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Abstract

Collaborative governance- or collaboration- has become increasingly important for the design and implementation of public policy in the United States. This dissertation explores concrete and unique policy-related benefits emerging from collaboration, and the processes by which they emerge.

Collaboration is defined broadly as "any interaction between two or more organizations undertaken with the intention to cooperate." This definition is applied in the context of water quality management, where the physical nature of watersheds and the lack of regulatory authority available to policy-makers leads to a variety of collaborative arrangements.

A survey of literatures addressing collaboration from different theoretical angles revealed five concrete, policy-related benefits of collaboration: 1) resource access/exchange, 2) innovation generation, 3) coordinated action, 4) working relationships built through social capital, and 5) reduction/resolution of conflict. A rich empirical dataset was developed to explore these benefits, utilizing one large case (the Chesapeake Bay watershed restoration) and one smaller case embedded in the first (water quality management in the Northern Virginia, or NOVA, region). Key data sources included 1081 *Bay Journal* newspaper articles and 86 hours of audio interviews. Coding revealed 456 instances in which collaboration led to one of the five benefits, including 243 instances of resource exchange/access, 99 instances of coordinated action, 62 instances of working relationships developed through social capital, 28 instances of innovation generation, and 24 instances of conflict resolution.

The analysis in this dissertation focuses on the 99 empirical instances of coordinated action. A process common to all instances, called "Harmonizing", is identified and described. Harmonizing occurs when organizations address a shared problem at a scale that approaches the

actual scale or scope of the problem. Chapter 5 features an original typology of harmonizing based on the type of "problem landscape" over which organizational actions are harmonized: geographical, organizational, or ecological. Chapter 6 describes how harmonizing solves three types of "boundary" problems common to many policy areas (not just water quality management) and results in more holistic and efficient policy-making by avoiding the pitfalls of duplication, divergence, omission, and counter-production (Huxham and MacDonald 1992).

The context of collaboration is explored by applying three contextual codes to the data: 1) the types of groups collaborating, 2) the collaborative forum, and 3) the policy area in which collaboration occurs. A key contextual finding is that certain collaborative forums – particularly coordinating organizations– facilitate harmonizing under difficult conditions. A thematic analysis of the role of coordinating organizations, utilizing a broader spectrum of data, revealed in more detail the roles that coordinating organizations play in overcoming obstacles to collaboration such as competition, parochial perspectives, and accountability concerns.

The greatest contributions of this dissertation relate to the benefit of coordinated action. However, a thematic analysis (presented in Chapter 8) uses empirical data to describe the other four benefits and processes by which they emerge. It is found that resource exchange generates benefits at the community level – not just at the organizational level as implied by resource exchange theory— by expanding the overall resource base and improving organizations' collective ability to act. Another key finding is that including perceived "naysayers" in the decision process helps to prevent innovations from being squashed, by forcing a serious conversation about perceived versus real obstacles.

ADDRESSING TRANS-BOUNDARY CHALLENGES THROUGH COLLABORATION: HOW ORGANIZATIONS "HARMONIZE" ACTIONS AND DECISIONS ACROSS PROBLEM LANDSCAPES

by

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Chapter 1: Introduction and justification for research

Collaborative governance- or collaboration- has become increasingly important for the design and implementation of public policy in the United States. For many government agencies, collaboration is a primary strategy for coping with the realities of the policy process: overlapping jurisdictions, dispersed expertise, complex and shifting problems, and scarce resources.

Although collaboration in government is not a new phenomenon, scholarship on collaboration has expanded considerably over the past fifteen years in the public policy and public management fields. Some scholars believe that collaborative governance represents a new management "paradigm" that has replaced the bureaucratic paradigm (e.g. Goldsmith and Eggers 2004, Kettl 2002). Many extol the virtues of collaboration, describing advantages for collaborating organizations and for the policy process in general. Advantages to individual government agencies may include access to financial or technical resources, greater political legitimacy, and greater access to client groups. For the policy process in general, collaboration may increase flexibility and adaptability, promote higher levels of information exchange and better communication among organizations, and encourage organizations to pool resources towards achieving common goals. Beyond process, some scholars believe that collaboration will lead to improved substantive policy outcomes- such as more effective government programs (e.g. Selden, Sowa, and Sandfort 2006, Jennings and Ewalt 1998). Other scholars focus on the secondary benefits of collaboration, such as increased social capital and trust, personal transformations, reduction of conflict among collaborating parties, and mutual learning (e.g. Wondolleck and Yaffee 2000, Connick and Innes 2003).

Many promises have been made about collaboration. Meanwhile, insufficient effort has gone into describing the outcomes of collaboration and evaluating whether it improves policy or produces value beyond what is possible when organizations work alone. This research identifies and describes concrete benefits of the collaborative process. In addition, I examine processes or mechanisms by which collaboration produces benefits and the conditions under which benefits are produced. Specific questions that guide this research are:

- 1) What key concrete, policy-related benefits can be attributed to collaboration? ¹
- 2) What are the process/mechanisms unique to collaboration that bring about these benefits?
- 3) How do key contextual variables (in particular: policy area, actors involved in collaboration, and collaborative forum) affect the type of benefit(s) that emerge from each collaborative process/mechanism?

I identify and describe five benefits of collaboration in this dissertation: coordinated action, resource access/exchange, innovation, reduced conflict, and working relationships created through social capital. My most significant contribution, however, relates to the coordinated action benefit. I introduce an original concept – a process called Harmonizing – by which independent organizations address a shared problem at a scale that more appropriately fits with the actual scope of the problem. By harmonizing at the appropriate scale, decisions and actions

a sufficient volume of literature on which to base a conceptual development project.

¹ This research focuses on the benefits, and not the costs, of collaboration. Leaving costs out of my analysis was a conscious, strategic decision based on my review of the literature. Literature on benefits of collaboration is voluminous but fragmented. The sheer volume of scholarly work done on collaborative benefits, which utilizes various theoretical bases, meant it was possible to collect enough scholarly work to develop research propositions. The fragmented state of the literature on collaborative benefits indicates that it is an appropriate time to organize, streamline, and integrate existing scholarship into a defined list of benefits, and explore them empirically. Scholarly work on costs of collaboration, on the other hand, is limited. Scholars talk about how collaboration is time-consuming and expensive, and about the loss of autonomy or the fear of releasing proprietary information. But most of the public management literature addresses obstacles to achieving collaboration rather than costs. There is not yet

of independent organizations make sense from a broad, comprehensive, or holistic perspective. There are also gains in efficiency (through reduction in redundancy, goal divergence, and counter-production) and benefits related to standardization of policies. My analysis of the harmonizing concept and the benefits produced by harmonizing is the focus of three of my four empirical chapters.

In this introductory chapter, I provide a definition of collaboration, justify my research goals, and describe gaps in the literature that I am filling. In Chapter 2, I introduce key information on water quality management, the policy context selected for my research. Chapter 3 is devoted to a survey of various literatures from which I identify eight benefits of collaboration, five of which are pursued in my empirical analysis. In Chapter 4, I describe my methods and cases. Chapters 5 through 7 are devoted to the benefit of coordinated action, and in particular the harmonizing concept. In Chapter 5, I introduce the harmonizing concept and my original typology. In Chapter 6, I explain how different harmonizing types solve problems common to many policy areas, not just water quality, and describe the efficiency and standardization benefits. In Chapter 7, I analyze the context in which harmonizing occurs and conduct a broader analysis of the role of coordinating organizations in achieving successful collaboration under difficult conditions. In Chapter 8, I conduct an analysis for the other four benefits of collaboration, pulling out key themes and findings. Chapter 9 is a conclusion, in which I discuss my contributions, the limitations of my research, and future research plans.

I explore my research questions in the context of water quality management, focusing on two cases: 1) the Chesapeake Bay restoration, a collaborative partnership among six states, the District of Columbia, U.S. EPA and the Chesapeake Bay Commission and 2) watershed management and related activities in Northern Virginia, a region physically embedded with the

Chesapeake Bay watershed. These cases guide data collection, which includes 86 hours of indepth interviews and 1,081 news articles. Coding this data results in 456 "instances" of collaboration where one of the five key benefits of collaboration occurred. Qualitative analysis methods applied to this database of "instances" of collaboration— such as sorting, categorizing, and thematic analysis—result in in-depth conceptual development on the coordinated action benefit and a series of key themes for the other four benefits. In addition, I conduct an analysis of co-occurring codes to examine the context in which the benefit of coordinated action occurs.

Note that although this research uses a rich, carefully constructed empirical dataset, my contributions are towards theory-building rather than hypothesis-testing. I develop robust concepts—particularly the concept of harmonizing—through structured analysis of my empirical data. Harmonizing and other ideas may serve as unifying concepts for collaboration and may be applied to studies of collaboration's outcomes by future researchers; I provide specific research questions and hypotheses in the conclusion. Harmonizing may also be applied by practitioners of collaboration to improve policy outcomes.

Defining collaboration

Collaboration is conceptualized in a wide variety of ways by scholars drawing upon different literatures and different theoretical bases. This "conceptual stretching" (O'Leary and Vij 2012, pp. 11) means it is important to clarify my own definition:

"Collaboration is any interaction between two or more organizations undertaken with the intention to cooperate." My definition was inspired by Bardach's straightforward definition of collaboration as "any joint activity by two or more agencies that is intended to increase public value by their working together rather than separately (Bardach 1998, 8)". Changes made to Bardach's definition are aimed at broadening the concept. For instance, I replace "agencies" with "organizations" to clarify that collaboration may occur between non-government actors. I also replace "joint activity by" with "interaction between", which assumes nothing about the content of a collaborative relationship. Under my definition, "interaction" requires that representatives of the parties engage in direct communication, whether in person or via phone or email. Other joint activities are likely, but not necessary.

