

ISSUE BRIEF

# Climate Adaptation and Watershed Transboundary Governance Institutions

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## **Resources for the Future**

Resources for the Future is an independent, nonpartisan think tank that, through its social science research, enables policymakers and stakeholders to make better, more informed decisions about energy, environmental, natural resource, and public health issues. Headquartered in Washington, DC, its research scope comprises programs in nations around the world.



# Climate Adaptation and Watershed Transboundary Governance Institutions

Marc Landy<sup>1</sup>

*As defined by the Intergovernmental Panel on Climate Change, adaptation includes a set of actions to moderate harm or exploit beneficial opportunities in response to climate change. To date, little research has addressed public policy options to frame the nation's approach to adapt to a changing climate. In light of scientific evidence of extreme and unpredictable climate change, prudent policy requires consideration of what to do if markets and people fail to anticipate these changes, or are constrained in their ability to react. This issue brief is one in a series that results from the second phase of a domestic adaptation research project conducted by Resources for the Future. The briefs are primarily intended for use by decisionmakers in confronting the complex and difficult task of effectively adapting the United States to climate change impacts, but may also offer insight and value to scholars and the general public. This research was supported by a grant from the Smith-Richardson Foundation.*

## Summary

- The federal government should encourage the formation of state-federal Watershed Transboundary Governing Institutions (Watershed TGIs).
- Federal state Watershed TGIs should be given regulatory authority.
- In order to ensure political accountability, governors should serve as their state's official representatives on the Watershed TGIs governing body.
- Federal state Watershed TGIs should be granted the power to plan and execute its own projects rather than merely exercising a veto power over the project proposals that come before it.

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- The federal representative to the Watershed TGI should have the authority and the stature to transcend narrow agency perspectives to adopt and defend a single federal point of view.

## Climate Adaptation, Watersheds, and Watershed Governance

Many of the problems associated with adaptation to climate change involve water—either too much or too little. In flood prone regions, the heightened risk of severe storms associated with climate change increase the likelihood of floods and the damage to life, infrastructure, property and ecosystems that floods inflict.<sup>2</sup> In drought prone regions, diminished snow cap and other warming effects increases the likelihood of water shortages which in turn threatens wildlife, the viability of human communities, and agriculture.<sup>3</sup> Not only do floods and droughts affect water *quantity*. They also affect water *quality*. Flood waters increase water pollution by breaking gas lines and other structures storing hazardous substances, overwhelming sewage treatment systems and by greatly increasing the runoff of pollution containing sediment.<sup>4</sup> Diminished flows reduce water quality by increasing the concentrations of water borne pollutants and by increasing saltwater intrusion.

These water quality and quantity issues elude the control of conventional governing institutions because they are inextricably connected to the dynamics of entire watersheds that spillover both local and state boundaries. Long before the recognition of climate change as a factor exacerbating water quantity and quality problems, efforts were underway to cope with water issues on a watershed basis. The watershed focus is borne out of the recognition that it is in the nature of water to flow from original sources to the sea and that the quality and quantity of water at any particular point in that journey is dependent upon conditions upstream. A watershed is the total area in which all the waters, from the smallest underground aquifers and above ground streams, flow to the same ultimate outlet. Because the physical circumstances determining water quality and quantity occur on a watershed wide basis it is necessary that efforts to make the infrastructural and regulatory decisions that affect those circumstances are likewise planned and implemented with the health of the entire watershed in mind. In recent years, a watershed-wide approach has become all the more imperative when the myriad effects of climate change on water quantity and quality are added to the equation.

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<sup>2</sup> See especially Kerry Emanuel, Increasing destructiveness of tropical cyclones over the past 30 years, *Nature* Vol 436 | 4 August 2005 | doi:10.1038/nature03906, 686-688, Dean, L., K. A. Emanuel, and D. R. Chavas, 2009: On the size distribution of Atlantic tropical cyclones. *Geophys. Res. Lett.*, 36, L14803, doi:10.1029/2009GL039051, NASA Study Links Severe Storm Increases, Global Warming, NASA Jet Propulsion Laboratory, California Institute of Technology, December 19, 2008, <http://www.jpl.nasa.gov/news/news.cfm?release=2008-242>

<sup>3</sup> P. Mote et. al. "Declining Mountain Snowpack in Western North America. *Bulletin of the American Meteorological Society*, 2005.

<sup>4</sup> See the excellent policy brief in this series, James Neumann Revisiting Infrastructure Norms



To compensate for the inadequacies of conventional governing institutions, several different forms of transboundary governing institutions (Watershed TGIs) have come into existence. This policy brief investigates Watershed TGIs in order to understand the strengths and weaknesses of the different institutional approaches, governance designs and policies instruments they employ and to recommend which of these approaches, designs and practices should be incorporated in future efforts to manage watersheds.

