council receives proposals from state, local, and tribal governments, as well as universities and conservation organizations, who want to obtain funding to undertake fish and wildlife recovery projects.¹¹⁹ For example, projects that the Council recommended to BPA for funding in 2006 included activities such as restoring habitat along the riparian areas of streams, improving fish passage in streams, and conducting population studies of species in the basin.¹²⁰ The Council reviews and approves hundreds of these types of projects each year if they meet the goals of the program. The goals generally focus on mitigating the effects of the four "H's" – hydropower, hatcheries, habitat, and harvest – which can diminish populations of native salmon and other wildlife.¹²¹ These projects are reviewed and organized at the "provincial" level of the Columbia basin, but they are not systematically coordinated into an ecosystem-based approach.

Another way the Council implements its Fish and Wildlife Program is through the sub-basin planning process it developed under the 2000 Plan. Unlike previous Fish and Wildlife Program Plans, the 2000 Plan requires sub-basin plans for the basin's sixty-two tributaries.¹²² In line with the Northwest Power and Conservation Council's mission for public input, the sub-basin plans have been developed by local stakeholders in the sub-basins. To facilitate the plans, the Council has

118. Funding has been relatively stable over the history of the Fish and Wildlife Program but has occasionally been problematic. In 2003, a fiscal crisis at Bonneville Power Authority forced the Council to limit funding increases for individual projects. BPA also placed a 25 percent spending cap for project sponsors to spend on the monitoring and evaluation of their projects. Interview with John Shurts, General Counsel, Nw. Power & Conservation Council, in Portland, Or. (July 15, 2005). *See also* NW. POWER & CONSERVATION COUNCIL, FOURTH ANNUAL REPORT TO THE NORTHWEST GOVERNORS ON EXPENDITURES OF THE BONNEVILLE POWER ADMINISTRATION 1978–2003 (2005), available at <http://www.nwcouncil.org/library/2005/2005-9.pdf> (discussing the expenditures BPA has made over the life of the program).

119. NW. POWER PLANNING COUNCIL, COLUMBIA RIVER BASIN FISH AND WILDLIFE PROGRAM 10 (2000), available at <http://www.nwcouncil.org/library/2000/2000-19/FullReport.pdf>.

120. *See* Nw. Power & Conservation Council, FY 2006 Project/Budget Review, available at <http://www.nwcouncil.org/fw/budget/2006/Default.asp> (last visited Oct. 23, 2006).

121. NW. POWER PLANNING COUNCIL, *supra* note 119, at 7.

122. *Id.* at 7–8, 37.

worked with the Columbia Basin Fish and Wildlife Authority to conduct workshops to obtain information and inform people about the process.¹²³ The Council received 59 proposals for sub-basin plans in May of 2004, which were released for public comment and independent scientific review.¹²⁴ In 2005, the Council approved 57 of the proposed sub-basin plans, which were subsequently adopted as amendments to the Fish and Wildlife Program.¹²⁵ As they get underway, their implementation will be conducted by the local water agencies, water users, and community groups that developed the plans. To push the development of these plans forward, the Council took a break from its review of provincial-based projects in 2003 but, as of 2005, began reviewing these projects again.¹²⁶ As the program moves forward, one area of uncertainty is how the sub-basin plans and the existing provincial-based projects will be coordinated. The plans will interact eventually, but for now there is a bifurcated review system.

2. Chesapeake Bay

Implementation of the Chesapeake Bay Program's mission and goals has involved a mix of both voluntary efforts led by the program itself, as well as formalized policies devised by the program's member governments. For example, the program set up various voluntary nutrient management plans beginning in the 1980s to assist local land owners, agricultural producers, and industry in reducing contaminants that are released into the Bay and its tributaries. These programs have encouraged the implementation of various technologies like biological nutrient removal (BNR) systems and agricultural best management practices (BMPs), both of which aim to reduce the level of nutrients going into the Bay.¹²⁷ In addition, the program has supported buffer zone reforestation projects in the tributary streams to reduce pollutants

123. See, e.g., Nw. Power & Conservation Council, *Columbian River Basin and Wildlife Program, Subbasin Plan Amendments, Findings and Responses to Comments*, at 11 (Sept. 2005, doc. no. 2005-13), available at <http://www.nwcouncil.org/fw/subbasinplanning/Default.htm> (last visited Dec. 19, 2006).

124. NW. POWER & CONSERVATION COUNCIL, *SUBBASIN PLAN AMENDMENTS: FINDINGS AND RESPONSES TO COMMENTS 7* (2005), available at <http://www.nwcouncil.org/library/2005/2005-13.htm> (follow "read full report" hyperlink).

125. *Id.* at 1. During the amendment process, the Council must follow procedures outlined in the Northwest Power Act, which requires further public input and review. See *id.* at 1-3 (providing an overview of the process).

126. See Nw. Power & Conservation Council, *Council Meetings and Worksession Minutes (2003-2005)*, available at <http://www.nwcouncil.org/news/Default.asp> (follow "Meetings" hyperlink) (examining monthly minutes between 2003 and 2005).

127. ERNST, *supra* note 16, at 60-62, 150.

entering the stream and the bay. The program has promoted similar programs to recover species. For instance, the Program has supported programs to encourage replanting of grasses in the Bay, which is a critical component of the habitat for birds, crabs, and fish. Many of these voluntary efforts have been encouraged by support from federal funding. Over the Program's first 20 years, it received more than \$280 million in federal monies to allocate to states and local stakeholders for restoration efforts.¹²⁸ Other funds also come from participating program partners for implementing projects.

Since these types of voluntary efforts are not legally enforceable, the real "teeth" in implementing the program's goals have come largely from the policies and regulations created by local, state, and federal jurisdictions that are tied to the program's mission.¹²⁹ At the state level, such laws include phosphate detergent bans by Maryland, Washington, D.C., and Virginia in the mid-1980s and Pennsylvania's nutrient management law in 1993.¹³⁰ Ernst, a policy scholar who has studied the Bay, argues that implementation of more restrictive state policies to promote nutrient reduction, particularly in the agricultural sector, has been hampered by politics and the economic primacy of major polluting industries. Likewise, he suggests that, in managing fisheries and blue-crab, the program has faced difficulties in meeting its goals because of pressures by dominant fishing interests within the states and because of the inability of Maryland and Virginia to come to agreement on common fishing standards.¹³¹ In addition to the challenges from the political environment among program partners, the GAO reported in 2005 that the CBP itself has failed to provide adequate strategies and plans for ensuring effective coordination among the program partners who implement the plan.¹³²

128. *Id.* at 15.