An important change was removing the "intention to increase public value" clause of Bardach's definition. I prefer to maintain a neutral, inclusive definition of collaboration and look for public value creation during empirical analysis. Including expectations of public value creation may unintentionally bias findings. In any case, intending to create public value is not necessarily a prelude to creating public value. Organizations coordinating by chance or for selfish reasons could end up producing public benefits, while organizations intending to produce public benefits could fail.

I replaced the "public value" clause with one that requires parties to interact with the *intent* to cooperate. My definition does not include interactions that are fully adversarial by design and in practice, like one organization suing another. Actual cooperation is not a requirement. However, collaboration most often involves a mixture of adversarial and cooperative interactions.

Key aspects of my definition

I define collaboration as occurring between organizations rather than individuals. Of course, actual interactions occur between individuals; but studying inter-organizational coordination requires the assumption that individuals represent their respective organizations during the collaborative process.

Second, collaboration occurs among all different types of organizations, including private sector, government, non-profits, and citizens groups. Because of my policy focus, government often plays a central role in collaboration, but this is not a defining characteristic. With this inclusive definition, I capture a broad diversity of collaborative arrangements. It is presumed that collaborative processes occur in a variety of contexts, including among non-governmental organizations. Limiting my definition at the outset is not conducive to theory building.

Third, my definition is "structural"; the basic defining aspect is organizations forming linkages with each other. A structural definition imposes no requirements regarding what the organizations do or talk about (content), how the interaction came about (origin), or the outcome of the interaction. A structural definition is uncomplicated, making collaboration distinguishable with a minimum of information and allowing me to code hundreds of "micro" instances of collaboration in my data. A structural definition also meets my theory-building objectives by capturing a wide variety of inter-organizational relationships.

Fourth, collaboration is emotionally "neutral". I make no assumptions that collaboration occurs in a positive atmosphere or generates positive emotional connections. Even civility is not a requirement, since many inter-organizational interactions involve conflict. An emotionally neutral definition avoids a-priori assumptions about the "goodness" of collaboration, leaving the task of evaluating benefits of collaboration to empirical analysis.

Justification of definitional breadth

My "structural and neutral" definition of collaboration is broad and inclusive.² This means instances of collaboration in my data range enormously in terms of importance, scale, actors, and context. Maintaining such a broad scope was a conscious decision. The purpose of my study is to build theory about collaborative benefits, which requires identifying a wide variety of examples for each benefit.

A coding example will illustrate this point. Rather than group collaborative arrangements by contextual variables like policy area, actors, or case, I group primarily by the benefit provided. Thus, my primary codes are benefits like: "Coordinated Action", "Resource Exchange", and "Innovation". Collaborative arrangements under each primary code are diverse. For example, here are two instances coded with "Overcoming Resource Constraints", a sub-code of Resource Exchange:

1) Under the guidance of a regional non-profit organization, citizen groups collected hardwood seeds which will later be used by State environmental agencies for the purpose of growing trees to be planted in streamside buffers. This overcame a key resource constraint for the State environmental agencies because they do not have the staff-time for this activity.

Although my definition is your

² Although my definition is very inclusive, note that there are three varieties of inter-organizational interaction I specifically exclude. First, although both conflict and power imbalances are natural and normal parts of collaboration, I exclude relationships that are purely adversarial by design and practice, such as one organization suing another. Similarly, I exclude relationships purely based on exertion of power or situations where actions are forced by law, such as enforcement actions on private or nonprofit parties by regulatory agencies (note that this is also specifically excluded by Hardy, Phillips, and Lawrence 2003). These interactions offer no space or opportunity for two-way collaboration. Second, I exclude inter-organizational relationships based on formal contracts where money is exchanged for goods or services. The addition of a legal, contractual relationship for pay significantly changes relationships and distorts my description of collaborative benefits. Other scholars have made a similar exclusion (e.g. Hardy, Phillips, and Lawrence 2003, Gazley and Brudney 2007). Finally, I exclude mergers of organizations that used to be formally independent (Gazley and Brudney 2007), such as joint ventures. In these cases, the organizations are no longer autonomous within the joint venture, so inter-organizational coordination does not apply.

2) NASA officially joined the Chesapeake Bay Program as a partner. This overcomes a key resource constraint by making satellite data available for assessing Bay conditions.

These two instances meet the criteria of "Overcoming Resource Constraints" although the scale of the collaborative arrangement, the type of resource provided, and the types of organizations involved are very different. The common denominator is the concept itself. In this research, my focus is on these concepts (the "collaborative benefits").

My process is to collect disparate "snapshots" of each collaborative benefit. Using descriptive and typological analysis, I sort, describe, and display these snapshots to build theory. Drawing upon a wide variety of collaborative arrangements, from the most interpersonal and intense to the most superficial and cursory, increases the generalizability of the concepts and the applicability of the study.

Defining concrete, policy-related benefits

My research questions specify that I am interested in "concrete, policy-related benefits" of collaboration. By "concrete", I mean benefits with a clear output that can be measured. This excludes vague outcomes like "developing a shared understanding" or "trust-building" or "change in attitudes". Although these outcomes may be important, their ultimate result is uncertain. Innes and Booher (1999) argue that "intangible" outcomes eventually generate tangible second- and third-order effects such as spin-off partnerships. However, one can never be sure whether tangible effects resulted from the original collaborations, since the pathways are impossible to disentangle (Innes and Booher 1999, Connick and Innes 2003).

"Policy-related benefits" are benefits that make policy more effective, efficient, or equitable in some concrete way. Further, these benefits must accrue at the community or societal level. Provan and Milward (2001) define community-level benefits based on the effectiveness and efficiency with which the local community and its clients are served. This fits well for my research, since the collaborative arrangements I study aim to improve policies at scales ranging from local communities to the regional level. However, I add "societal level" to indicate benefits may accrue, intentionally or not, to the larger society. A focus on community/societal level benefits means that I do not address benefits accruing at the personal, organizational, or "network" level. Personal-level and organizational-level benefits have only a tangential or indirect connection to better policy. "Network" level benefits, as defined by Provan and Milward (2001) and others, improve the quality or functioning of an organizational network but have little direct connection to better policy.

In the remainder of this chapter, I justify my research by describing gaps in the literature that I aim to address.

Justification of research

My ultimate research goal –my long term research agenda- is to evaluate collaboration as a management strategy. It is critical to know whether collaboration creates and distributes quality public benefits at a reasonable cost to society, since scarce public funding should be allocated as efficiently as possible (Provan and Milward 1995 and 2001). In addition, collaboration is often mandated or strongly encouraged by government because of the multiple benefits it is presumed to create, even without hard evidence of these benefits (Chen 2008, Bryson, Crosby, and Stone 2006). Public officials who manage collaborative arrangements, service providers who

participate, clients who receive services, and taxpayers who fund the operation need to know whether collaboration is effective, and how effectiveness can be maximized (Kenis and Provan 2009).

Further, it is a common perception that collaboration is costly. Major costs of collaboration identified in the literature include transaction costs, especially time (e.g. Barringer and Harrison 2000, Alter and Hage 1993), the loss of organizational autonomy (e.g. Chen 2008, Huxham and McDonald 1992) and of proprietary information (e.g. Barringer and Harrison 2000), the inability for organizations to take credit (e.g. Huxham and McDonald 1992, Lasker, Weiss, and Miller 2001), and "lowest common denominator" agreements that do not address underlying conflicts (e.g. Layzer 2008). When collaboration is focused on decision-making via consensus among stakeholders, some scholars worry that traditional channels of representative democracy are undermined (e.g. Manring 2005, Walker and Hurley 2004) or that collaboration produces "symbolic policy" that reduces demand for political change without eliminating the undesirable social or environmental conditions that prompted it (Lubell 2004a; Rodríguez, et al 2007). If collaboration is costly, it should not be used blindly or thoughtlessly. In a memorable passage, Huxham (2003) argues that because of the significant costs, it is best to avoid collaboration unless the potential for "collaborative advantage" is clear and strong:

"making collaboration work effectively is highly resource consuming and often painful. My strongest piece of advice to practitioners, therefore, is 'don't do it unless you have to'. Put rather more formally, the argument is that unless the potential for real collaborative advantage is clear, it is generally best, if there is any choice, to avoid collaboration (pp. 420-421)."

Although my ultimate research goal is evaluation of collaboration, my literature survey indicates we are not yet ready. Evaluative frameworks already developed lack conceptual depth in their depiction and operationalization of the benefits and costs of collaboration (e.g. Innes and Booher 1999, Provan and Milward 2001, Agranoff 2008). In fact, the literature on collaboration as a whole lacks conceptual development on the outcomes of collaboration, particularly the benefits of collaboration. Without truly understanding which benefits can be expected from collaboration, how collaboration is uniquely poised to produce these benefits, and how these benefits are manifested empirically, it is difficult to design an evaluative framework.

I find from my review of the literature that outcomes of collaboration remain conceptually under-developed because scholars are narrowly focused on other aspects of collaboration, such as the dynamics of collaboration, antecedents to collaboration, determinants of collaborative success, or demonstrating causal relationships between collaboration and outcomes. I describe these issues below, and explain how they lead to a gap in the literature filled through this research project.

Literature issue #1: Focus on dynamics of collaboration, rather than outcomes

A fascination with collaboration as a form of organizing, especially the "collaborative network", has led some scholars to focus on dynamics of collaboration and lose sight of effectiveness (Rogers and Weber 2010; Turrini, et al 2009). Network structure is one popular area of study. Although in its simplest form a network is just organizational "nodes" connected by "links" or "ties", descriptions of network sub-structures and structural characteristics have become

³ Key costs of collaboration, like time, money, and loss of proprietary information, are more self-explanatory than benefits and less in need of conceptual development.

complex. Scholars describe the position of organizations in the network, using concepts like "centrality" and "multiplexity", and use this as a proxy for power or legitimacy. Other scholars focus on network-level structures, such as "cliques" or "structural holes", or network-level characteristics like "density" of ties, "fragmentation", and "centralization" (See Provan, Fish, and Sydow 2007, pp. 484-486 for summaries of these network position and network structural characteristics). Network analysis software, which allows for mapping and measurement of network characteristics, has facilitated and encouraged the exploration of network structure. Although this line of research is fruitful in terms of describing network relationships, it detracts scholarly attention away from questions of effectiveness and outcomes.