## Evaluating Watershed Governance

Central to the difficulty of watershed governance is the tension between effectiveness and accountability. Effectiveness requires clear lines of authority and strong delegations of authority. The buck stops *somewhere*. In the political world, such powers usually rest with a chief executive—a mayor, governor or the president, subject to checks by the legislature and the courts. Citizens are sufficiently comfortable with such delegations of authority because they trust in their own ability to hold those chief executives accountable via the electoral process. Those executives represent *them*. This confidence in the electoral process itself depends on a prior sense of allegiance. The governor is my governor because I am attached to the political unit that the governor governs. Towns, cities, counties and states can make credible claims to such civic allegiance because they are general purpose governments that have an impact on many dimensions of a citizen’s life and can make myriad claims to civic loyalty. Transboundary governance cannot make similar claims precisely because no one understands themselves to be a citizen of a watershed. Watershed TGIs do not purport to fulfill the full range of political and governmental functions associated with general purpose government. The physical unity of the watershed is not matched by an underlying sense of political allegiance. In such a context political accountability is drained of meaning.

The first, and still the most powerful TGI, the Tennessee Valley Authority (TVA) resolved the accountability—effectiveness tension by ignoring the accountability issue altogether. The TVA is a federal corporation governed by a presidentially appointed board. Apart from the president, no popularly elected executive has any direct role in TVA governance. This absence of political accountability is at least partly responsible for the unwillingness of Congress to replicate the TVA model. Although some efforts were undertaken in the later New Deal to have other watersheds emulate the TVA, none were adopted.<sup>5</sup> The federal corporation approach no longer forms part of the contemporary policy debate about watershed governance. Watershed TGIs created since TVA have all shone much greater sensitivity to the political accountability problem by constituting the

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<sup>5</sup> Kenneth D. Frederick, "Changing Water Resources Institutions," *Sustaining Our Water Resources*, ed. National Research Council (Washington, DC: National Academy Press, 1993), p. 70, cited in Andrea K. Gerlak, "Federalism and U.S. water policy: lessons for the twenty-first century." *Publius* 36.2 (Spring 2006), 231.



governor of each participating state to be that state's official representative on the TGI's governing body. This policy brief concentrates on the three most important of those efforts: The Delaware River Basin Commission, CALFED and the Chesapeake Bay Commission.

The greater attention paid to accountability by post TVA TGIs puts increased burdens on them to prove effective. Decision making responsibilities are shared among the signatory states and the representative(s) of the federal government. Even if compliance can be compelled, voluntary cooperation is greatly preferred. Negotiations and compromise among the signatories is the order of the day.<sup>6</sup> The most important question this brief seeks to answer is whether indeed it is possible to adopt a partnership model and still demonstrate a satisfactory level of effectiveness.

The effectiveness problem is compounded by the difficulty the federal partners have in speaking with one voice on watershed related issues. The EPA sets water quality standards. The Army Corps of Engineers plans and builds water storage and flood control facilities. The Soil Conservation Service promotes improved watershed management through its small watersheds program. The Fish and Wildlife Service protects the habitats of certain species and stretches of rivers that have been designated "wild and scenic." If Native Americans live in the watershed the Department of Interior will involve itself on their behalf. In many Western watersheds, the Bureau of Reclamation will be involved in water storage. These different policy "stovepipes" make it very difficult to formulate an integrated federal government position.

In order to pick out models for emulation it is necessary to establish criteria for judging the relative effectiveness of different alternative forms of transboundary governance. The only fully satisfactory measures of effectiveness are based on performance. Did the Watershed TGI succeed in improving the environmental conditions of the watershed or not? Is the water cleaner? Has water storage improved? Have floods been controlled? Unfortunately there are too many exogenous factors operating on a watershed to enable unambiguous attribution of either success or failure to the TGI per se. If conditions have improved it might well be as a result of one or another of the strictly federal regulatory actions imposed on the watershed in the form of wetlands protection, habitat preservation, pollution control or safe drinking water standards. On the other hand if conditions deteriorate it may be because of agricultural or industrial expansion or population growth resulting in increased pressure on water flows and increases in non point pollution. In neither case can one attribute changes in performance directly to the actions of the TGI.

The case studies in this brief provide some particular instances where water quality improvement is probably attributable to TGI actions, but these are too rare and idiosyncratic to provide a sufficient basis for broad evaluatory judgments. Therefore this brief supplements performance

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<sup>6</sup> Gerlak, op cit.



measures with measures of governmental and political capacity. These two analytically separate categories both speak to the same problem faced by all governmental entities, but especially by those with a complex make up. Do the decisions they make matter? Does anything in the real world change as a result of a decision they arrive at or a plan they propose? Governmental capacity speaks to the need to arrive at and promulgate cogent and plausible decisions and plans. Political capacity concerns political will. What happens when opposition forms against a decision or a plan? Can and does the Watershed TGI stick to its guns and does it prevail—often, sometimes, never?

The next three sections are devoted to brief sketches of the DRBC, CALFED and the Chesapeake Bay program. These are followed by an effort to summarize the lessons learned from these and then by a set of policy recommendations derived from those lessons.