129. Federal agencies have also been encouraged to participate more closely in the CBP in recent years. In 1998, 20 federal agencies and departments involved in the bay signed the Federal Agencies' Chesapeake Ecosystem Unified Plan (FACEUP), which expanded the restoration efforts and goals of these agencies. In 2000, the Chesapeake Bay Restoration Act of 2000 (CBRA) was enacted and amended the Clean Water Act's federal Chesapeake Bay Program. CBRA, Pub. L. No. 106-457, 114 Stat. 1957, 1967 (2000) (codified at 33 U.S.C. § 1267 (2000)). It expanded the EPA's oversight and added requirements for all federal agencies operating within the Bay. *See id.*; *see also* Michael T. Palmer, *The Chesapeake Bay Restoration Act of 2000: New Requirements for Federal Agencies*, 28 WM. & MARY ENVTL. L. & POL'Y REV. 375 (2004) (discussing the problems with this legislation).

130. ERNST, *supra* note 16, at 62, 150-52.

131. *Id.* at 119-22.

132. U.S. GAO, CHESAPEAKE BAY PROGRAM: IMPROVED STRATEGIES ARE NEEDED TO BETTER ASSESS, REPORT, AND MANAGE RESTORATION PROGRESS 30-33 (2005).

Despite these obstacles, the program does, however, continue to pursue opportunities to bring together local, state, and federal agencies responsible for managing the Bay's ecosystem. For instance, in 2001, the program formed a team to update its Local Government Participation Action Plan, originally devised in 1996, to provide more specific guidance on the steps that the Bay's 1,650 local governments can take to participate in the program.¹³³ In addition, substantial efforts have been made to improve state-level coordination on basin-wide water quality standards. Beginning in 2000, the CBP has facilitated basin-wide coordination across all six member states, Washington, D.C., and the EPA to establish water quality standards that are appropriate to the Bay's unique ecosystem. Program partners have also come to agree on policies and permitting approaches to meet and enforce these standards.¹³⁴ By 2003, the six states and Washington, D.C. had begun developing tributary strategies to begin nutrient reduction efforts to meet the agreed upon standards. That same year, jurisdictions with tidal waters (Washington, DC, Maryland, Virginia, and Delaware) also began revising their water quality standards. By the end of 2005, these states are scheduled to have completed pollutant load allocation standards for the nine major tributaries that feed into the bay.¹³⁵ Most recently, in response to the 2005 GAO report previously mentioned, the program has been discussing program-wide strategies to improve coordination across the entire program, focusing on four key "pillars" of ecosystem management.¹³⁶

133. See INT'L CITY/COUNTY MGMT. ASS'N, CHESAPEAKE BAY LOCAL GOVERNMENT PARTICIPATION ACTION PLAN (2002), available at http://www.chesapeakebay.net/info/pressreleases/ec2002/local_government_action_plan_final.pdf.

134. See Chesapeake Bay Program, Restoring the Chesapeake Bay: How We Get There, <http://www.chesapeakebay.net/wqcrestoring.htm> (last visited Oct. 24, 2006). The CBP notes on its website that one of the reasons the states need new water quality standards, particularly tidal states, is that existing standards "are applied broadly across each state's tidal waters, without recognition of the variety of habitats" and different bay habitats and species have different water quality needs. *Id.* Water Quality Standards & Water Quality Criteria, Why New State Standards?

135. *Id.* This coordinated approach is intended to ultimately remove many of the Bay's waters from the EPA's "impaired waters" list while allowing for a more regionally adapted approach to cleaning up the Bay than if the EPA had driven this process under the Clean Water Act's Total Maximum Daily Load Program. Interview with Rebecca Hanmer, *supra* note 61.

136. See CHESAPEAKE BAY PROGRAM, MEETING MINUTES FOR THE CHESAPEAKE BAY PROGRAM'S IMPLEMENTATION COMMITTEE, DEC. 15, 2005 1, 5-8 (2005), available at http://www.chesapeakebay.net/pubs/calendar/IC_12-15-05_Minutes_1_5520.pdf.

3. California Bay-Delta – Sacramento and San Joaquin Rivers

Following issuance of the Record of Decision (ROD) in 2000, CALFED agencies proceeded to Stage 1 implementation, problem identification and the development of action strategies, representing the first seven years of a 30-year program. The ROD allows the various agencies to coordinate their activities through the program. The Bay-Delta Authority provides a forum where implementing agency officials can regularly meet to coordinate implementation.

Program implementation for California's Bay-Delta occurs when local agencies and organizations submit proposals to the Authority to develop specific programs and projects that meet CALFED goals, such as construction of a fish screen on a particular diversion facility. Under CALFED's program elements, agencies consolidated their grant funding and expenditures of federal and state money into a single year-long competitive process. Applicants seek funding under one of the Program's elements: water use efficiency, ecosystem restoration, water transfers, watershed management, environmental water quality, drinking water quality, levees, water storage, conveyance, and science program.¹³⁷ Since adoption of the ROD in 2000, approximately \$3 billion has been spent on CALFED's program elements.¹³⁸ The majority of money spent thus far has been on instream flows and habitat and species restoration.¹³⁹ The Delta Improvements Package is but one example of a

137. Initially, the Program focused on changes to the state's storage and conveyance system to provide for more reliable water supplies to be shipped through the Delta from northern California to southern California while improving the biological health of the estuary. As the planning process stretched out, more interests became involved and the program expanded to include the current major program elements. See Sue McClurg, *CALFED Today: A Roundtable Discussion*, W. WATER, Sept./Oct. 2002, at 4-17 (discussing program developments as of October 2002); see generally McClurg, *supra* note 23 (providing a more updated assessment of the progress of the various programs); CAL. BAY-DELTA PROGRAM, ANNUAL REPORT (2004), available at <http://calwater.ca.gov/AboutCalfed/AnnualReport2004.shtml> (tracking progress by program area and by region).

138. For the first four years of the program following the ROD (2000-2004), the state of California spent some \$1.5 billion, with an additional \$1.3 billion coming from water users and local matching funds. Approximately \$208 million came from federal taxpayers. CALFED BAY-DELTA PROGRAM, 2004 ANNUAL REPORT 56 (2004), available at http://www.calwater.ca.gov/AboutCalfed/AnnualReport2004/04AR_pdf (last visited Jan. 9, 2007). An additional \$795 million was spent for year five (2005). CALFED BAY-DELTA PROGRAM, 2005 ANNUAL REPORT 52 (2005), available at http://www.calwater.ca.gov/AboutCalfed/AnnualReport2005/Annual_Report_2005.pdf (last visited Jan. 9, 2007). CALFED Bay-Delta Authority, CALFED Bay-Delta Program Finance Plan (Jan. 2005), available at http://calwater.ca.gov/FinancePlanning/CBDA_Final_Finance_Plan_1-23-05.pdf (last visited Jan. 9, 2007).

139. From 2000 to 2002, 41 percent of money spent has been dedicated to instream flows, 25 percent for habitat and species restoration, 22 percent for water management, 4

project. This 2004 project is designed to increase water exports while simultaneously making progress on ecosystem and water quality efforts. This project is thought to demonstrate an integrated approach to planning that would not have been possible without the CALFED process.¹⁴⁰

The Authority relies on Program Plans in implementing the ROD. The Plans are developed on an annual basis and contain accomplishments, strategies for implementation, schedules, strategic goals, and projected expenditures for every element of the program.¹⁴¹ The Authority then tracks project implementation, which serves to remind the agencies of the need for balanced implementation. The Authority also provides for considerable public involvement. Presently, there are program plans for years five through eight for each program element.