Other scholars have focused on governance of collaborative networks. For instance, a typology developed by Provan and Kenis (2008) describes three types of network governance: shared participant governance, lead organization governance, and governance by a "network administrative organization", or NAO. Jones, Hesterly, and Borgatti (1997) describe conceptually how structural embedded relationships among organizations provide the foundation for social mechanisms -- macroculture, restricted access, collective sanctions, and reputations—to arise, which in turn allows network governance to emerge and thrive. Ostrom (1990) has done more general work on the role of rules, norms, and collective sanctions in structuring relationships towards the management of shared natural resources. To the extent that these studies relate network governance to policy effectiveness, they contribute to our understanding of outcomes. Yet, scholars tend to focus on description of governance structures/processes themselves or their effect on network-level outcomes such as cohesion and ability to retain members, rather than external effects on the community or society (Provan and Milward 2001).

Other scholars study the management of collaborative networks. Agranoff (2006), for instance, provides ten lessons for public managers working within inter-organizational networks. A literature review and conceptual paper by McGuire (2006) frames most issues in terms of network management and includes a section specifically for managers. Two edited volumes are aimed explicitly at helping public managers navigate the waters of collaboration and collaborative networks: O'Leary and Bingham (2009) and Kickert, Klijn, and Koppenjan (1997). Like governance, these studies are useful to the extent that they link management to policy outcomes. Yet policy outcomes often take a backseat to description of management challenges and development of management tools applicable to the collaborative environment.

Literature issue #2: Focus on antecedents rather than outcomes

Another limitation of the literature is a focus on *antecedents* of collaboration rather than outcomes (Chen 2008). Antecedents may be framed as motivations for organizations to participate in collaboration, expected benefits of collaboration, or factors that predict the emergence of collaboration (e.g. Gazley and Brudney 2007, Shaw 2003, Oliver 1990, Fleishman 2009). The study of antecedents is useful and valid, but problems arise when antecedents are confused with effects: when motivations to collaborate are conflated with benefits, and, conversely, obstacles to collaboration conflated with costs. Generally, this occurs due to sloppy terminology rather than conceptual errors. For instance, Gazley and Brudney (2007) start out talking about "advantages and disadvantages" of collaboration (i.e. benefits and costs) but their survey questions and discussion of results indicate their real focus is on motivations and disincentives to collaborate. Similarly, Jones, Hesterly, and Borgatti (1997) aim to explain the "comparative advantage of network governance", yet their propositions focus on conditions that

allow network governance to "emerge and thrive". In both cases, the end product is collaboration itself rather than its benefits.

Conflation of motivations with benefits (and obstacles with costs) is understandable because they are endogenous. Organizations are motivated to collaborate by expected benefits, and deterred by expected costs. If benefits are actually produced, and costs avoided, the desire to collaborate strengthens. Brass, et al 2004 (p. 809) recognize this reciprocal relationship in their literature review, yet make an effort to distinguish between "antecedents" and "consequences" of collaboration and maintain this distinction even with significant empirical overlap. It is important to follow their lead. After all, organizations may collaborate based on expected benefits that do not materialize, or may realize benefits that were not expected.

Literature issue #3: Focus on causal relationships rather than specification of outcomes

Conceptual development of outcomes of collaboration has been hindered by the scholarly focus
on causal relationships. Scholars have moved quickly to the task of identifying and testing
determinants of successful collaboration, even as the definition of success is under-theorized.

Kenis and Provan (2009) describe this problem, but it is not a new concern. In fact, they draw
upon decades-old research by Yuchtman and Seashore (1967) to illustrate their point:

"Another deficiency is that in many studies the concept of network performance is poorly specified. In 1967, Yuchtman and Seashore commented that 'Most of the study [of effectiveness] has been devoted to the *conditions* under which organizations are more or less effective' (1967, p. 891; emphasis in original) and that '... little attention, however, has been given to the concept of effectiveness itself. The later remains conceptually a vague construct ...' (1967, p. 891)." (Kenis and Provan 2009, pp. 441-442)

Kenis and Provan (2009, pp. 442) urge scholars to "properly define or operationalize" their effectiveness criteria when evaluating collaboration. My concern is more foundational, which is

that the dependent variable (outcomes of collaboration) is underdeveloped. The focus on "success factors" glosses over important theoretical and conceptual questions about the unique benefits and costs expected from collaboration.

"Causal relationship studies" are a mix of empirical and conceptual work. They look at factors or conditions as determinants of collaboration success, such as network structure and governance characteristics (e.g. Provan and Milward 1995, Provan and Kenis 2008, Huang and Provan 2007, Turrini, et al 2010, Bryson, Crosby, and Stone 2006), characteristics of the collaborative process such as impartial mediation, trust, joint problem solving, and leadership (e.g. Chen 2008, Ansell and Gash 2008, Bryson, Crosby, and Stone 2006), or environmental/contextual conditions such as resource munificence, system stability, and complexity of the problem space (e.g. Provan and Milward 1995, Lasker, Weiss, and Miller 2001, Born and Genskow 2000, Turrini, et al 2010).

The impact of determinants on collaboration is a valuable area of study, but leads to foundational problems. In some cases, developing a tight, plausible causal relationship requires narrowing outcome measures to a single measure which does not capture the complexity of outcomes (e.g. Provan and Milward 1995). In other cases where multiple outcome measures are used, they are not conceptually developed enough to understand their inter-linkages or their unique origins in the collaborative process (e.g. Chen 2008, Turrinni, et al 2010). This leads to vague, conceptually overlapping, or under-specified outcomes.

Similar issues arise from causal studies of the overall impact of collaboration. Rather than focusing on the impact of specific factors ("determinants"), these studies relate some measure of the existence or strength of collaboration directly to an outcome measure. Measures include things like level of exposure to policy networks (e.g. Lubell and Fulton 2008, Campbell, Koontz,

and Bonnell 2011), the existence of a formally identified and funded network (e.g. Lubell 2004a and 2004b, Schneider, et al 2003, Born and Genskow 2000, Roussos and Fawcett 2000), usage of coordinating tools and strategies (Jennings and Ewalt 1998), and networking behavior of public managers (Meier and O'Toole 2003, Nicholson-Crotty and O'Toole 2004). These studies are useful and valuable in assessing impacts of collaboration. Yet, like the "determinants" studies, outcome variables are not well-developed conceptually. Further, they do little to explain how collaboration is uniquely poised to bring about these outcomes; in many cases, outcome measures are the same as what could be expected under other management approaches.

Literature gap: Conceptual development of outcomes

Issues with the literature discussed above indicate a gap in our conceptual understanding of collaborative outcomes. While most of the scholarship described above skips conceptualization altogether and jumps quickly to measurement, other scholars under-conceptualize their outcome measures. For instance, Lasker, Weiss, and Miller (2001) describe the pathway by which collaboration leads to outcomes using a proximate outcome measure called "synergy", defined as "the power to combine the perspectives, resources, and skills of a group of people and organizations" (Lasker, Weiss, and Miller 2001, pp. 183). I commended them for developing a conceptual measure and enumerating a conceptual pathway from collaboration to improved community health, their end outcome of interest. Yet when examined closely, the concept of synergy is a composite of various other benefits of collaboration, most with distinct theoretical origins. In their operationalization of the synergy concept, they reference theories and ideas about resource exchange, diffusion of innovation, comprehensive thinking that emerged from diverse network membership, and the legitimacy benefits of stakeholder participation. Rather

than developing these diverse outcomes measures individually, however, they are mashed together into the vague umbrella concept of "synergy".

Other authors provide vague outcome measures without recognizing the need for further conceptual development. For instance, Bryson, Crosby, and Stone (2006) write that inter-sectoral collaboration produced "public value" that cannot be produced by single sectors working alone and that collaboration creates a "regime of mutual gain" (pp. 51), yet do little to unpack the meaning of either concept or show their theoretical derivations. Turrini, et al 2010 provide a list of "effectiveness types" derived from the literature (Table 2, pp. 534); some identify only the level at which effectiveness is measured (e.g. client level, community level, and network level) based on the framework by Provan and Milward (2001), while others ("innovation and change" and "sustainability and viability") are vague. Without greater specificity, it is unlikely that any two scholars using these criteria would apply them in the same way. At first glance, Barringer and Harrison (2000) seem to provide a more concrete, highly specified list of "advantages" and "disadvantages" of collaboration (see Tables 3 and 4, pp. 385-386). However, there is theoretical overlap among advantages / disadvantages listed because the authors neglect to categorize them based on theoretical foundations.

In addition to vague outcome measures, the literature lacks specification of mechanisms or processes by which outcomes emerge (Lasker, Weiss, and Miller 2001, Jones, Hesterly, and Borgatti 1997, Provan and Kenis 2008). Lasker, Weiss, and Miller (2001) provide a clear description of this gap in the literature:

"Lacking in [existing scholarship], however, is an **explication of the pathway through which partnership functioning influences partnership effectiveness**. The frameworks developed thus far do not identify the mechanism that enables partnerships to accomplish more than individuals and organizations on their own can. The work does not explain **what happens in a successful collaborative process** that gives partnerships an

advantage over single agents in planning and carrying out interventions that improve service delivery and health." (Lasker, Weiss, and Miller 2001, pp. 182, emphasis added).