## **Three Watershed Transboundary Governance Institutions**

### **1. THE DELAWARE RIVER BASIN COMMISSION**

The Delaware is the longest un-dammed river east of the Mississippi, extending 330 miles from the confluence of its East and West branches at Hancock, N.Y. to the mouth of the Delaware Bay where it meets the Atlantic Ocean. The river is fed by 216 tributaries, the largest being the Schuylkill and Lehigh Rivers in Pennsylvania. In all, the basin contains 13,539 square miles, draining parts of Pennsylvania (6,422 square miles or 50.3 percent of the basin's total land area); New Jersey (2,969 square miles, or 23.3 percent); New York (2,362 square miles, 18.5 percent); and Delaware (1,004 square miles, 7.9 percent). Included in the total area number is the 782 square-mile Delaware Bay, which lies roughly half in New Jersey and half in Delaware. Even though the watershed drains only four-tenths of one percent of the total continental U.S. land mass, it provides drinking water for almost five percent of the U.S. population. New York City gets roughly half its water from three large reservoirs located on tributaries to the Delaware.<sup>7</sup>

In 1961, President Kennedy and the governors of Delaware, New Jersey, Pennsylvania, and New York signed concurrent compact legislation creating the Delaware River Basin Commission (DRBC) and providing for joint exercise of sovereign power over the water resources of the basin via the DRBC. It was the first interstate agreement to also include the federal government as a signatory and participant. Commission programs include water quality protection, water supply allocation, regulatory review (permitting), water conservation initiatives, watershed planning, drought management, flood loss reduction, and recreation.<sup>8</sup> The DRBC Executive Council is comprised of the four basin state governors and the Division, North Atlantic Division Engineer of U.S. Army Corps of Engineers, who serves as the federal representative. Prior to 1997 the federal

<sup>7</sup> Delaware River, State of the Basin Report, December 2008, 6. <http://www.state.nj.us/drbc/SOTB/introduction.pdf>

<sup>8</sup> Delaware River Basin Commission: DRBC Overview. <http://www.state.nj.us/drbc/over.htm>



representative was chosen by the president and was usually the Secretary of the Interior.<sup>9</sup> The DRBC has its own professional staff of approximately 50 people housed in West Trenton New Jersey and headed by an executive director appointed by the Commission. The line responsibilities of the Commission are performed by its Water Resources Division headed by the Chief Engineer.<sup>10</sup>

Each commissioner has one vote. A majority vote needed to decide most issues. The commission's annual budget and drought declarations require unanimity but all other matters are decided by majority vote.<sup>11</sup> In practice however, most important questions are settled by consensus. The commission has strong motive to avoid dissension among its members because the compact does not dictate a funding formula, therefore members are not compelled to provide their fair share.<sup>12</sup>

The DRBC's powers to control the destiny of the Delaware are not absolute. At Congress's insistence the DRBC Compact includes reservations that bar the DRBC from *compelling* federal agencies to carry out the commission's plans and directives. However, the DRBC does have the power to *prevent* agencies from carrying out activities that affect the watershed that commission has not approved. This power gives it substantial bargaining power. Federal agencies are forced to alter their projects in order to gain DRBC approval. But it deprives the agency of confidence that the steps it thinks ought to be taken to protect the Basin will occur because many of those steps can only be taken by federal agencies whose cooperation it cannot compel. For example, DRBC's inability to compel FEMA to upgrade its floodplain restrictions to match those of DRBC prevented the commission from exerting a meaningful role in flood damage prevention.<sup>13</sup> Since it can only exercise a right of approval concerning projects planned by other agencies it functions more like an appellate court than a planning agency.<sup>14</sup>

The most thorough evaluation of DRBC performance, indeed of the performance of any TGI, finds that despite significant limitations, the DRBC has demonstrated a high level of success. In designing his research, Featherstone develops several operational measures of agency performance.<sup>15</sup> He demonstrates that, to an impressive degree, the Commission does indeed meet the goals set out for it in the Compact. It has improved minimum stream flows on the Delaware and its tributaries; successfully dealt with drought emergencies; reduced the overdraft

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<sup>9</sup> Featherstone, Jeffrey P., 1999. An Evaluation of Federal-Interstate Compacts as an Institutional Model for Intergovernmental Coordination and Management: Water Resources for Interstate River Basins in the United States. Doctoral Dissertation, Temple University, Philadelphia, Pennsylvania. Dissertation Abstracts International, 61 (01) (University Microfilms No. AAT99-55817), 81. Afterwards referred to as *Featherstone 1999*

<sup>10</sup> Featherstone 88.

<sup>11</sup>: DRBC Overview <http://www.state.nj.us/drbc/over.htm>

<sup>12</sup> *Featherstone 1999*, 94.

<sup>13</sup> *Ibid.*, 186-187.

<sup>14</sup> *Ibid.*, 81.

<sup>15</sup> *Ibid.*, 36-37





of groundwater; improved water supply reliability; and been a meaningful actor in reducing water pollution.<sup>16</sup> Featherstone also credits the DRBC with exercising meaningful control over the watershed via its use of its approval powers over federal projects. The commission is held in high esteem by the array of water users, state and local officials, environmental organizations and other parties who are involved in watershed issues.<sup>17</sup>

These findings are borne out by the most recent comprehensive examination of the Delaware watershed.<sup>18</sup> As of 2009, water flow targets were being met 95 percent of the time.<sup>19</sup> Salt incursions from the Delaware Bay into the river were being kept under control.<sup>20</sup> The water supply was judged to be adequate in both supply and quality.<sup>21</sup> Water quality measures were similarly positive. Both Phosphorus and Nitrogen loadings had declined significantly since 1985. Progress had halted since then but had not been reversed. Dissolved Oxygen standards were being met.<sup>22</sup> Water clarity in this naturally turbid estuary was judged to be good.<sup>23</sup>