The Environmental Water Account (EWA) is one of the more innovative components of CALFED. Under the EWA, a quantity of water is set aside specifically to compensate water users when their allocation must be reduced to protect endangered species. The EWA is designed to maximize both efficiency and flexibility in managing the water supply. Prior to creation of the EWA, wildlife agencies, under the authority of the ESA, would set seasonal limits on the amount of water that could be diverted for urban and agricultural uses.¹⁴² For example, if too much water was being pumped out of the Delta, the pumps would be shut down—like they had been during the season in the late-1990s because of ESA listings. Through the EWA, state and federal agencies can collaborate to make operational decisions in real time. Since creation of the EWA, there have been no pump shutdowns. At an annual cost of about \$35 million today, however, there are serious concerns about the source and reliability of future program funding.¹⁴³

Although a Sacramento Superior Court judge upheld CALFED's EIS/EIR report in 2003, a state court opinion recently called into question

percent for water quality, and 4 percent for planning and science. WILEY & CANTY, *supra* note 9, at 7. In 2005, a Finance Plan, intended to serve as a framework to guide the financing of the CALFED Program over the next ten years (2005–2014), was completed. It provides an overview of program expenses by each program element from 2000 through 2004 and outlines future funding targets.

140. Freeman & Farber, *supra* note 71, at 862–63.

141. Cal. Bay-Delta Auth., Program Plans—2004 (Years 5–8), http://calwater.ca.gov/ProgramPlans_2004/ProgramPlans_2004.shtml (last visited Oct. 24, 2006).

142. Alf W. Brandt, *An Environmental Water Account: The California Experience*, 5 U. DENV. WATER L. REV. 426, 427–28 (2002).

143. Interview with Gerald E. Johns, Deputy Dir., Cal. Dep't of Water Res., in Sacramento, Cal. (Aug. 9, 2005).

CALFED's ROD.¹⁴⁴ In October 2005, California's Third District Court of Appeals ruled CALFED's environmental review inadequate because it failed to consider the effects of reducing water exports from the delta to central and southern California.¹⁴⁵ While the state has appealed the decision and it is still unclear what this means for the CALFED Program, some environmentalists and water groups have suggested that the decision may force CALFED to redo its original environmental reports and ROD.¹⁴⁶ This decision adds another layer of complexity to an already uncertain and fragile political environment.

144. Lawsuits were filed on behalf of the California Farm Bureau, Municipal Water District of Orange County, and the Regional Council of Rural Counties, a coalition of Delta diverters and rural counties, following the release of the ROD. A Sacramento Superior Court judge upheld CALFED's EIS/EIR report in April 2003, rejecting arguments that the report failed to adequately address the program's potential impacts on agricultural lands. Coordinated Special Proceeding Special Title (Rule 1550(b)), *Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings*, Case No. JC 4152 (Apr. 1, 2003), available at http://www.saccourt.com/CoordCases/baydelta/baydelta_cases.asp. The decision has been appealed by the Regional Council of Rural Counties.

145. *In re Bay-Delta Programmatic Evtl. Impact Report Coordinated Proceedings*, 34 Cal. Rptr. 3d 696 (2005), *review granted and opinion superseded by* Laub v. Davis, 129 P.3d 320 (Cal. 2006).

Years ago some argued that people should follow the water, not vice versa. While it is not the function of this Court to advocate one position or the other, this argument nevertheless points out a glaring defect in the PEIS/R [Programmatic Environmental Impact Statement/Environmental Impact Report]. CALFED conducted its environmental analysis by assuming certain population growth in the State over the next 15 years and then finding ways to provide water to that population. But CALFED appears not to have considered, as an alternative, smaller water exports from the Bay-Delta region which might, in turn, lead to smaller population growth due to the unavailability of water to support such growth. Taking an assumed population as a given and then finding ways to provide water to that population overlooked an alternative that would provide less water for population growth leaving more for other beneficial uses. CALFED apparently assumed that the California population would grow as projected regardless of the availability of water and did not consider whether, if less water was supplied, population growth would be affected accordingly, leading to less demand.

...

Those deciding the future of this state to the extent it depends upon the allocation of its most precious resource should be presented with all available choices. The PEIS/R should have included an alternative that assumed reduced water exports from the Bay-Delta region.

Id. at 774-75.

146. Audrey Cooper, *Court: Start Over on CALFED*, REC. (Stockton, Cal.), Oct. 8, 2005, <http://www.recordnet.com/apps/pbcs.dll/article?AID=/20051008/NEWS01/510080345/1001>; see also Bettina Boxall, *Delta Plan Is Dealt a Blow*, L.A. TIMES, Oct. 11, 2005, available at <http://www.sandiego.gov/water/waterreustudy/pdf/051011blow.pdf>.

4. Florida Everglades

The Corps of Engineers is designated most of the responsibility for the development and implementation of restoration projects in the Everglades. Traditional areas of state control are delegated to the South Florida Water Management District I and include individual project design; cost sharing; furnishing lands, easements, and rights of way; relocation; and disposal areas. Programmatic regulations lay out the course of implementation and establish substantive interim goals to ensure that the purposes of the plan are achieved.¹⁴⁷ The regulations provide the legal framework for how the Comprehensive Everglades Restoration Plan will be implemented.

The environmental community was critical of the draft programmatic regulations, arguing that they did not follow the spirit of the Water Resources Development Act of 2000. In particular, they argued that the regulations should adopt the earlier pledge that 80 percent of the water generated by the plan be dedicated for the natural environment.¹⁴⁸ The environmental community was disappointed with the final programmatic regulations; as the final rules did not adopt the "80% to 20%" ratio nor did they provide a greater role for the Department of the Interior in restoration administration.¹⁴⁹ The final rules did, however, provide guidelines to create an independent scientific review panel and a process for the establishment of interim goals to evaluate restoration

147. Section 601(h) of the Water Resources Development Act of 2000 requires the Secretary of the Army to promulgate programmatic regulations to ensure that the goals and purposes of the CERP are achieved. Water Resources Development Act of 2000, Pub. L. No. 106-541, § 601(h), 114 Stat. 2572, 2687.