Although my main research task is to identify benefits unique to collaboration, conceptual development requires an understanding of processes that bring them about. For instance, "resources accessed through the partnership" cannot be understood without describing how resource exchange operates in an inter-organizational environment. To distinguish collaboration benefits one must understand how and why collaborative processes uniquely produce these benefits. Otherwise, the identified benefits could just as easily emerge from non-collaborative approaches. Process specification is also important because the same "benefit" or "product" of collaboration may come about through different pathways. For instance, although "resources accessed through the partnership" seems fully explainable through resource exchange, other processes may be at work. Perhaps diffusion of innovation provided access to key information or products, or perhaps the comprehensive thought processes that emerges in the collaborative environment made unexpected resources appear.

This research addresses the under-conceptualization of collaboration's outcomes and the mechanisms that bring them about. I start in Chapter 3 by identifying eight key benefits of collaboration. For five of these benefits, I weave together a theoretical and conceptual description, combining insights from a diverse set of collaboration literatures. Based on this analysis, research propositions are developed for each of the five benefits and applied to a rich empirical data set that includes hundreds of mini cases, or "instances", of collaboration. It is through analysis of this empirical data in Chapters 5 through 8 that I develop concepts about the benefits of collaboration. The benefit of coordinated action receives the most attention. In chapters 5 through 7, I identify and describe a process called harmonizing by which

organizations address policy issues at the appropriate scale. Empirical analysis on the other four benefits is less structured, and focuses on developing key themes to guide practitioners and researchers.

I have one more task before my literature survey in Chapter 3. The following chapter is devoted to introducing key aspects of water quality management, the policy context in which I have chosen to study collaboration.

Chapter 2: Policy Context of Water Quality Management

In this chapter, I discuss water quality management in general terms and explain why it is a good context in which to explore collaboration. My focus is on policies that seek to improve surface water quality; several of the most commonly used policies are discussed at the end of the chapter. Surface waters include rivers, streams, lakes, and Bays (in contrast to groundwater, which exists below ground level).

Point and non-point sources of water pollution

The most obvious sources of water quality impairment are industrial and sewage treatment plants that discharge waste directly into surface waters. Because there is an identifiable point at which pollutants are discharged, these are called "point sources" or "end of pipe" sources. Point sources are discrete, making them easy to identify and control. The Clean Water Act specifically defines a point source, in section 502(14), as:

any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged (US-EPA 2012a).

Point sources targeted by the Clean Water Act include industrial plants, municipal sewage treatment plants, and large agricultural operations. The two key programs used to control point sources are: 1) the National Pollution Discharge Elimination System (NPDES), a regulatory

permitting program that requires point source dischargers to abide by numerical pollution limits, and 2) the Municipal Sewage Treatment Plant Construction Grants Program, which provides grants and loans for construction of Publicly Owned Treatment Works (POTWs).

Another category of pollutants are "nonpoint sources", which are dispersed and more difficult to identify. To understand nonpoint source (NPS) pollution one has to first understand the concept of a "watershed" or "drainage basin", defined as the area of land that drains into a particular surface water body. Every drop of water that falls within the watershed of a particular surface water body does one of two things: it infiltrates into ground (and eventually the groundwater) or it runs over the land until it ends up in the surface water body. This second mechanism, where the water is called "runoff" or "stormwater", is the main cause of NPS pollution. As the drop of stormwater runs over the land, it picks up a wide range of pollutants, such as lawn fertilizer, pet waste, road salts, loose dirt from eroded areas or constructions sites, and oil spilled on roadways. These pollutants are carried over the land until they reach the river, lake, or other surface water body at the low point of the watershed. Thus, most "nonpoint sources" of pollution are actually pollutants on the land washed into the water during storms. The main exceptions are liquids dumped illicitly, either directly into surface water or into stormwater drains or pipes that lead to surface water. The EPA describes nonpoint source pollution as follows (US-EPA 2012a):

nonpoint source (NPS) pollution comes from many diffuse sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters and ground waters. Nonpoint source pollution can include:

- Excess fertilizers, herbicides and insecticides from agricultural lands and residential areas
- Oil, grease and toxic chemicals from urban runoff and energy production
- Sediment from improperly managed construction sites, crop and forest lands, and eroding streambanks

- Salt from irrigation practices and acid drainage from abandoned mines
- Bacteria and nutrients from livestock, pet wastes and faulty septic systems
- Atmospheric deposition and hydromodification⁴

Like most scholars interested in watershed management, my primary interest is nonpoint source pollution. ⁵ "Point sources" of pollution have mainly been brought under control through the NPDES regulatory program, leaving NPS pollution as the key problem for most surface waters of the United States. In addition, nonpoint source pollution presents interesting policy challenges that cannot be resolved without collaboration, for reasons discussed in the next section.

Why nonpoint source pollution management requires collaboration

The physical nature of nonpoint source pollution— the fact that it is carried in stormwater over the entirely of the watershed landscape— means the appropriate management area is the watershed boundary. This creates challenges since watershed boundaries generally cross municipal and county boundaries, and sometimes even states and nations. One tactic for reducing the number of jurisdictions involved is to focus on smaller sub-watersheds (often called subsheds). But even sub-watersheds generally contain several local jurisdictions and a variety of public and private property owners. Stormwater flows over all of this land, regardless of

⁴ Atmospheric deposition refers to pollutants from the air deposited directly into surface water bodies. Hydromodification refers to man-made changes to streams, rivers, lakes, and other surface water bodies that facilitate the scouring of banks and therefore the introduction of sediment and other pollutants into the water. EPA considers both of these "nonpoint sources" although the pollutants do not reach surface waters via the stormwater/runoff mechanism.

⁵ Although my focus is on nonpoint sources, it is important to remember that the policy problem I address is water quality impairment. When water quality impairments are addressed on the ground, little attention is paid to distinguishing between types of sources. The same government agencies and nonprofit groups generally work to control both sources.

⁶ Watersheds are nested (i.e. multiple "sub-watersheds" can be nested within a larger watershed). Generally, sub-watersheds are watersheds for tributary streams. For instance, the tributaries to the Potomac River all have their own watersheds, and these "sub-watersheds" are nested within the Potomac River Watershed. The Potomac River Watershed, in turn, is nested within the Chesapeake Bay Watershed.

ownership. Thus, watershed management requires collaboration between a multitude of public and private entities that own or manage land within the watershed and/or hold authority for land use regulation. These include: federal or state agencies, local governments, businesses, non-profit land trusts, and private landowners (Leach, Pelkey, and Sabatier 2002).

The physical nature of nonpoint source pollution is only half of the story, however. Many scholars gloss over the other half, which is that *collaborative tools are used to address nonpoint source pollution because of a lack of regulatory options*. Regulatory programs for nonpoint source pollution have serious limitations, stemming partly from characteristics of the programs themselves and partly from a lack of political will. The National Pollution Discharge Elimination Program (NPDES), the permitting program authorized by the Clean Water Act, is the only surface water quality program at the Federal level with significant regulatory teeth. However, NPDES applies almost exclusively to point sources of pollution, with just three exceptions: stormwater in municipal separate storm sewer systems (MS4s), hindustrial stormwater, and stormwater on construction sites one acre or larger.

The Total Maximum Daily Load (TMDL) program, also authorized by the Clean Water Act, directly targets NPS pollution and is considered a regulatory program. The TMDL program requires States to write plans for allocating pollution loads to impaired water bodies such that pollutant levels will not exceed State water quality standards. However, US-EPA has no authority to require implementation of these allocation plans. Further, although the NPDES program provides a regulatory process for enforcing pollutant caps for point sources, there is no

⁷ The Section 401 permitting process for dredging or filling wetlands also has regulatory teeth, but this is less directly related to NPS pollution control.

⁸ MS4 permits are issued from US-EPA or its State affiliate agencies under the National Pollution Discharge Elimination System (NPDES) stormwater program and require urbanized municipalities and Counties to regulate stormwater runoff within their political boundaries.

⁹ These three regulated sources were added to the NPDES program via the 1987 Amendments to the Clean Water Act (for more information, see US-EPA 2012b).

regulatory process for nonpoint sources and no authority to create one. Thus, US-EPA can make States responsible for setting targets but has no way to enforce their implementation.

States may regulate nonpoint sources, if they muster the political will to give themselves that authority. Yet laws passed at the State level generally stop short of regulating nonpoint sources through a NPDES-like permitting process. For instance, similar laws in Virginia (the Chesapeake Bay Preservation Act) and in Maryland (the Critical Areas Act) require local jurisdictions in tidal areas of the Chesapeake Bay to limit development around tidal streams, rivers, and wetlands. These laws address NPS pollution by increasing infiltration and filtering of stormwater, and by decreasing land disturbances near the water. However, neither regulates pollutant loads in stormwater or the application of pollutants to the landscape. And enforcement is uneven across local jurisdictions.

Another category of State laws are "Erosion and Sediment Control" (ESC) laws.

Regulations authorized under these laws minimize sedimentation during the grading and construction process, when soils are loose and easily erodible. Most ESC regulations apply only to construction on one acre or more of land, however. In fact, States pass these laws in large part just to fulfill their requirements under the NPDES Stormwater Program, the program mentioned above that expanded NPDES protections to municipal, industrial, and construction stormwater.

Local governments have the most direct opportunities to regulate land use and review site plans for new development. Some local jurisdictions pass ordinances requiring low impact development (LID) or environmental site design (ESD) practices, which keep stormwater in place and allow for greater infiltration, filtering, and evaporation. Generally, these apply only to new development. Other jurisdictions pass ordinances to reduce impervious surface. Examples include: maximum parking allowances or requirements for structured parking, reduced road

width, and caps that limit impervious surfaces to a percent of total lot size. Further, most local planning departments do site plan reviews before issuing permits for new development. If the site plan is out of compliance with any local stormwater ordinance, changes are required before a permit is issued. If the developer requests a variance or a special exemption, the "proffer" process allows local governments to request adjustments that go beyond current regulatory requirements in exchange for the permit.