This effectiveness has been achieved without sacrificing public accountability. Public opinion in the member states as exercised through their governors has succeeded in forcing the DRBC to reverse course. Such exercise of accountability is well illustrated by the Tocks Island dispute. In the early 1960's the DRBC devised a comprehensive water supply expansion plan the centerpiece of which was the Tocks Island Project. It consisted of a dam across the Delaware River, six miles upstream of the famous Delaware Water Gap, creating a 40-mile long lake capable of storing 250 billion gallons of water.<sup>24</sup> This project promised to provide the Philadelphia and New York metropolitan areas, including their New Jersey suburbs, with much greater water supply protection against the severe droughts both had experienced during the 1960's and therefore enjoyed the enthusiastic support of the governors of all three states. However, inspired by the rise of environmental consciousness nationwide, a vigorous protest movement against the dam arose in the impacted areas and gained strong support statewide public support especially in New York and New Jersey. In response, the governors of those states withdrew their support for the project and despite the continued support of Pennsylvania, the DRBC voted in 1975 not to ask Congress to fund it. The federal government representative abstained.<sup>25</sup>

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<sup>16</sup> Ibid., 182-186

<sup>17</sup> This finding was achieved via Featherstone's conduct of opinion surveys among the relevant actors.

<sup>18</sup> DRBC, State of the Basin Report, December 2008, <http://www.state.nj.us/drbc/SOTB/index.htm> State of the Basin Report

<sup>19</sup> Ibid., Category One, Basin Hydrology, 12.

<sup>20</sup> Ibid., Category One, Basin Hydrology 14.

<sup>21</sup> Ibid., Category One, Basin Hydrology 18.

<sup>22</sup> Ibid., Category Two, Water Quality, 31, 32.

<sup>23</sup> Ibid., Category Two, Water Quality, 35.

<sup>24</sup> Richard C. Albert. "In-Tocks-icated: The Tocks Island Dam Project," 5. CRM: Cultural Resource Management, National Park Service, <http://crm.cr.nps.gov/archive/25-03/25-03-3.pdf>

<sup>25</sup> Ibid., 8.



The DRBC has also shown considerable political will. When the Commonwealth of Pennsylvania refused to adopt a more stringent plumbing code that the DRBC was advocating, the DRBC won a political test of political will by ordering the Pennsylvania localities within its jurisdiction to adopt the code, which they did.<sup>26</sup>

## 2. CALFED

CALFED focuses on an estuary, the Bay Delta, formed by the Sacramento and San Joaquin Rivers that merge there and then flow on into San Francisco Bay. The Delta drains approximately 40 percent of the state, provides 40 percent of the state's drinking water and irrigates 45 percent of the nation's vegetables crop. It is strewn with levees originally built to control flooding but now also creating channels for water to flow to the Delta's two major pumping stations that propel it south to irrigate farms in the San Joaquin Valley and provide Southern California with drinking water.<sup>27</sup>

The major sources of contention regarding the Delta concern water flows and salinity. San Francisco, Los Angeles and central and southern California farmers all vie with one another to ensure that they receive adequate water supplies from the Delta to meet their water needs. In addition, state and federal wildlife agencies compete with all these other users to ensure that sufficient water is reserved to sustain wildlife habitats, particularly those of endangered species.

The maintenance of a low salinity zone in the Delta is the key issue for habitat preservation. As more freshwater is diverted for agricultural and municipal use, saltwater from San Francisco Bay moves further up the Delta destroying freshwater reliant habitats.

The impetus for CALFED was EPA's determination to abandon its decade long effort to encourage the California State Water Board to adopt stringent salinity standards sufficient to protect freshwater fish populations and other Bay Delta wildlife and to promulgate such standards itself. This threat of federal intervention gave water users a strong incentive to negotiate with EPA rather than face the drastic decreases in water allocations that might result from stringent federal standards. EPA's motive to negotiate derived from its own uncertainty about whether its claim to have the authority to set salinity standards would stand up in court. In 1993, a decision making process dubbed CALFED involving both state and federal agencies was embarked upon in order to resolve the conflict between water use and water quality and at developing a governing entity capable of managing Delta water flows such as to satisfy these competing demands over the long term.

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<sup>26</sup> Featherstone 1999 112.

<sup>27</sup> Still Imperiled, Still Important: The Little Hoover Commission's Review of the CALFED Bay-Delta Program, Little Hoover Commission, State of California, November 17, 2005(Afterwards referred to as Little Hoover) 5-10.  
[http://calwater.ca.gov/content/Documents/Little\\_Hoover\\_Commission\\_Review.pdf](http://calwater.ca.gov/content/Documents/Little_Hoover_Commission_Review.pdf)



Initially, CALFED was hailed as a great success because by 1994 the parties involved were able to come to negotiate a compromise, the Bay-Delta Accord. EPA withdrew its draft standards and agreed to live with less stringent standards set by the state. In exchange the California Water Resource Board, representing water users, agreed to accept lower levels of diversions in exchange for the certainty that those levels would indeed not be lowered in the future. If the FWS were to seek lower diversions in order to increase endangered species protection it would have to buy water rights from willing sellers rather than take water through regulatory action. The lead federal negotiator, Elizabeth Anne Rieke, Assistant Secretary for Water and Science in the Department of the Interior, summed up the agreement as “more water for the environment, less water but more certainty for users and a return to state primacy in water quality decisions. As of 2009 the accord remains in place and is considered a success.”<sup>28</sup>