148. The Corps received over 800 formal comments on the proposed regulations. Press Release, U.S. Corps of Eng'rs, Comprehensive Everglades Restoration Plan Programmatic Regulations Delayed (No. PA-02-21, Dec. 11, 2002), <http://www.hq.usace.army.mil/cepa/releases/programmatic.htm>. See U.S. ARMY CORPS OF ENG'RS & S. FLA. WATER MGMT. DIST., COMMENTS ON PROPOSED RULE, available at http://www.evergladesplan.org/pm/progr_regs_proposed_rule_comments.cfm (last visited Oct. 23, 2006). Public hearings were held in 2001 and 2002. See USACE & S. Fla. Water Mgmt. Dist., Public Workshop/Meeting Documents, http://www.evergladesplan.org/pm/progr_regs_minutes.cfm (last visited Apr. 8, 2006) (transcripts of the 2001 hearings); U.S. Army Corps of Eng'rs & S. Fla. Water Mgmt. Dist., Public Meeting Transcripts, http://www.evergladesplan.org/pm/progr_regs_proposed_rule_pub_mtg_transcripts.cfm (last visited Oct. 25, 2006) (transcripts of the 2002 hearings); see also Clarke & Dalrymple, *supra* note 50, at 561. Under the 80 percent to 20 percent ratio, the remaining 20 percent of water generated would be dedicated for use in the human environment. The ratio was first mentioned in the Senate Committee on Environment and Public Works hearings on Water Resources Development Act of 2000. See S. Rep. No. 106-362 (2000) (Conf. Rep.).

149. See Programmatic Regulations for the Comprehensive Everglades Restoration Plan, 33 C.F.R. § 385 (2006); see also 68 Fed. Reg. 64,200, 64,205, 64,207-08 (Nov. 12, 2003) (codified at 33 C.F.R. pt. 385).

success throughout the implementation process.¹⁵⁰ Although environmentalists continue to express concern that the regulations do not provide legal assurances for restoration, the Corps of Engineers and the South Florida Water Management District are now moving forward with the development of guidance memorandum to establish additional procedures to achieve CERP's goals.¹⁵¹

The programmatic regulations call for a Master Implementation Sequencing Plan (MISP) to "define the order in which the many projects within the South Florida Ecosystem Restoration Program will be planned, designed, and constructed."¹⁵² The MISP divides the projects into bands as a means to group projects by implementation completion date (i.e., Band 1 = 2005-2009, Band 2 = 2010-2014, etc.). The first restoration goal, "getting the water right," will be accomplished by the construction of 55 projects designed to modify the Central and Southern Florida Water Project to enlarge the region's freshwater supply and to improve the delivery of water to natural areas. By 2004, ten projects along with several pilot projects authorized by the Water Resources Development Act of 2000 were in the planning stages. Program officials offer monthly updates on the status of each specific project.¹⁵³ The second goal, restoring, protecting, and preserving the natural system, will be accomplished through the restoration of natural hydropatterns, the implementation of the Fish and Wildlife Service's South Florida Multi-Species Recovery Plan, land acquisition plans, and efforts to

150. 68 Fed. Reg. at 64,205-06 & 64,208-10.

151. Some members of the environmental community want science-based interim goals with quantitative targets. See Florida Sierra Club, *Everglades: Threats and Opportunities*, available at <http://florida.sierraclub.org/everglades.asp> (last visited Dec. 21, 2006). See also CERP Guidance Memoranda, 33 C.F.R. § 385.5 (2006) (requiring the development of six program-wide guidance memoranda and a pre-CERP baseline to be used as tools for planning, implementation, and evaluation); U.S. ARMY CORPS OF ENG'RS & S. FLA. WATER MGMT. DIST., CENTRAL & SOUTH FLORIDA PROJECT, COMPREHENSIVE EVERGLADES RESTORATION PLAN: SIX PROGRAM-WIDE GUIDANCE MEMORANDA (2005), available at http://www.evergladesplan.org/pm/pm_docs/prog_regulations/041305_final_draft_gm.pdf.

152. U.S. Army Corps of Eng'rs & S. Fla. Water Mgmt. Dist., Master Implementation Sequencing Plan, <http://www.evergladesplan.org/pm/misp.cfm> (last visited Oct. 25, 2006). The Plan is considered to be just a "snapshot in time" to be monitored and updated as implementation progress is made. U.S. ARMY CORPS OF ENG'RS & S. FLA. WATER MGMT. DIST., CENTRAL & SOUTH FLORIDA PROJECT, COMPREHENSIVE EVERGLADES RESTORATION PLAN: MASTER IMPLEMENTATION SEQUENCING PLAN 1.0, at 5 (2005), available at http://www.evergladesplan.org/pm/pm_docs/misp/040105_prog_regs_misp_1_0.pdf.

153. See U.S. Army Corps of Eng'rs & S. Fla. Water Mgmt. Dist., Project Status Reports, http://www.evergladesplan.org/pm/program_docs/proj_status_reports.cfm (last visited Oct. 26, 2006); see also U.S. Army Corps of Eng'rs & S. Fla. Water Mgmt. Dist., Project list, http://www.evergladesplan.org/pm/projects/project_list.cfm (last visited Oct. 26, 2006) (complete list of all CERP proposed projects).

control invasive species. The third goal, fostering the compatibility of the built and natural systems, is to be accomplished by coordinating state and local land and water supply planning. This goal would involve efforts to improve planning and growth management and develop sustainable agriculture.¹⁵⁴

Critical to implementation of the restoration plan is the completion of two controversial water delivery projects intended to provide substantial structural improvements for water delivery to the Everglades National Park: the Modified Water Project and the C-111 canal. Implementation has been delayed due to litigation and controversy in an area referred to as the "8.5 square mile area," a critical area of land adjacent to the park that the government must acquire to complete the project. In 2002, the U.S. Institute for Environmental Conflict Resolution conducted an assessment of opportunities for multi-stakeholder collaboration related to these projects. They noted a long history of polarized relationships, ongoing litigation, lack of trust, and process fatigue as some obstacles to multi-stakeholder collaboration.¹⁵⁵ In February 2003, Congress clarified its authorization for the Corps of Engineers to proceed with the plan reviving the Modified Water Project. The completion of these projects is a necessary step in the overall restoration effort and, most recently, the use of condemnation by the Corps of Engineers to acquire the necessary lands has created great controversy in the region.¹⁵⁶

Recently, the state of Florida has moved to accelerate project implementation. With its new program, entitled ACCELER8, the state has "stepped up the pace" on eight restoration projects that include reservoirs, stormwater treatment areas, and wetland restoration.¹⁵⁷ The

154. U.S. GAO, *SOUTH FLORIDA ECOSYSTEM RESTORATION: TASK FORCE NEEDS TO IMPROVE SCIENCE COORDINATION TO INCREASE THE LIKELIHOOD OF SUCCESS* 9-10 (2003), available at <http://www.gao.gov/new.items/d03345.pdf>.

155. They found a great deal of controversy concerning these two projects. Agricultural and urban stakeholders feel they are "still not yet benefiting from improved flood protection features." U.S. INST. FOR ENVTL. CONFLICT RESOL., *ASSESSMENT OF OPPORTUNITIES FOR MULTI-STAKEHOLDER COLLABORATION ON THE ENVIRONMENTAL IMPACT STATEMENT PROCESS FOR THE COMBINED STRUCTURAL AND OPERATIONAL PLAN FOR MODIFIED WATER DELIVERIES TO EVERGLADES NATIONAL PARK AND C-111 CANAL PROJECTS* 6 (2002), available at http://www.ecr.gov/pdf/everglades_final_report.pdf. Environmental interests see increased water flows into ENP as the key purpose of these projects. *Id.*

156. Pervaze A. Sheikh, *Everglades Restoration: Modified Waters Deliveries Project*, CONG. RES. SERVICE, Aug. 23, 2005, at 4-6, available at <http://www.ncseonline.org/nle/crsreports/05aug/RS21331.pdf>.