Considering this array of regulatory opportunities, why does most NPS pollution remain unregulated? The first reason, described above, is the essential nature of nonpoint source pollution. It is difficult to regulate pollution that is dispersed over a large land area, crosses political boundaries, and occurs on people's private property. A second reason is the difficulty of measuring pollutant loads. With point sources, pollution concentration can be measured at the end of a pipe or outfall, but nonpoint sources require educated guesswork. Stormwater does not take a single direct path to local water bodies after picking up pollutants from the land: some gets absorbed, some ends up in little pools and evaporates, and some is filtered. Thus, nonpoint source pollution is regulated (to the extent it is) by requiring landowners to adopt best management practices (BMPs). At best, the pollution reduction expected from particular BMPs is estimated with computer models. For instance, the US-EPA Chesapeake Bay Program runs a complicated model for the Bay watershed that predicts nutrient and sediment reduction from a wide range of agricultural BMPs, such as cover crops and stream buffers. However, even with improvements in modeling technology, the estimates of pollution reduction from BMPs are uncertain, making it impossible to issue permits for nonpoint source pollution with defined pollution limits.

A third reason is historical. For a long time after the passage of the Clean Water Act in 1972, it was thought that controlling industrial and municipal point sources would solve the nations' water quality problems. In addition to having a strong regulatory framework, the NPDES program had the advantage of being politically popular, since it imposed limits on "dirty" industry and cities. Since at least 1990, when EPA passed the first real rules on the TMDL program, there have been serious efforts at the national level to address nonpoint sources. Yet, the inability of nonpoint programs to gain traction may derive in part from their late start. Even the concept of nonpoint source pollution remains foreign to most citizens. Whereas regulating direct emissions into water is common sense, regulating fertilizer application on private land seems intrusive and disconnected from the problem of water quality.

The three obstacles already mentioned – the essential nature of NPS pollution, scientific uncertainty about the effectiveness of BMPs, and a historical focus on point-sources— are small issues compared to a fourth: *the lack of political will*. There is resistance to regulating nonpoint sources from groups that support economic development (developers, realtors, property managers, civic groups) and groups that support agriculture (famers, farmers' organizations, and agricultural suppliers). These groups are powerful at all three levels of government and have successfully limited most attempts to adopt more stringent regulations. At the Federal level, a key example is the TMDL rule passed in 2000 after significant research and review. After it ignited enormous controversy among development and agricultural interests, it was withdrawn less than three years later (Malone 2003). EPA has been unable to tighten the TMDL rules ever since, so most aspects of the TMDL process are based on 1997 regulations. In addition to political resistance, the US-EPA's ability to pass new regulations is hampered by the convoluted

laws they inherit from Congress and by an almost-constant resource shortage which prevents them from enforcing the regulations they pass.

States, as mentioned, can pass laws to further regulate nonpoint sources, but most have not done much beyond what EPA requires of them. They generally decline to get involved in local land use, partly out of fear of a backlash from property rights and home rule advocates, and partly because the State lacks the time and resources to meddle in detailed affairs of its localities. Further, state legislators, governors, and appointed agency leaders are subject to powerful lobbying efforts from development and agricultural interests. Also, because of competition for business and wealthy residents, State leaders are attuned to the argument that stringent environmental protections will put them at a competitive disadvantage.

Local governments face similar competitive development pressures. The likelihood of local governments adopting NPS pollution regulations varies greatly depending on contextual factors like its predominant land uses and centers of local power. Some localities in urban North Virginia (where I did my interviews) have powerful environmental groups integrated into local government through advisory commissions. Further, environmental advocates get elected to City Council. In other localities, the drive for economic development is the local government's foremost priority and environmental groups gain little traction.

Non-regulatory tools used for nonpoint source pollution

Regulatory options for addressing nonpoint source pollution are limited, which leaves non-regulatory options like grants, incentives, and voluntary projects. The most commonly used tools are summarized below.

1. Best management practices (BMPs) are installed or adopted on private land to minimize NPS pollution. They are generally categorized by the type of land use to which they apply (e.g. agricultural BMPs and urban BMPs). Common agricultural BMPs include planting cover crops during the non-growing season, carrying out a nutrient management plan that minimizes fertilizer usage, planting buffers around streams and wetlands, and putting sensitive lands into reserve. ¹⁰ Extensive programs at the Federal and State level provide financial assistance for the installation of agricultural BMPs, including sharing the costs of installation and paying rent for farmland put into reserve. Technical assistance is also available through the USDA National Resource Conservation Service (NRCS) and local Soil and Water Conservation Districts (SWCDs).

Urban BMPs include things like installing low impact development (LID) stormwater practices (e.g. rain gardens, grassy swales, permeable pavement), planting stream buffers, and conserving urban tree canopy. For government agencies managing road networks, BMPs include regular street sweeping and minimization of road salt. Incentive programs to subsidize private urban BMPs are less established and attract less funding than agricultural BMP programs. When they exist, they are generally implemented by local governments or regional Soil and Water Conservation Districts (SWCDs).

2. <u>Land conservation</u> is a critical tool because vegetated land absorbs stormwater and filters out pollutants. More vegetated land (particularly forest) and less impervious surface in a watershed is better for water quality. Land conservation efforts often target the most sensitive areas, such as wetlands, streambanks, and highly erodible soils.

¹⁰ For a full list that applies to Virginia, see Section 2 of the Virginia Agricultural Cost Share Manual (Virginia Agricultural Cost Share Manual 2012).

Governments at all levels can purchase property, which they do for highly sensitive areas or areas with some special feature. Other options involve purchasing development rights. For instance, conservation easements are contracts between a landowner and some entity (usually a nonprofit land trust) where the landowner agrees to give up development rights in perpetuity. Purchase of development rights programs work the same way, except they always involve a payment to the owner for the lost development rights. Finally, transfer of development rights programs allow landowners to sell their development rights to be used on a different property. Governments can set these up so development rights are transferred from areas they want to keep rural to areas designated for growth.

- 3. Restoration projects are a critical part of NPS pollution control. A common project is stream restoration, which can sometimes require heavy earth-moving equipment to stabilize streambanks and re-route the stream to create greater sinuosity. Other large projects are wetland restoration or creation, dam removal, and the installation of large LID infrastructure. Smaller-scale, simpler restoration projects include planting trees in the riparian buffer of streams or clearing invasive species from a wetland. Smaller projects are often carried out in partnership with nonprofit organizations that mobilize volunteers to help with the work.
- 4. <u>Planning processes</u> of various types are a major part of managing nonpoint source pollution. Where watersheds include multiple jurisdictions, planning is critical to ensure that that work done in one jurisdiction is not undone by its neighbors. Further, it is useful to have a process for coordinating the myriad programs and opportunities that exist for managing water quality. The most common process is "watershed planning", in which actors with

responsibility for managing water quality, along with interested stakeholder groups, work together to coordinate their programs on a watershed basis.

Other planning processes less directly related to water quality include green infrastructure planning and transportation planning. Green infrastructure is a relatively new idea for land conservation that focuses on creating "hubs" of protected space connected by "corridors" wide enough for wildlife to safely pass between the hubs. Because of the size of the conserved land and the need for connectivity, good green infrastructure requires coordination on a regional scale. Transportation planning, also approached on a regional scale, is critical for regions that want to practice "smart growth". Smart growth is important for nonpoint source pollution control because it seeks to maximize open space and protect environmentally sensitive areas, while allowing for growth in less sensitive areas.

5. Finally, there is <u>public education</u>. Without regulatory options, NPS pollution control depends on people changing their behavior. Much of the NPS-related education teaches people about the storm sewer system, including the key fact that anything dumped into storm sewers gets carried, untreated, into local water bodies. Education also focuses on how landowners can minimize their household impact by using less fertilizer, not fertilizing before a rainstorm, picking up their pet's waste, fixing leaky fluids in the car, and pumping out their septic systems periodically.

Aside from this general education, there are programs that encourage landowners to adopt BMPs. A common program encourages landowners to purchase and install a rain barrel, which collects run off from their roof for drinking, gardens, or other uses.

Landowners are also taught about rain gardens, permeable pavers, and stream buffers. There

is limited money to help them install these practices, but technical assistance is generally available.

Note that these non-regulatory and incentive-based measures occur alongside regulatory measures. The organizations that address water quality rarely put a firewall between point and nonpoint sources, or between regulatory and voluntary programs. Rather, they combine whichever programs they have authority and resources to implement to get the job done. In this spirit, I do not focus solely on nonpoint sources and on non-regulatory measures, but consider all measures used to address water quality.

The watershed management policy context and my definition of collaboration

Under my broad definition of collaboration – "any interaction between two or more organizations undertaken with the intention to cooperate"— it is possible to imagine collaboration occurring within the context of a regulatory program. For instance, local planners might work with a private developer to improve site plans or help her come into compliance with stormwater requirements.

In my research, then, collaboration is not the opposite of regulation. Collaboration may occur as part of regulatory policy, alongside regulatory policy, or as an alternative to it.

However, when regulatory options are not available, a wider variety of collaborative arrangements tend to spring up to solve problems. This flourishing of collaborative arrangements is why watershed management presents an ideal policy context to study collaboration. Under a regulatory policy like NPDES, there tends to be a small number of "collaborating" parties who have set, ordered relationships based on legal requirements. Without this regulatory structure, a

multitude of partnerships, involving diverse and unexpected parties, develop. This is, in fact, what has occurred in watershed planning.

Because watershed management and planning is a fruitful area for studying collaborative arrangements, I chose to study collaboration in this context. However, when I examine my empirical data, I look for examples of collaboration that fit my broader definition. Thus my data include examples of collaboration in the context of regulatory programs or in the context of managing point sources of pollution.