The success of the Bay-Delta accord rested in large measure on the ability of the four different federal agencies involved in the negotiations to reach agreements among themselves and therefore present their state counterparts with a unified position. The four federal agencies were the Bureau of Reclamation, located in the Department of the Interior, which operates a major federal water project (the Central Valley Project) diverting water from the Delta and its tributaries; the Fish and Wildlife Service, also in the Department of the Interior, which is responsible for implementing ESA protective measures for listed fish species that spend more than half their life cycle in fresh water; the National Marine Fisheries Service in the Department of Commerce, responsible for ESA implementation for fish species that spend half their life cycle in the ocean; and EPA. This success was achieved due to the willingness of the four agencies to establish themselves, informally, as a caucus with a single leader,. Only two of the four agencies were in the Department of the Interior, yet all of them agreed to allow Assistant Secretary Rieke to preside over a process aimed at resolving internal differences and presenting a united front to their state counterparts. Such unity would not have been possible had not Rieke’s boss, Secretary of the Interior Bruce Babbitt, been willing to spend some of his own political capital to obtain commitments from his peers—the Administrator of EPA and the Secretary of Commerce to press their subordinates on the Clubfed team to stand behind Rieke.<sup>29</sup>

In the wake of this victory the challenge for CALFED was to create a TGI capable of sustaining it. In 2000, CALFED produced a Record of Decision (ROD) establishing a 30-year plan for the Bay-Delta. The ROD identified four core program goals: water reliability, ecosystem restoration, water quality, and levee system integrity. It also established 11 program components including a science program to improve and increase the scientific basis for decision-making. The ROD called for the

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<sup>28</sup> Ibid., 32.

<sup>29</sup> Elizabeth Ann Rieke, “THE BAY-DELTA ACCORD: A STRIDE TOWARD SUSTAINABILITY,” University of Colorado Law Review, Spring 1996, 67 U. Colo. L. Rev. 341.



establishment of a joint federal—state commission to implement, but it gave no specifics about how the commission was to be structured and what powers it would have.

In 2002 California adopted legislation creating the California Bay-Delta Authority to implement the Bay-Delta Plan. The authority is comprised of 24 members—six state and six federal agency representatives, seven public members, one member from the Bay-Delta Public Advisory Committee and four non-voting legislative members. The Governor, in consultation with the secretary of the Interior, appoints an executive director and, with the advice of the executive director, appoints a lead scientist.

The California Bay-Delta Authority reviews programs and budget proposals and coordinates with federal agencies to request federal funding, but unlike the proposal in the ROD it has no budgetary authority. Furthermore it was denied the power “to restrict or override constitutional, statutory, regulatory, or adjudicatory authority or public trust responsibilities of ...any local, state, or federal agency, or local water project operations under applicable law and contracts.<sup>57</sup> Implementing agencies were directed to align their efforts to CALFED, but only to the extent it was “feasible.” In 2004, Congress authorized federal participation in CALFED but did not grant voting power to the federal agencies participating in the Bay-Delta Authority.

The most authoritative study of Bay-Delta ecology and governance produced by California’s independent state oversight agency the Little Hoover" Commission on California State Government Organization and Economy, depicts an ecosystem in decline and a TGI in disarray.

CALFED was forged from a crisis, and to a crisis CALFED has returned.... Some \$3 billion have been spent trying to fix the Delta. But the Delta smelt that some consider to be the estuary’s coalmine canary are even harder to find than stakeholders who are willing to put up their own money to continue funding CALFED. *CALFED is costly, underperforming, unfocused and unaccountable (my italics).*<sup>30</sup>

The Bay-Delta is on the Clean Water Act 303(d) list of impaired water bodies because of elevated concentrations in fish tissue of PCBs, DDT and other pesticides. Mercury is present in Delta fish at levels that pose a risk for humans and animals that eat the fish. Dissolved oxygen levels in waters near Stockton are low enough during some seasons to impair aquatic life. Nitrate concentrations, while still below USEPA drinking water standards, have steadily increased over the past 50 years. Pyrethroid pesticides have been detected at concentrations high enough to contribute to toxicity in sensitive aquatic species. And highly toxic dioxin chemicals are present in fish at levels above

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<sup>30</sup> Cover Letter for *Little Hoover*.



the Office of Health Hazard Assessment screening values. According to the regional board, levels of salinity, organic carbon and copper are about the same as when CALFED started.<sup>31</sup>

Thus the promising CALFED initiative failed to live up to its early promise. Its greatest accomplishment was its ability to bring warring state and federal parties to the table and, under the threat of draconian federal regulatory intervention, to enable them to make a deal that appeared to protect the key interests of all parties. However the plan aimed at ensuring the long-term viability of that deal did not result in a governing structure capable of sustaining it. The TGI created by California statute has no budgetary authority and no power to over ride the decisions of other agencies. Nor is it truly a joint federal and state authority since the federal representatives have no voting power.