157. See generally S. Fla. Water Mgmt. Dist., *ACCELER8 EVERGLADES NOW!*, <http://www.evergladesnow.org> (last visited Oct. 26, 2006) (follow "overview" hyperlink) (providing an overview of the plan and a description and map of the eight projects).

projects were selected not only for their potential to show immediate benefits, but also because the necessary lands were already in public ownership. They illustrate a general dissatisfaction and impatience with the federal process and, according to the South Florida Water Management District, are designed to serve as the "initial foundation for other comprehensive restoration efforts to follow."¹⁵⁸ Construction has already begun on the Everglades Agricultural Area Reservoir, designed to protect coastal estuaries and reduce the flow of nutrients into the Everglades by capturing and storing agricultural stormwater runoff and freshwater release from Lake Okeechobee.¹⁵⁹ Environmentalists argue that the projects are all water-supply projects and that the environmental components to restoration have essentially been abandoned under the present state-led restoration effort.¹⁶⁰

Today, restoration efforts in the Everglades are criticized for being over budget, behind schedule, and off track.¹⁶¹ Although initial estimates suggested that restoration efforts would cost some \$7.8 billion over 30 years, federal agencies recently reported to Congress that restoration costs will likely increase to \$10.5 billion.¹⁶² While the federal government has contributed to planning costs in the Everglades, it has not authorized any funding for the implementation of projects other than pilot projects since the plan's approval in 2000.¹⁶³ The largest share of

158. S. Fla. Water Mgmt. Dis., ACCELER8, Questions and Answers, https://my.sfwmd.gov/portal/page?_pageid=1855,2832203&_dad=portal&_schema=PORTAL&navpage=qa (last visited Jan. 10, 2007).

159. Press Release, Fla. Dep't of Env'tl. Protection, Florida Breaks Ground on First *Acceler8* Project (Jan. 14, 2005), http://www.dep.state.fl.us/secretary/news/2005/01/0114_02.htm. A December 2006 update by the South Florida Water Management District reveals construction costs and tracks progress for all ACCELER8 projects. Tommy B. Strowd, Assistant Deputy Executive Dir., CERP, ACCELER8 Update, given at S. Fla. Water Mgmt. Dis., Governing Bd. Workshop, West Palm Beach, Fla. (Dec. 13, 2006), https://my.sfwmd.gov/pls/portal/docs/PAGE/PG_GRP_ACCELER8_V2/PORTLET_HOME/TAB1458044/A8_GB_12_13_06.pdf.

160. *The Everglades: Water, Bird and Man*, ECONOMIST, Oct. 6, 2005, available at http://www.economist.com/world/na/displaystory.cfm?story_id=4484300.

161. See Michael Grunwald, *Everglades*, SMITHSONIAN, Mar. 2006, at 57.

162. U.S. Army Corps of Eng'rs & S. Fla. Water Mgmt. Dist., FAQs: What you should know about the Comprehensive Everglades Restoration Plan (CERP), http://www.evergladesplan.org/facts_info/faqs_cerp.cfm (last visited Oct. 26, 2006) (stating that "[t]he original estimate...indicated that implementation of the Plan will cost \$7.8 billion; and that an additional \$182 million will be needed annually to operate, maintain and monitor the plan"). See also Robert P. King, *Everglades Restoration's Cost Jumps \$2.1 Billion*, PALM BEACH POST, Oct. 6, 2005, at A15, <http://www.cleanwateramerica.org/news/dspnews.cfm?id=62> (discussing recent estimates and stating that "the corps and the U.S. Interior Department now say the state-federal project will cost \$10.5 billion").

163. Thus far, regional federal officials have relied on the continuation of federal appropriations that have so far funded the development of a regional plan, several critical

funding for Everglades restoration thus far has gone to land acquisition, accounting for 36 percent of program costs.¹⁶⁴

Monitoring Implementation

1. Columbia River

Each of the four programs discussed here has well-defined processes for monitoring program implementation. Monitoring of the Northwest Power and Conservation Council's Fish and Wildlife program and the projects it funds happens in a variety of ways. One mechanism that the Council's Fish and Wildlife uses to ensure that project-level monitoring occurs is its requirements that the "provincial" projects include provisions for monitoring and evaluation. Part of the mandate of the Independent Scientific Review Panel (ISRP), described in the previous section, is to ensure that projects have sufficient provisions for monitoring and evaluation before projects are recommended to BPA for funding. Projects that are not deemed acceptable for funding may be revised by project sponsors. Thus, the actual data collection and tracking of project outcomes is conducted by project sponsors themselves. Monitoring the broader impacts of fish and wildlife protection and enhancement programs in the basin is also built into the structure of the program. The program is designed so that, in developing and updating the Council's Fish and Wildlife plans, the Council engages in broad-based programmatic review, emphasizing the concept of adaptive management. That is, the Council makes an explicit attempt to update their plans and program goals according to what they learn from the monitoring and scientific assessments of the basin.¹⁶⁵ The Council's use of its Independent Scientific Advisory Board (ISAB) to review the program's plans and state of the knowledge of fish and wildlife

pilot projects, and interagency coordination. See WILEY & CANTY, *supra* note 9, at 15. As of 2005, the federal government had contributed \$112 million and Florida had invested \$715 million for the restoration of water flow. See Everglades Forever Act—Funding for Everglades Restoration (on file with author). Meanwhile, Florida has committed \$2 billion in state resources for Everglades' restoration and authorized its matching funding commitment in 2000. The Everglades Restoration Investment Act of 2000 provided that \$50 million in state funds was to be deposited into the Save Our Everglades Trust Fund during the 2000–2001 fiscal year; for each of nine consecutive years beginning with fiscal year 2001–2002, \$75 million in state funds was to be deposited into the Save Our Everglades Trust Fund. See Everglades Restoration Investment Act, Fla. Stat. § 373.470(5)(a)(1)–(2) (2005).

164. According to a 2001 estimate, 25 percent of program costs have gone to water management, 24 percent for habitat and species restoration, 13 percent for water quality, and 2 percent for planning and science. See WILEY & CANTY, *supra* note 9, at 15.