Overview of next chapters

Chapter 3 presents a survey of collaboration literatures that identifies key benefits of collaboration. Insights from diverse collaboration literatures are integrated into a theoretical and conceptual description of eight distinct benefits, and research propositions are developed for five of these benefits. In Chapter 4, I present and justify my research methodology and describe the data collected to explore my research propositions. Chapters 5 through 8 present the results of my empirical analysis. The bulk of my analysis, presented in Chapters 5, 6, and 7, focuses on the benefit of coordinated action, while Chapter 8 presents a less structured analysis of the other four benefits. Chapter 9 is a conclusion in which I describe my contributions, the practical implications of my findings, the limitations of my research, and my future research agenda.

Chapter 3: Literature survey on the benefits of collaboration

This chapter identifies benefits expected from collaboration through a survey of diverse collaboration literatures. Existing conceptual and empirical research on each benefit is integrated and condensed into propositions applied to my empirical data.

Collaboration scholarship is scattered among divergent areas of literature from business to non-profit management to economics, game theory, conflict resolution, and public management. Each area of scholarship posits a different rationale for collaboration in terms of the problems it solves or benefits it provides. Further, each literature starts from a different theoretical perspective, leading them to expect different outcomes (Rogers and Weber 2010, Wood and Gray 1991). Skelcher and Sullivan (2008), for instance, find that: "each theoretical perspective asks somewhat different questions about the relationships involved in collaboration, and consequently explains different attributes of collaborative performance (pp. 753)". This point is often overlooked to the detriment of collaborative outcomes research. It is difficult to have a productive scholarly dialogue on outcomes when scholars' different conceptions of collaboration are leading them to vastly different conclusions about what to expect from it.

I address this problem by conducting a broad survey of collaboration literatures. This includes early work on inter-organizational coordination in the business/management literature (e.g. Rogers and Whetten 1982, Oliver 1990, Galaskiewicz 1985, Van de Ven 1976, Aldrich 1976 and 1979) and newer work inspired by it (e.g. Dyer and Singh 1998, Powell, Koput, and Smith-Doerr 1996, Gulati 1998, Barringer and Harrison 2000). It also includes public management and public policy scholarship on collaboration in general, as well as the body of work on collaborative "networks" (e.g. O'Toole 1997, Kickert, Klijn, and Koppenjan 1997,

Provan and Milward 1995 and 2001, Provan, Fish, and Sydow 2007, Agranoff 2007, Agranoff and McGuire 2001, O'Toole and Meier 2004) and inter-sectoral collaboration (e.g. Bryson, Crosby, and Stone 2006, Gazley and Brudney 2007, Berry and Brower 2005, Guo and Acar 2005, Hodge and Greve 2007). From these literatures I developed a list of eight key benefits which will be described in this chapter:

- 1. Access to resources / resource exchange.
- 2. Improved organizational status or legitimacy.
- 3. Efficiency / productivity gains.
- 4. Greater flexibility / adaptability.
- 5. Innovation / Knowledge generation / Learning.
- 6. Achieving coordinated action.
- 7. Building social capital and social infrastructure.
- 8. Reducing conflict.

This list of key benefits does not exist anywhere. Developing it required not only a review of various collaboration literatures, but also streamlining and honing in on key concepts. Most scholars focus on one or a small subset of benefits. Others provide a wide range of benefits which are not organized logically by shared theoretical or conceptual origins. A major challenge was weaving together the unique theoretical and conceptual basis of each benefit from fragmented bodies of literature. Thus, this chapter goes beyond a simple literature survey. The conceptual work on each benefit provides a framework on which theory can be built. For each of the five benefits pursued empirically, I develop a research proposition. Through empirical

analysis (presented in Chapters 5 through 8), I build concepts that fill in gaps left by the fragmented state of the literature.

Recall that I focus only on concrete, policy-related benefits. Benefits must be clear and measurable; must make policy more effective, efficient, or equitable; and must accrue at the community or societal level. Vague benefits and benefits accruing at the level of individuals, organizations, or networks are excluded. Because of this and similar restrictions, benefits number two, three, and four in the list will not be pursued in my empirical analysis. However, all eight benefits are described below.

Access to resources / resource exchange

According to resource exchange theory, the purpose of inter-organizational coordination is to meet organizational resource needs and mitigate power imbalances (Aldrich 1979; Emerson 1962; Galaskiewicz 1985; Van de Ven 1976; Aiken and Hage 1968). Individual organizations do not have all the resources needed to achieve their goals and rely on inputs from the "collection of interacting organizations, groups, and persons" that comprise their environment (Van de Ven, et al 1975: 19). Since every organization is in the same position of dependency, exchange relationships develop. In addition to providing necessary resources, exchange relationships many be "a stabilizing force in the life space of organizations" (Alter and Hage 1993: 45)" by reducing uncertainty about organizational survival (Aldrich 1979; Alter and Hage 1993) and by forming and maintaining consistent interaction patterns among actors (Kickert, Klijn, and Koppenjan 1997).

Resource exchange also mitigates power imbalances among organizations. To maintain autonomy, organizations attempt to maximize their power in exchange relationships by avoiding

(as much as possible) dependence on other organizations and by making others dependent on them. The power of an actor within an inter-organizational network is explicitly linked to his or her control over resources (Klijn 1997; Aldrich 1979). As Gulati and Garguilo 1999 put it:

"Interorganizational cooperation is thus a means by which organizations manage their dependence on other organizations in their environment and attempt to mitigate the uncertainty generated by that dependence (pp. 1443)".

Resource exchange theory has been applied most heavily in the older "coordination" literature found in management and business journals, plus newer literature descended from this work. The focus of these literatures is on organizational-level outcomes, especially benefits accruing to private firms. The benefits of resource exchange at the higher levels I am interested in – such as a network of organizations, a community, or society as a whole—receive less attention.

Public management literature picks up the resource exchange thread, but applies it to community or societal benefits. For instance, some scholars find that resource exchange expands the overall available resource base. Knowledge base expansion is particularly critical for development of new, innovative solutions (Agranoff 2006). One form of knowledge base expansion is joint fact finding, whereby stakeholders collectively identify data gaps and pursue a joint strategy to fill them (Leach 2006). Similarly, partnerships provide the opportunity for agencies to integrate and/or reconcile their databases and protocols, improving the information jointly available for problem solving (Rogers and Weber 2010, Imperial 2005). Further, the partnership structure itself often serves as repository, organizer, and clearinghouse of shared information (Born and Genskow 2000, Imperial 2005). Benefits of knowledge-building and knowledge-management activities accrue first at the organizational and the partnership (or

network) levels, yet carry over to the societal level as they improve the decision-making capacity of public sector partnerships. Plus, the information is often made publically available.

By expanding the resource base, resource exchange may improve collective problem-solving. Imperial (2005) identifies resource exchange as a major activity of watershed management programs and finds that organizational resources such as funding, staff, and equipment were pooled "in ways that improved [partners'] collective ability to solve programs or enhance service delivery (pp. 297)." Connick and Innes (2003) found that intense discussion among watershed management partners regarding shared data and models improved the information available for decision-making. One collaborative group, for instance, discovered and fixed a large error in the U.S. Bureau of Reclamation projections of water supply.

Most prominently, resource exchange improves collective problem solving by overcoming resource constraints and limitations of individual organizations. Through resource exchange partnerships, each organization compensates for its own deficiencies in skills, abilities, or knowledge. The result is that the partnership together is more than the sum of its parts, as described by Lasker, Weiss, and Miller (2001):

Financial and in-kind resources are the basic building blocks of synergy. It is by combining these resources in various ways that partners create something new and valuable that transcends what they can accomplish alone (pp. 189).

For government agencies, whose resources and abilities are generally inadequate to meet the broad, ambitious demands put on them, the need for partnerships is strong. To solve the policy problems they are tasked with, government agencies "must extend the boundaries of the agency

and thus the governmental jurisdiction (Agranoff 2005, pp. 18)", incorporating private sector companies and/or nonprofits into partnerships for program development and service delivery. Goldsmith and Eggers (2004) argue that partnerships with private and non-profit organizations "increase the reach" of public programs by providing access to critical resources: innovative ideas, specialized skills and expertise, connections to key stakeholder groups, and the ability to spend money flexibly. For instance, a network approach to welfare service delivery in Milwaukee County enabled the government administrative agency to "access the community ties and specialized skills of dozens of local [welfare service] providers (Goldsmith and Eggers 2004, pp. 26)." Further, these local providers offered a broader, more innovative, and more tailored set of services than the County was able to.

Based on the literature survey above, resource exchange benefits applied at the community and societal level can be summarized by the following proposition:

Proposition 1: (Resource Exchange)

Collaboration leverages financial, technical, human, and informational resources¹¹, expanding the resource base available to solve collective problems and overcoming resource constraints of individual organizations.

Note that when it comes to public management partnerships in which government agencies play a central role, there is a fine line between organizational-level benefits and higher level benefits. The mandates, goals, and objectives of government agencies reflect societal goals. When these

¹¹ I consider information a type of resource. "Information exchange" and "access to information", therefore, are forms of resource exchange rather than separate benefits. Other scholars will commonly (and I believe arbitrarily) exclude information from resource exchange.

goals are achieved through resource exchange, the benefits accrue not just to the agency that met its targets, but also to the segments of society served by the agencies' programs.