### 3. THE CHESAPEAKE BAY PROGRAM

The Chesapeake Bay is an estuary of the Susquehanna River. The main stem of the Susquehanna, which provides about 50 percent of the freshwater flow to the Bay, runs through Pennsylvania; the shoreline of the Bay itself is shared between Maryland and Virginia. These three states, along with the District of Columbia and the federal government (through the EPA and other agencies), are the major jurisdictions in interest on the Bay. The Bay's 64,000 square mile watershed is home to about 15.5 million people.<sup>32</sup>

In 1983, EPA published the results of a six year study showing "declines in living resources and submerged aquatic vegetation, increased nutrient loadings [with corresponding reductions in dissolved oxygen levels critical for key aquatic species], and elevated levels of toxic contaminants."<sup>33</sup> Provoked by these finding, Virginia, Maryland, Pennsylvania, the District of Columbia, EPA and the Chesapeake Bay Commission (an advisory body composed of state legislators, agency heads and citizen representatives) established the Chesapeake Program. The parties agreed to meet annually, to conduct monitoring, research and data management programs, and to achieve a forty percent reduction in nutrient loadings in the Bay by 2000.<sup>34</sup> To effectuate that result, they committed themselves to reduce non-point source pollution and to control growth. In 1992, they made an additional commitment to reduce nutrient loadings by forty percent by 2000 and to formulate plans for each significant tributary to arrive at that

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<sup>31</sup> Ibid.

<sup>32</sup> Chesapeake Bay Program: About the Bay: Bay Watershed  
<http://www.chesapeakebay.net/thebaywatershed.aspx?menuitem=13942>

<sup>33</sup> Mark Imperial et al., "An Evolutionary Perspective on the Development and Assessment of the National Estuary Program," 20 Coastal Mgmt. 311, 324.

<sup>34</sup> Chesapeake Bay Program, 1983 Chesapeake Bay Agreement, at <http://www.chesapeakebay.net/pubs/1983chesapeakebayagreement.pdf>.



goal.<sup>35</sup> In 2000 Agreement was further broadened to include nutrient and sediment control as well as land use controls, habitat restoration and increasing oyster populations.<sup>36</sup>

The Chesapeake Bay Program Office in Annapolis, Maryland is managed by EPA and staffed by employees from a number of federal and state agencies, nonprofit organizations and academic institutions. The EPA provides 20 million dollars annually to fund the office. The CBP is governed by an Executive Council composed of the governors of Maryland, Pennsylvania and Virginia; the administrator of the U.S. Environmental Protection Agency, representing the federal government as a whole; the mayor of the District of Columbia; and the chair of the Chesapeake Bay Commission, which is composed of representatives from the legislatures of the three Program states.<sup>37</sup>

The Chesapeake Bay Agreement includes no enforcement mechanism. It depends on the goodwill of the signatories. Nonetheless its capacity to influence behavior is demonstrated by its success in encouraging a reluctant signatory, Virginia, to pass a stringent wetlands law. In 1988 the program set a no-net-loss goal for wetlands. Pennsylvania and Maryland passed laws to implement this objective but Virginia did not. As long as the “no net loss” policy of the federal wetlands program was in force in Virginia, the lack of a state law was insignificant. But federal court decisions in 1997 and 1998 narrowed the scope of federal wetlands jurisdiction. n108 n109 A key argument of those advocating that Virginia substitute its own no net loss policy was that the Commonwealth should not shirk its responsibilities to its Chesapeake Bay Program partners.<sup>38</sup> This argument proved persuasive and Virginia passed its own no net loss wetlands program.<sup>39</sup>

Virginia has not shown a similar susceptibility to pressure from its CBA partners in the area of land use. Although both Maryland and Virginia have created management programs aimed at controlling land use adjacent to the Bay, the Virginia program has no authority to compel compliance from local governments and has been termed “a paper tiger” by its own director.<sup>40</sup> The Maryland program gives the state tighter control over land use planning and control. Likewise, Virginia has refused to accept a 1999 proposal, agreed to by the other signatories,

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<sup>35</sup> Chesapeake Bay Program, Chesapeake Bay Agreement 1992 Amendments, at <http://www.chesapeakebay.net/pubs/1992ChesapeakeBayAmendments.pdf>.

<sup>36</sup> Chesapeake Bay Program, Chesapeake 2000: A Watershed Partnership, at <http://www.chesapeakebay.net/agreement.htm>.

<sup>37</sup> Chesapeake Bay Program: Funding and Financing; Office Staff; Executive Council; <http://www.chesapeakebay.net/index.aspx?menuitem=13853>

<sup>38</sup> Arguments by proponents for a strong, no-net-loss state regulatory program invoked the Baywide policy and the legislation already adopted by Maryland and Pennsylvania. The Roanoke Times editorialized that Virginia was “lagging shamefully behind” its “partners in cleaning up the Chesapeake Bay.”, n110 n111

<sup>39</sup> Va. SB 648, (amending Va. Code Ann. § 62.1- 44.29 (Michie 1998)), available at <http://www.leg1.state.va.us/cgi-bin/legp504exe?001+fultCHAP1032>. See the discussion in Jon Cannon, “Choices and Institutions in Watershed Management,” *Wm. & Mary Envtl. L. & Pol’y Rev* Winter 2000,25. 379.

<sup>40</sup> Cannon 404.



committing each state to reducing the rate of development of agricultural and forest lands by 30 percent over the next ten years.<sup>41</sup>

As of 2000 the CBP showed impressive effectiveness in meeting its goals. Jonathan Cannon attributes these reductions primarily to CBP rather than strictly federal regulatory actions.