165. See generally LEE, *supra* note 15, at 51–86 (discussing adaptive management).

management in the basin supports this process. The ISRP aids in programmatic review by looking at, for example, the longer term impacts of large scale projects in the basin for fish and wildlife restoration, or working together with the ISAB on assessing data sources, modeling, or research in the basin's fish and wildlife species.¹⁶⁶

In addition to the Council's scientific boards, it periodically relies on coordination with other agencies or scientific groups to guide its monitoring and assessment of the program. In part this is because the small program staff does not have the capacity to engage in their own monitoring.¹⁶⁷ For example, when the sub-basin planning started, the program consulted with the Pacific Northwest Aquatic Monitoring Partnership (a "seal of approval" body), which helped the program identify ten critical attributes that would be sufficient for monitoring across all projects, ensuring cost-efficiency and scientific reliability in the data. The Partnership's recommendations were reviewed by both of the Council's scientific advisory bodies, who helped refine monitoring standards.¹⁶⁸ The Council has also relied on the scientific expertise of various federal agencies with management authority for developing fisheries management models that have aided in evaluating program plans and the likely impacts of different fish and wildlife recovery scenarios in the basin.¹⁶⁹ The ISRP, however, has noted that coordinated system-wide monitoring and evaluation is still nascent.¹⁷⁰

2. Chesapeake Bay

The Chesapeake Bay Program also has a heavy emphasis on monitoring, in part because adaptive management has become "the way of doing things...to reassess" both its implementation decisions and its program.¹⁷¹ Like the Northwest Power and Conservation Council, the Chesapeake Bay Program goals have evolved over time with each

166. See Nw. Power & Conservation Council, Independent Scientific Review Panel, <http://www.nwcouncil.org/fw/isrp/Default.htm> (last visited Oct. 26, 2006) (explaining that "[t]he ISRP reviews individual fish and wildlife projects funded by Bonneville Power Administration and makes recommendations on matters related to those projects").

167. Interview with Doug Marker, Fish & Wildlife Program Director, N.W. Power Planning Council, in Portland, Or. (July 15, 2005).

168. See Indep. Sci. Rev. Panel, Comments on the Pacific Northwest Aquatic Monitoring Partnership's (PNAMP) Draft Recommendations for Monitoring in Subbasin Plans (2004), available at <http://www.nwcouncil.org/library/isrp/isrpisab2004-2.htm>.

169. See Interview with John Shurts, *supra* note 118

170. INDEP. SCI. REV. PANEL, RETROSPECTIVE REPORT 1997-2005 vi (2005), available at <http://www.nwcouncil.org/library/isrp/isrp2005-14.pdf>.

171. Interview with Richard Batiuk, Chesapeake Bay Program's Associate Director of Science (June 15, 2005).

iteration of program agreements. As noted above, the program's initial goals in 1983 were relatively broad. The goals were then later specified as aiming for up to a 40 percent nutrient reduction goal in the 1987 agreement; the goals were then to be expanded substantially in 2000. These goals have become the standards by which the program can assess its success.

The program states that "[c]onsistent and comparable data on all traditional water parameters have been taken at over 130 sites in the watershed and the open Bay since 1984."¹⁷² These data have been used to understand the condition of the watershed and develop a model of the watershed, which was the basis for the 1987 program goals. However, the Program notes that in its earlier years the link between performance data and program goals was not well established.¹⁷³ In 1991, the EPA staff began to make a concerted effort to use outcome measures as a basis for program goals. In 1994 and 1995, the program held workshops for stakeholders and the public to participate in developing and refining the indicators. The 2000 plan now includes over 110 measurable restoration targets focusing on species recovery, water quality, redevelopment of Brownfield sites, and policy reviews.¹⁷⁴

The program's committee structure helps ensure the integration of monitoring data into programmatic and planning decisions. For instance, the program's STAC and the various sub-committees for implementation provide data to support the program's use of measurable environmental goals in planning and decision making. The CBP has been open about the fact that it has not yet met its targets in many program areas. The program's websites and 2004 State of the Chesapeake Bay Report show that the CBP still has not met its objectives for nutrient reductions in the Bay, that oysters and blue crab populations continue to remain at historic lows, and that grasses and critical habitat have only moderately improved.¹⁷⁵ One of the difficulties, according to program staff, is that the 2000 program goals may actually be too specific or rely on too short a time frame to be met successfully.¹⁷⁶ As in the past, the program may find that in their next program revision (planned for

172. CHESAPEAKE BAY PROGRAM, ENVIRONMENTAL OUTCOME-BASED MANAGEMENT: USING ENVIRONMENTAL GOALS AND MEASURES IN THE CHESAPEAKE BAY PROGRAM 6 (1999), available at <http://www.chesapeakebay.net/pubs/indpub/indpub.htm>.

173. *Id.*

174. Palmer, *supra* note 129, at 398.

175. CHESAPEAKE BAY PROGRAM, THE STATE OF THE CHESAPEAKE BAY AND ITS WATERSHED: A REPORT TO CITIZENS OF THE BAY REGION 17 (2004), available at <http://www.chesapeakebay.net/SOTB04/sotb2004.pdf>.

176. Interview with Richard Batiuk, *supra* note 171.

2007), the goals will again be adapted to reflect the realities and complexities identified through monitoring.

One example of a way that the program is seeking to improve monitoring and modeling is through its water quality monitoring network for nontidal waters, or those rivers and streams that feed into the bay. Its Nontidal Workgroup has worked with program partners, two interstate river basin commissions, and the U.S. Geological Survey, under a Memorandum of Understanding, to develop consistent and comparable data on water quality throughout the watershed.¹⁷⁷ The program is developing new monitoring stations, upgrading monitoring stations, and ensuring coordination in sample collection and analysis. This will allow for better actual data on nutrient levels in the watershed and will enhance the ability to devise models that assess how nutrient levels are likely to be changing in response to policy actions (versus natural forces). While the CBP continues to enhance its extensive set of monitoring indicators, the GAO has recently found that the CBP needs to establish an approach for integrating these measures to more accurately assess its progress toward the program goals established in the *Chesapeake 2000 Agreement*.¹⁷⁸ The GAO report recognizes though that the CBP has begun pursuing options to achieve this integration and improve coordination.¹⁷⁹

3. California Bay-Delta – Sacramento and San Joaquin Rivers

CALFED's Science Program monitors and evaluates agency progress toward program goals. Specifically, the Science Program serves to assist the CALFED agencies by developing the science necessary to support the agencies. Program staff do not actually conduct scientific activities, but rather direct and integrate science and management activities with a focus on the "big picture."¹⁸⁰ Improving the transparency of the science behind policy decisions is a key goal of the CALFED Science Program.¹⁸¹ It aims to better integrate and synthesize

177. Scott Phillips, U.S. Geological Survey, CBP Nontidal Workgroup, Nontidal Water Quality Monitoring Network for the Chesapeake Bay Watershed, Presentation at Chesapeake Bay Program, Implementation Committee Meeting (June 16, 2005) (on file with author).

178. U.S. GAO, *supra* note 132, at 15-16.

179. *Id.* at 16.

180. CALFED BAY-DELTA AUTH., ATTACHMENT 3, IMPLEMENTATION MEMORANDUM OF UNDERSTANDING 34 (2000), available at <http://calwater.ca.gov/Archives/GeneralArchive/rod/3.pdf>.