Improved organizational status or legitimacy

Another benefit of collaboration is increased status or legitimacy arising from links to large, powerful, or well-respected organizations (Hardy, Phillips, and Lawrence 2003; Galaskiewicz 1985; Singh, Tucker, and House 1986; Stuart 2000; Stuart, Hoang, and Hybels 1999). Rather than resource exchange, the status/legitimacy benefit draws upon sociological theories of statustransfer and economic theories of signaling. In fact, Stuart (2000) explicitly separates his hypotheses into alliance benefits based on "resource access" (access to technology, know-how, customers, and other resources) versus benefits based on "reputation". The theoretical basis of reputation benefits is two-fold. First, under conditions of uncertainty about the quality or trustworthiness of an actor, the social status of the actor's associates is used as a basis for evaluation. Actors with powerful, reliable, and/or well-regarded partners are evaluated more favorably (Stuart 2000). Related is the sociological idea that "actors' reputations are constructed in part from the identities of their associates (Stuart, Hoang, and Hybels 1999, pp. 317-318)". The benefit of alliance with powerful actors is tacit or explicit "endorsement" of a firms' quality, which is especially important for small or new firms whose products and services are untested (Stuary 2000; Stuart, Hoang, and Hybels 1999). Thus, organizational actors pursue partnerships with powerful allies to "signal" quality to customers, suppliers, and other potential partners (Stuart 2000).

The status/legitimacy benefit applies mainly at the organizational level, although there have been incipient attempts to apply legitimacy concepts to organizational networks (see Provan

and Kenis 2008). The theory does not stretch to include benefits accruing at the community or societal level; thus I will not explore this benefit in my empirical analysis.

Efficiency / productivity gains

The drive for efficient government is a powerful and recurring theme in public policy scholarship. In the U.S. the privatization movement in the 1980's popularized the notion that intensified relations with the private sector, via contracting out and public-private partnerships, would improve government efficiency. In the 1990's, the national bestseller *Reinventing* Government (Osborne and Gaebler 1993) inspired not only national public sector reform but also the "new public management" (NPM) literature. These movements share the core concept that government efficiency can be achieved by shifting functions out of the rigid government bureaucracy and into the hands of innovative, flexible, and skilled private sector and nonprofit partners through partnerships, contracting, grants, and networks. This creates efficiency in three ways. First, private and nonprofit sector organizations are more skilled at certain governing tasks and can do them more effectively for the same or less money. Second, the private and nonprofit sectors avoid many of the inflexible rules and rigidities faced by government bureaucracy. Finally, a cultural argument posits that partnerships expose inefficient, slow government agencies to the private sector culture of rapid, efficient service, continual improvement, maximizing value for money, and cutting through red tape.

Evidence on actual efficiency gains for government agencies is mixed. For instance, Andrews and Entwistle (2010) predicted that, of all inter-sectoral combinations, efficiency gains would be greatest for public agencies partnering with the private sector because of the private sectors' culture of "value for money", greater flexibility, and specialized skills and resources (pp.

682). Yet they did not find a significant relationship. Gazley and Brudney (2007), in a large-scale survey of government and nonprofit managers, found that 46% of government managers valued inter-sectoral partnerships for cost-effectiveness, and 78% reported that public-private partnerships led to cost savings.

It is useful to dig deeper into how collaboration brings about efficiency improvement.

One idea is that collaboration reduces duplication which in turn reduces cost and waste (Zhang and Dawes 2006). Collaboration also increases efficiency by creating economies of scale.

Perhaps the most obvious examples are inter-local agreements in which local governments agree to merge duplicative services (LeRoux, Brandenburger, and Pandey 2010, Feiock, Steinacker, and Park 2009). Higher levels of government can also create economies of scale by developing large-scale service delivery networks that smaller-size cities can join, thus lowering their perservice costs (Goldsmith and Eggers 2004). Finally, collaboration might help organizations orchestrate a better division of labor. Partnering frees up a service provider to focus on core services they are most effective at producing. Assuming all service needs are met by someone in the partnership, this is a more efficient system overall.

Note that these "root causes" of efficiency improvement (reducing duplication, achieving economies of scale, and division of labor) should actually be categorized together under "Coordinated Action", a benefit described below. Other causes described by NPM and privatization scholars could be categorized under "greater flexibility of collaboration" and under "resource access", the latter referring to unique skills, expertise, and cultural resources contributed by private and non-profit sector partners. In short, "efficiency improvement" is not a stand-alone benefit of collaboration but a fortuitous result of one or more other, more essential

benefits discussed separately in my analysis. Thus, I will not explore "efficiency gains" as its own benefit in my analysis.

Greater flexibility / adaptability 12

Collaboration scholars, particularly in public management, posit collaborative networks as an alternative management approach to inflexible and rigid government bureaucracy. Rigidity in government derives from internal bureaucratic control systems that slow down the pace of decision-making, limit adaptability, and stifle innovation. The argument is that collaborative partnerships and network structures do better.

For instance, while government bureaucracies are slowed down by complex and restrictive personnel and procurement systems, networks can procure goods quickly and upsize or downsize when needed (Goldsmith and Eggers 2004). Goldsmth and Eggers (2004) describe the Manhattan project and the U.S.-Soviet space race, where government-sponsored networks could hire, fire, and reassign contractors at will, in a way they could not have done with public employees. This flexibility, they argue, was critical in promoting innovation and speed. Other scholars discuss how government alleviates restrictions by partnering with the private sector (Andrews and Entwistle 2010). For instance, Agranoff (2005) notes that most municipal governments are limited in how much general obligation debt they can take on for private sector capital investment. Partnering with the private sector provides access to private funds that come with fewer restrictions.

Note the

¹² Note that the benefits of flexibility have limits. Born and Genskow (2000) find that flexibility, although beneficial in terms of innovation, can be associated with unpredictability. Similarly, Provan and Kenis (2008) describe a tension in network governance between flexibility and stability: while flexibility allows for rapid responses to changing needs and demands, stability is important for developing consistent responses and promoting external network legitimacy. Further, research has shown that stability is an important predictor of positive network outcomes (Provan and Milward 1995). Since both flexibility and stability are important, network managers must learn to achieve some measure of both.

Working through a network makes it possible for public managers to adjust programs and services by bringing in new partners and/or cutting ties with existing partners. This allows them to keep up with changing demands and tasks (Provan and Kenis 2008; Goldsmith and Eggers 2004) and is what makes networks "light on their feet" compared to bureaucracies (Powell 1990). Because of this flexibility, collaborative networks are considered more suited than bureaucracies to uncertain and changing contexts that give rise to unanticipated events. For instance, collaborative networks are the organizational form of choice for emergency management, where problems must be assessed quickly and resources rapidly mobilized (McGuire and Silvia 2010; Waugh and Streib 2006; Moynihan 2005; Kiefer and Montjoy 2006). There is little time for cumbersome bureaucratic procedures or for decisions to run up and down hierarchical authority chains. The flexibility of collaborative partnerships, then, allows organizations to adapt to uncertain environments and respond with innovative approaches. It is not surprising that flexibility is often tied to innovation.

The benefit of "flexibility/adaptability" makes sense when collaboration is defined as an alternative approach to inflexible and rigid government bureaucracy. This only works, however, if one defines collaboration in opposition to hierarchy. Under my definition, coordination among organizations in a hierarchical system is considered collaboration just as much as coordination in a fluid, networked system. The opposite of "collaboration" is not hierarchy, but rather organizations working alone. Without making this distinction between collaboration and hierarchy, the "flexibility / adaptability" benefit has limited theoretical justification and is therefore not part of my analysis.

Innovation / Knowledge generation / Learning

Collaborative partnerships allow organizations to access innovative technologies or ideas just like they access money, labor, and information. However, the innovation benefit described here goes beyond "resource access" to describe how collaboration **generates** new innovations. Innovation generation is conceptually distinct from resource exchange. While resource exchange implies that innovations exist within or are controlled by partner organizations, innovation generation posits that innovation and knowledge is generated by the partnership itself (Gulati 1999; Powell, Koput, and Smith-Doerr 1996; Hardy, Phillips, and Lawrence 2003; Brass, et al 2004; Ahuja 2000; Aiken and Hage 1968). As Powell, Koput, and Smith-Doerr (1996, pp. 118) put it:

Knowledge creation occurs in the context of a community, one that is fluid and evolving rather than tightly bound or static . . . Sources of innovation do not reside exclusively inside firms; instead, they are commonly found in the interstices between firms, universities, research laboratories, suppliers and customers. (Powell, Koput, and Smith-Doerr 1996, p. 118)

While resource exchange is a transactional process, innovation generation is a learning process. Collaborative interactions generate new ideas that lead to mutual learning. Or, as Sørensen and Torfing (2011, pp. 852) phrase it: "the generation of ideas is spurred when different experiences and ideas are circulated, challenged, transformed, and expanded through multiactor collaboration that facilitate mutual learning." Agranoff (2006, pp. 60) similarly describes collaborative networks as "learning organizations" in which learning occurs through discussion, fact-finding, negotiation, and other strategies. Agranoff and McGuire (2001, pp. 303) discuss "shared learning" as a fundamental component of group development in networks, and characterize the collaborative process as a "joint learning system". The collaborative process, if managed well, can "stimulate new alternatives that otherwise would not have been considered (Agranoff and McGuire 2001, pp. 321)".

Innovation generation, then, is special and distinct from resource exchange because it creates something new. Organizations learning through collaboration are doing more than attaining a discrete set of skills or resources. Powell, Koput, and Smith Doerr (1996) emphasize that: "(1) interorganizational collaborations are not simply a means to compensate for the lack of internal skills (2) nor should they be viewed as a series of discrete transactions." (Powell, Koput, and Smith Doerr 1996, pp. 119). True learning means firms do more than passively receive resources they are lacking; they develop existing internal capabilities and enhance their ability to receive and transfer knowledge. The formal exchange of resources is only the "tip of the iceberg" underneath which "lies a sea" of current and future benefits arising from dynamic and ongoing learning processes (Powell, Koput, and Smith Doerr 1996, pp. 120).

In management literature on collaboration—which tends to focus on private firms—learning is commonly associated with knowledge-based industries like bio-technology, pharmaceuticals, and electronics. Because practice changes rapidly in these industries, companies benefit from the creative energies and innovations that emerge from "ongoing social interaction" and discussion (Hardy, Phillips, and Lawrence 2003, pp. 326). For instance, research consortia are considered a "vibrant learning environment and a community in which new discoveries are made" (Barringer and Harrison 2000, pp.378).