“The enactment of the phosphate ban by the several states, coordinated by the Chesapeake Bay Commission, was driven not by federally enforceable water quality standards but by the program’s nutrient reduction goals. n136 Similarly, upgrades to advanced treatment by sewage treatment plants in the region took place in spite of a national policy discouraging such treatment, and was aided by advances in treatment technology (biological nutrient removal) funded by the program.”<sup>42</sup>

More recent environmental quality data are far less positive. As of 2002, phosphorus had increased marginally, nitrogen had decreased by a similarly small amount and sediment had remained constant.<sup>43</sup> A 2006 report on the health of the Bay reported that mid channel water clarity had declined below 1985 levels. Bay grass abundance, which had increased throughout the 1990’s, declined. Nitrogen and phosphorus river flow loadings were above 2000 levels.<sup>44</sup> On the whole, the key water quality indicators worsened in 2007 and remained the same in 2008.<sup>45</sup>

In the face of these poor results, the six Chesapeake Bay Watershed States (Virginia, Maryland, Delaware, West Virginia, Pennsylvania, and New York), the District of Columbia, and U.S. Environmental Protection Agency agreed in 2008 that a Total Maximum Daily Load (TMDL) for nutrients and sediment in the Bay needed to be developed. A TMDL sets a limit on the amount of pollution that can enter a water body and then develops a regulatory cleanup plan geared towards meeting that target. EPA has assumed primary responsibility for the establishment of the Bay TMDL. The target date for completing this is December 31, 2010. If that date is not met, a federal court consent decree requires EPA must complete the Bay TMDL no later than May 1, 2011.<sup>46</sup>

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<sup>41</sup> Ibid.

<sup>42</sup> Ibid., 406.

<sup>43</sup> The State of the Chesapeake Bay and Its Watershed: A Report to the Citizens of the Bay Region CBP/TRS 273/05 EPA 903-R-04-009 December 2004. [http://www.chesapeakebay.net/content/publications/cbp\\_16926.pdf](http://www.chesapeakebay.net/content/publications/cbp_16926.pdf)

<sup>44</sup> *Report to the Citizens of the Bay Region* CBP/TRS 283/07 EPA 903R-07001, April 2007 [www.chesapeakebay.net](http://www.chesapeakebay.net) 4, 612

<sup>45</sup> *Chesapeake Bay Health Assessment and Restoration Assessment 2007*, A Report to the Citizens of the Bay Region: Bay Health; Watershed Health; Factors Impacting Bay Health; Restoration & Protection Efforts. EPA-903-R-08-002 March 2008 [www.chesapeakebay.net](http://www.chesapeakebay.net). *Bay Health and Restoration Assessment 2008* <http://www.chesapeakebay.net/indicators.htm>

<sup>46</sup> ENVIRONMENTAL PROTECTION AGENCY [FRL-8955-4] Clean Water Act Section 303(d): Preliminary Notice of Total Maximum Daily Load (TMDL) Development for the Chesapeake, Federal Register/Vol. 74, No. 179/Thursday, September 17, 2009/Notices, 4779247792



The Obama Administration has taken an aggressive stance towards improving Chesapeake Bay water quality. In March of 2009, President Obama appointed Charles Fox to be Senior Advisor to the EPA Administrator on the Chesapeake Bay. Fox had been perhaps the most prominent and influential environmentalist associate with Chesapeake Bay issues over a period of several decades. In his testimony to various congressional committees he made clear his intent to make full use of EPA's statutory powers to press for improved environmental quality in the Bay.<sup>47</sup> In May of 2009, President Obama issued an executive order empowering EPA to set a more demanding timetable for Chesapeake Bay cleanup. The federal government would require states to accomplish specific goals every two years.<sup>48</sup> If states failed to meet the milestones EPA would penalize them in a variety of ways: by objecting to state-issued CWA National Pollutant Discharge Elimination System (NPDES) permits; limiting or prohibiting new or expanded discharges of nutrients and sediments; and withholding grant funds.<sup>49</sup> In the fall of 2009 the Obama Administration enthusiastically endorsed a Senate bill S.1816 that would expand EPA authority to regulate agricultural pollution and urban and suburban runoff and would require offsets for any new sources of nutrient discharge or for increases from existing sources.<sup>50</sup>

The strategy document for implementing the executive order is still being written and the proposed legislation is only in the initial stage of congressional consideration. It is, therefore, impossible to tell what impact, if any, these new initiatives will have on Chesapeake Bay water quality. It is important to note however that they do represent a reversal in approach from the other TGI initiatives this paper has discussed. They depart from the post TVA emphasis on responsibility sharing between the federal government and the states. They reorient the Chesapeake Bay effort in the direction of the conventional EPA dominated model of top down command control regulation that typifies policy implementation under the Clean Water and Clean Air Acts. The EPA will be in full charge of the regulatory process. It will issue detailed regulatory guidelines to be met by the states according to rigid timetables violations of which will be penalized. Whatever gains in flexibility, policy integration and sensitivity to local conditions that state—federal partnerships ostensibly provide, will be sacrificed.