181. Kim A. Taylor et al., *CALFED: An Experiment in Science and Decisionmaking*, ENV'T, Jan./Feb. 2003, at 30, 32.

the science that is being conducted by coordinating scientific conferences, white papers, workshops, and fact sheets.¹⁸²

Likewise, adaptive management is an overarching principle of CALFED's Science Program. It is defined as "using and treating actions as partnerships between scientists and managers designing those actions as experiments with a level of risk commensurate with the status of those species involved, and bringing science to bear in evaluating the feasibility of those experiments."¹⁸³ The Lead Scientist is responsible for establishing an overall monitoring strategy and performance measures for CALFED.¹⁸⁴ Under CALFED's present governance structure, both the Lead Scientist and the Independent Science Board report directly to the Authority.

CALFED relies on indicators and performance measures to "translate program goals and objectives into measurable benchmarks of program success."¹⁸⁵ Performance measures are expected to inform adaptive management. Each program is establishing its own set of indicators as they relate to program goals, and many of the programs have developed draft performance measures. While program officials recognize the need to establish a consistent protocol for performance measures, one does not currently exist. Agency officials have developed a set of prototype performance measures for several program areas based on the availability of robust monitoring data and expect to build off of these prototypes in the future. They expect these indicators and performance measures to evolve as knowledge of ecological responses to CALFED actions grows.¹⁸⁶ CALFED's Independent Science Board is

182. See generally CALFED Science Program Library, Science Program Publications and Documents, <http://science.calwater.ca.gov/library.shtml> (last visited Oct. 26, 2006) (white papers, reports, and publications pertaining to each of CALFED's program elements).

183. CALFED BAY-DELTA AUTH., *supra* note 180, at 35.

184. Lead Scientists "will not be directly involved in making regulatory decisions....The Science Program will not be involved in day-to-day management decisions regarding water operations and the EWA." *Id.* at 37. CALFED's recent Lead Scientist, Dr. Johnnie Moore, a geologist from the University of Montana, resigned from the position after only nine months on the job in May 2005, stating concerns over program funding. See Dana Nichols, *CALFED Scientist Cites Lack of Funds, Organization Among Reasons for Leaving*, STOCKTON REC., May 27, 2005, http://calwater.ca.gov/Newsroom/NewsClips/NewsClip_5-27-05.shtml.

185. Cal. Bay-Delta Auth., Indicators and Performance Measures, http://science.calwater.ca.gov/sci_tools/performance_measures.shtml (last visited Oct. 26, 2006).

186. See Cal. Bay-Delta Auth., Prototype CALFED-wide Performance Measures, http://science.calwater.ca.gov/sci_tools/wide_perf_measures.shtml (last visited Oct. 26, 2006); see also Cal. Bay-Delta Auth., *supra* note 185 (suggesting that "administrative indicators" will be largely used in the early stages of a program to show that the program is being implemented: "As the implications of actions accumulate, local responses should become increasingly detectable. The ultimate indicators that goals are being achieved, e.g.,

beginning to tackle performance measures with a subcommittee working on a "Performance Measure Road Map" and a decision-tree template to evaluate scientific and process results.¹⁸⁷ Despite such activities, the Little Hoover Commission recently found that CALFED has not managed to improve performance, incorporate the best science into management decisions, or create accountability for outcomes.¹⁸⁸

4. Florida Everglades

Monitoring is conducted by a range of agencies active in restoration of the Everglades including the Corps of Engineers, National Oceanic Atmospheric Administration, South Florida Water Management District, U.S. Geological Survey, and Everglades National Park. Significant monitoring is already underway in a host of areas such as water quality, wading bird populations, salinity, mercury bioaccumulation, and juvenile fish populations.

As part of the Everglades Restoration Plan's Monitoring and Assessment Plan (MAP), agency officials developed six integrated monitoring modules that roughly correspond geographically with the South Florida ecosystem.¹⁸⁹ The monitoring modules have been designed to evaluate the performance of CERP as it is implemented. The goal is to have a single, integrated MAP that will be used by all agencies and tribal governments as the means of tracking and measuring the performance of CERP with separate project-specific monitoring plans to assess the local performance of individual projects.¹⁹⁰ Performance measures are indicators, such as the index of biotic integrity, that when combined form

regional recovery of a fish population, may take many years to develop and/or may be difficult to interpret in isolation.").

187. Cal. Bay-Delta Auth., Independent Science Board Meeting, Nov. 11 & 12, 2004, at 18-19 (2004), available at http://science.calwater.ca.gov/pdf/isb/ISB_summary_meeting_030405.pdf.

188. LITTLE HOOVER COMM'N, *supra* note 74, at vi. Among their many recommendations, the Commission suggested requiring performance contracts for CALFED leadership and connecting on-going funding to the use of performance measures. *Id.* at viii.

189. These include: Greater Everglades Wetlands, Southern Estuaries (Florida Bay, Biscayne Bay, and Southwest Florida Coast), Northern Estuaries (Caloosahatchee Estuary, St. Lucie Estuary, Indian River Lagoon, Loxahatchee River Estuary, and Lake Worth Lagoon), Lake Okeechobee, South Florida Hydrology Monitoring Network, and South Florida Mercury Bioaccumulation. See CERP MONITORING AND ASSESSMENT PLAN, PART I: PURPOSE AND SCOPE OF THE CERP MONITORING AND ASSESSMENT PLAN 1-9 (Jan. 15, 2004), available at http://www.evergladesplan.org/pm/recover/recover_docs/map/MAP_1.0_Purpose.pdf. See also RECOVER, Monitoring and Assessment Plan (MAP) (2003), available at http://www.evergladesplan.org/pm/recover/recover_map.cfm (follow "MAP 2003" hyperlink) (last visited Nov. 4, 2005).

190. RECOVER, MAP, *supra* note 189, at ES-1.

a report card. They were adopted from conceptual ecological models that illustrate how it is thought the natural wetland and estuarine areas of South Florida have been stressed and present the working hypotheses that show the major ecological responses to these stressors.¹⁹¹ RECOVER is developing performance measures that specify hydrological, biological, water supply, and flood protection targets to be achieved by a restoration plan and a database of GIS maps containing maps relating to performance indicators. Presently, its indicators and monitoring plan are focused largely on the first goal of the plan, getting the water right.¹⁹² RECOVER is provided with full-time staff support and \$10 million to support monitoring efforts.¹⁹³

Florida's Comprehensive Everglades Restoration Plan also monitors implementation as part of its overall adaptive management strategy. As a guiding principle of CERP, "[t]he evaluation, implementation, and assessment of CERP projects and system responses must be viewed as an open-ended learning and planning process. Definitions of overall plan success will be refined through time as new knowledge provides improved understandings of natural and human systems in south Florida."¹⁹⁴ RECOVER expects to periodically issue technical reports on CERP's progress based on comparisons between the measured performance of the CERP and the performance measure's restoration targets. Here, adaptive management will be tested within a civil engineering context. "[A]fter the commitment of decades of time and hundreds of millions of dollars, it will be tons of concrete and dug earth that will have to be tweaked."¹⁹⁵

COMPARISONS AND CONCLUSIONS

All four regions face grave ecological dilemmas with multiple and often inter-related causes. Most notably, collaborative efforts in the regions studied here face water quality, endangered species, and depleted fisheries problems. The regions all have deep histories of great economic dependency and development. Collaborative efforts can be

191. *Id.* §§ 2-1 to 2-2.