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<sup>47</sup> Ashley Halsey III "He's In Deeper Waters Now: PA Adviser on Bay's Health Skilled in the Art of Politics," Washington Post, March 31, 2009, <http://www.washingtonpost.com/wp-dyn/content/article/2009/03/30/AR2009033003066.html?sid=ST2009033003158>, see, for example, his testimony BEFORE THE SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE U.S. HOUSE OF REPRESENTATIVES, September 22, 2009 [http://www.epa.gov/ocir/hearings/testimony/111\\_2009\\_2010/2009\\_0922\\_jcf.pdf](http://www.epa.gov/ocir/hearings/testimony/111_2009_2010/2009_0922_jcf.pdf)

<sup>48</sup> EXECUTIVE ORDER CHESAPEAKE BAY PROTECTION AND RESTORATION, White House.Gov., [http://www.whitehouse.gov/the\\_press\\_office/Executive-Order-Chesapeake-Bay-Protection-and-Restoration/](http://www.whitehouse.gov/the_press_office/Executive-Order-Chesapeake-Bay-Protection-and-Restoration/)

<sup>49</sup> TESTIMONY OF J. CHARLES FOX SENIOR ADVISOR TO ADMINISTRATOR LISA P. JACKSON U.S. ENVIRONMENTAL PROTECTION AGENCY BEFORE THE SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE U.S. HOUSE OF REPRESENTATIVES September 22, 2009. [http://www.epa.gov/ocir/hearings/testimony/111\\_2009\\_2010/2009\\_0922\\_jcf.pdf](http://www.epa.gov/ocir/hearings/testimony/111_2009_2010/2009_0922_jcf.pdf)

<sup>50</sup> Ibid.





## Lessons Learned

The DRBC has proven to be the most effective of the three Watershed TGIs in improving the environmental conditions of the watershed it governs. Water flow targets have been met; salt incursions controlled; water supply maintained; phosphorus and nitrogen loadings significantly reduced; water clarity protected and Dissolved Oxygen standards met. The Chesapeake Bay Program has a more mixed record. Phosphorous and nitrogen loadings have declined significantly by 2000 but that progress has halted. The other water quality indicators listed above have fallen below 2000 levels. CALFED has the worst record of performance. The most salient indicators of environmental quality are negative and the government of California has labeled the Bay Delta to be in “crisis. Only the initial accord that was entirely substantive with no institutional design implications has proven successful.

The level of environmental performance correlates with the governing and the political capacity exercised by each Watershed TGI. Only the DRBC has independent regulatory authority. It routinely exercises that authority. It has shown impressive political capacity by refusing to renege on that authority even when pressed to do so by other agencies or even by a member state. The initial CALFED agreement was binding but no aspect of the subsequent effort to establish an on going governing structure placed any binding requirements on the parties. Indeed the federal government did not even allow its Bay Delta Authority members to vote on issues before the DBA. Since its impressive inception, CALFED has not demonstrated any further meaningful governing or political capacity. CBP decisions were likewise not binding but at least on some occasions the CBP majority was able exercise moral suasion to bring a recalcitrant member into line demonstrating impressive political capacity on that occasion.

Only two of the three cases involve more than one state. In those instances, although there have been conflicts, the states have shown an impressive ability to overcome differences and act cooperatively. The relationship of the three Watershed TGI’s with the federal government has been more uneven. Perhaps because it does not make independent decisions, the CBP has been able to cooperate quite effectively with the EPA relying on it as the principle research, policy analysis and administrative hub of the program.

The initial federal role in CALFED was very productive. Club Fed remained unified under the leadership of Assistant Secretary Rieke and forged the successful compromise with state agencies regarding water allocation and standard setting. The ability of CALFED to adopt a common federal position was critical to the success of the negotiations. The federal government was less effective in the subsequent institutional design phase and, as its refusal to allow federal representatives to vote indicates, it has made no real commitment to the product of the CALFED planning process, the Bay Delta Authority. The federal role in the DRBC has shifted significantly. Until 1997, the federal representative was the Secretary of the Interior and then it became a regional officer of



the ACE. Such a downgrading makes it even more unlikely than it was before that the federal representative would attempt to put forth a federal government position on important matters rather than represent the position of his (her) agency. This lack of a unified federal voice has greatly impeded successful policy integration.

## Recommendations

In light of the foregoing analysis of Watershed TGI's, this brief offers the following recommendations:

- 1 The federal government should encourage the formation of state-federal Watershed TGIs. The multi-state nature of watersheds makes them ungovernable on a state by state basis. Federal agencies are too deeply involved in the water quantity and quality issues affecting watersheds to be excluded from watershed governance. Therefore it is necessary to involve *both* the states and the federal government in watershed governance.
- 2 Federal state Watershed TGIs should be given regulatory authority. A purely voluntary model of Watershed TGI governance is insufficient to enable the TGI to make the hard decisions that it will inevitably face as it seeks to protect the watershed environment. The superior performance of the DRBC is best attributed to the regulatory authority it possesses.
- 3 In order to ensure accountability, governors should serve as their state's official representatives on the Watershed TGI's governing body.
- 4 Any new Watershed TGI should be granted the power to plan and execute its own projects rather than merely exercising a veto power over the project proposals that come before it.
- 5 The federal representative to the Watershed TGI should have the authority and the stature to transcend narrow agency perspectives to adopt and defend a single federal point of view.