192. U.S. GAO, SOUTH FLORIDA ECOSYSTEM RESTORATION: TASK FORCE NEEDS TO IMPROVE SCIENCE COORDINATION TO INCREASE THE LIKELIHOOD OF SUCCESS 40 (2003) (Report to Subcommittee on Interior and Related Agencies, Committee on Appropriations, House of Representatives).

193. *Id.* at 43.

194. U.S. ARMY CORPS OF ENG'RS & S. FLA. WATER MGMT. DIST., A VISION STATEMENT FOR THE COMPREHENSIVE EVERGLADES RESTORATION PLAN 2 (2003), available at http://www.evergladesplan.org/pm/pm_docs/cerp_vision_statement.pdf.

195. Clarke & Dalrymple, *supra* note 50, at 557.

traced back to the early-1980s in the Columbia River Basin and the Chesapeake Bay. Efforts in California's Sacramento and San Joaquin rivers and Florida's Everglades are more recent, dating to the 1990s. Today's program goals in all four regions center on restoring the ecosystems while still maintaining economic stability and accommodating growing populations. The constitutional processes and choices made in establishing these programs reflect some of these similarities and differences. National legislation has been critical for authorizing the structure of the two newer programs, the CALFED Bay-Delta Program and the Florida Everglades Restoration Program. In the case of the two interstate programs, the Chesapeake Bay and the Columbia River, interstate agreements were also foundational in constituting the authority for states to act collectively to resolve these problems. In all cases, multiple stakeholders have then come to consensus on the goals and basic program rules through some sort of collaborative agreement.

The collective choice structures in the four regions have similarities. Each involves some form of convening body that meets regularly to approve management plans or goals for the region. Yet each has a slightly different organizational arrangement for making its collective choice decisions. For both the Chesapeake and the Columbia, the program structure is largely state-based with room for federal, local, and citizen participation. In the Chesapeake Bay, an executive council directs various program committees, comprised of state, federal, and local political representatives that administer the program. In the Columbia River Basin, the Northwest Power and Conservation Council acts as an interstate compact agency composed of state representatives. The governance arrangements for the Sacramento-San Joaquin Rivers and the Florida Everglades are more federal-state partnerships. The California Bay-Delta Authority, a consortium of federal and state agencies, is charged with managing water supplies and ecosystems within the Sacramento-San Joaquin Delta and overseeing implementation of a ROD there. In the Florida Everglades, the South Florida Ecosystem Restoration Task Force, composed of federal, state, local, and tribal representatives, is charged with coordinating and facilitating the overall restoration effort.

In all four basins, there are citizen advisory and scientific advisory committees to inform the programs' collective choice decision making. Thus, it is important to note that the nature of collaboration occurring when these programs make collective choice decisions extends beyond the official program partners. Various stakeholders representing environmental, industrial, and agricultural communities become part of the governance structure, reviewing task force and agency decision

making and offering input into the process. In many ways, these participants are treated as experts or consultants to the process, developing great rapport with program officials and staff.¹⁹⁶ Notably, while citizen and stakeholder groups are indeed part of the advisory process, each of the programs seems to place a heavy emphasis on the scientific and technical advice, which certainly may skew program input away from political and social concerns in the communities.

In terms of the operational or day-to-day implementation of the four programs, the programs are even more "collaborative" in terms of the vast number of state, local, tribal, and federal players that participate in these programs. The Northwest Power and Conservation Council's Fish and Wildlife Program is implemented by various state and local agencies, tribes, universities, and other organizations that work on hundreds of fish and wildlife restoration projects throughout the Columbia River watershed (through Bonneville Power Administration funding). Program implementation in the Chesapeake Bay is also characterized by a mix of state, federal, and local efforts. It relies on voluntary efforts and the force of state and local regulations, but it is also heavily influenced by EPA's participation in the program. For CALFED, program implementation occurs when local agencies and organizations submit proposals to the Authority to develop specific programs and projects that meet CALFED goals as defined by the ROD. Programmatic regulations lay out the course of implementation and provide the legal framework for how CERP will be implemented in the Everglades. The Corps of Engineers and the South Florida Water Management District share primary responsibility for program development and implementation with broad participation by affected local, state, tribal, and federal entities.

Collaboration at the operational level also occurs through program review and monitoring. The programs have relied on program staff and scientific advisory bodies to conduct some of the programmatic monitoring; program collaborators that do work on the ground also participate in monitoring. While all four programs explicitly emphasize their commitment to adaptive management, in practice, all four regions have struggled with linking the integration of science with management decisions through their decision-making structures and committees. Clearly, politics and economic interests are always in the mix in any analysis of program strategies and effectiveness.

196. This observation is based on our experiences at Task Force and Advisory Committee meetings attended in the regions studied here.

The other difficulty facing all four regions has been establishing or agreeing upon indicators of success for determining whether the outcomes they are monitoring are being achieved. In part, this comes directly from the fact that these programs have established the incredibly lofty goals of ecosystem restoration. The decision to keep or change a program strategy depends on what standards of success or ecosystem "improvement" are established. These standards are clearly subject to political debate as well. For the two older programs, we have seen much discussion and debate over the past 20 years to develop measures of success. In the two newer programs, program officials are presently engaged in drafting performance measures. How these measures play out in practice have important implications for future program directions and acceptance of adaptive management.

Indeed, there are real challenges to collaborative governance. These include the ability to secure the necessary financial resources for program implementation and evaluation and the ability to maintain political will and leadership in the face of changing social, political, and economic circumstances. If ecosystem improvement is slow in coming, controversy is likely to follow—as evidenced by the current turmoil in California's Bay-Delta. If one entity is slow to act, as in the case of the Corps of Engineers in Florida, the other parties (like the state) may elect to move forward on their own, threatening the collaborative efforts. Changes in leadership within program partners, such as changing governorships in the case of the two multi-state programs, can also upset the balance of collaborative agreements if a new administration no longer agrees with the mission or mandates approved by previous administrations.

The four programs we have studied, particularly in the two older cases, seem to be weathering these challenges in terms of their institutional endurance, but the question certainly remains as to the extent to which these programs have been able to achieve their missions. We hope that, in describing how these institutions are governed and organized and how these organizations operate differently across the constitutional, collective choice, and operational levels, we have provided a deeper understanding of how collaborative governance institutions operate. We also hope that we have established an analytical foundation that can help more accurately assess the linkages between program success and governance over time.