Policy areas requiring quick responses to evolving conditions, such as emergency management, are another place where innovation benefits emerge (e.g. McGuire and Silvia 2010, Waugh and Streib 2006, Moynihan 2005, Kiefer and Montjoy 2006). When problems and conditions change rapidly, standard responses may be incomplete or slow, especially if they are uncoordinated. This shows the tie between flexibility/adaptability and the innovation benefit: collaborative partnerships that maintain flexibility are more innovative under difficult, unusual,

or changing conditions. For instance, Connick and Inness (2003) describe how the CALFED partnership developed a rapid decision making process by which small committees of expert water managers, representing key stakeholder groups, were given authority to respond immediately to new information indicating threatening water quality conditions. This "allowed a real-time response to events, as opposed to existing slow and inflexible bureaucratic decision making that provided little leeway for dealing with unforeseen conditions" (Connick and Innes 2003, pp. 189). This type of process innovation is adaptive and context-dependent; it is unlikely to emerge unless the relevant organizations can negotiate and interact in real time to manage dynamic situations.

Processes of innovation generation

Scholars focused on consensus-building, conflict resolution, and negotiation are particularly attuned to processes of innovation generation (e.g. Gray 1989, Susskind and Cruikshank 1987, Connick and Innes 2003, Innes and Booher 1999, Ansel and Gash 2008). According to these literatures, the spontaneous generation of innovations occurs through face-to-face processes of intense dialogue, discussion, and negotiation. These processes generate a level of trust, mutual understanding, respect, and reciprocity that loosens up critical information and makes participants comfortable with exploring out-of-the-box ideas (Gray 1989). Dialogue and consensus-building, in particular, facilitate the emergence of creative ideas and are especially important when stakeholders face an intractable problem or impasse, as described by Connick and Innes 2003, pp. 188:

Overcoming long-term impasses often requires new ways of thinking about the issues at hand.....Creative ideas emerged in these dialogues as participants struggled to address problems that had eluded solution either because of controversies, or simply because there did not seem to be any workable answer.

Connick and Innes (2003) provide two examples of innovations emerging through intensive dialogue. First, an innovative water quality indicator (salinity) emerged from an intensive, facilitated weekend of consensus-building among various experts representing key stakeholders. Second, environmental water accounts (EWA) were developed by CALFED; these provided a way to be more proactive and efficient with fisheries protection by targeting fisheries' water supply to the exact place and at the exact time it was needed. Although the EWA idea came from a single member of the group, it was developed and tested over hundreds of hours by a collaborative group of agency personal, agricultural stakeholders, urban water interests, and environmental groups.

Dialogue and consensus building facilitate a freer flow of information, especially compared to adversarial processes. In adversarial legal processes, for instance, face-to-face contact between parties is restricted and important information regarding their interests— such as what is really important to them and how much they are willing to compromise— is withheld for strategic reasons (Gray 1989). A consensus-building process, on the other hand, is premised on information disclosure. The same thing could be said for regulatory negotiations (reg-neg) compared to traditional rule-making. As Weber and Khademian (1997, pp. 401) describe: "The interactive bargaining format facilitates the flow of information among interested parties such that timely, innovative bargains can be struck that facilitate the interests of all players."

The importance of number of ties and diversity of ties

In the management literature, knowledge creation has been linked to both the number of collaborative ties and the diversity of organizations involved in an alliance (Hardy, Phillips, and Lawrence 2003, Deeds and Hill 1996). Large inter-organizational networks or alliances, such as research consortia, are advantageous because they bring together a "larger brain trust than any one firm could muster" (Barringer and Harrison 2000, pp. 373). For instance, the alliance in the early 1990's that created the Advance Photo System was led by Kodak, and included Fuji, Canon, Minolta, and Nikon (Barringer and Harrison 2000). This massive concentration of expertise and creativity was a major factor in their success; it is highly unlikely that these firms could have accomplished this task alone or in smaller groups. Other scholars emphasize the importance of weak or non-redundant ties, which can foster innovative thinking by forcing actors to build relationships among multiple disconnected clusters of organizations (Burt 1992).

Having diverse participation in a network or partnership, i.e. organizations with diverse perspectives, skills, and expertise, is generally thought to facilitate knowledge generation and the vetting of ideas (Sørensen and Torfing 2011, Rogers and Weber 2010, Lasker, Weiss, and Miller 2001, Gray 1989, Rogers and Weber 2010, Innes and Booher 1999). Conversely, tight networks of homophilous organizations, or those that are closed to new participants (and thus new ideas), are less likely to break out of the mold of traditional thinking or question the status quo. Jones, Hesterly and Borgatti (1997) cite U.S. auto manufacturers as an example.

For collaborative processes like consensus building, diversity means that there are always participants who disagree with, and are willing to challenge, the assumptions made by any other stakeholder group (Innes and Booher 1999). Dialogue among diverse interest can also lead to

"double loop learning": groups reach an impasse due to their differences and have no choice but to reassess their goals and tasks, a process which generates new ideas (Innes and Booher 1999).

Lasker, Weiss, and Miller (2001, pp. 184) describe the importance of bringing many "heads" together to discuss health policies:

Much has been written about the capacity of collaboration to generate new and better ways of thinking about health issues. This capacity, which is reflected in partnership goals and plans, derives from the strengths that emerge when many "heads" or "voices" are brought together, particularly when the people involved contribute different kinds of knowledge and perspectives. Creativity is one expression of the improved thinking that can result from collaboration. Working together, through a process that encourages the exploration of differences, people involved in partnerships have the potential to break new ground, challenge accepted wisdom, and discover innovative solutions to problems (Lasker, Weiss, and Miller 2001, pp. 184).

Further, consensus-building processes often strive to achieve equality among participants, at least within the time-and-space constraints of the process. Equality may foster innovation, as less powerful players are empowered to challenge the status quo and more powerful players are compelled to listen (Innes and Booher 1999).

Based on the literature survey above, the benefit of innovation generation can be summarized by the following proposition, which will be explored in my empirical data:

Proposition 2: (Innovation generation)

Collaboration generates policy innovations as diverse organizations share and jointly process their varied experiences, ideas, and information, often through intense dialogue and negotiation.

Note that I will only be exploring innovation generation, and not innovation diffusion, in my data. Collaboration scholars have found networks linkages and partnerships to be well-suited to

the transfer and diffusion of innovations from one organization to another (e.g. Sørensen and Torfing 2011, Brass, et al 2004, Berry, et al 2004, Lubell and Fulton 2008, Ahuja 2000, Mowery, Oxley, and Silverman 1996, Tsai 2001, Powell 1990). However, innovation diffusion is a conceptually different process from innovation generation, grounded in resource exchange and diffusion of innovation theories. Because my conception of resource exchange includes information (and thus innovative ideas), there is conceptual overlap between innovation diffusion and resource exchange benefits, and I will not explore them separately.

Achieving coordinated action

Coordinated action is a broad term that describes when individual organizations or groups align their actions or decisions to achieve some larger "good" at the organizational, community, and/or societal level. In Chapter 5, I narrow this definition to introduce what I call "harmonizing", a more specific and conceptually developed process of coordinated action. When organizations or groups "harmonize" their decisions or actions, they approximate the actual scope of a problem and achieve collective (but not necessarily individualized) benefits at the community and/or societal level.

"Coordinated action" benefits are best depicted by Huxham and MacDonald (1992), who argue that collaboration helps to avoid and/or manage specific "pitfalls of individualism". The first pitfall, Repetition, is equivalent to duplication and occurs when "two or more organizations carry out an action or task which need only be done by one (pp. 51)". The second pitfall is Omission, whereby activities important to more than one organization, or to the larger society, fail to be carried out. Generally, omitted activities "fall through the cracks" either because they don't specifically belong under any one organizations' mandate, or because they are a shared

responsibility that each organization assumes the other is doing. Simple collaboration such as information exchange could prevent both repetition and omission. The third pitfall, <u>Divergence</u>, occurs when resources are spread so thinly that the "actions of the various organizations are diluted across a range of activities rather than used towards common goals (Huxham and MacDonald 1992, pp. 51)." Divergence is essentially a lack of coordinated resource targeting. A more complex form of collaboration, like partnerships or joint programming, would address divergence by mobilizing resources in a collectively rational manner.

An example of collaboration that addresses these first three pitfalls is "integrated service delivery", also called "service integration", "one-stop service provision", or "wrap-around services", in which related services are provided in an integrated and coordinated manner, sometimes by co-locating offices in the same building (Zhang and Dawes 2006, Selden, Sowa, and Sandfort 2006, Goldsmith and Eggers 2004, Provan and Milward 1995). For instance, welfare services might be co-located with job-training, adult education, mental health, and child-care. Clients can get the full range of care they need and are less likely to fall between the cracks as they are shuffled from agency to agency. Provan and Milward (1995) describe these benefits:

"In addition, through coordination, an integrated system supposedly minimizes duplication of services by multiple provider agencies while increasing the probability that all essential services are provided somewhere in the system and that clients will have access to these needed services (Provan and Milward 1995, pp. 3-4)."

The quote makes the connection between collaboration and two of Huxham and MacDonald's (1992) pitfalls of individualism: Repetition (the integrated system "minimizes duplication") and

Omission (the integrated system "increases the probability that all essential services are provided somewhere in the system"). Integrated service delivery also addresses divergence if the various service providers work together to divide labor efficiently and target scarce resources.

The fourth and most damaging "pitfall of individualism", <u>Counterproduction</u>, occurs when the actions of one organization working in isolation conflict with the actions of another organization. "At best, this may lead to a 'cancelling out' of the benefits of each action; at worst it could leave both [organizations] worse off than they were before (Huxham and McDonald 1992, pp. 52)." The collective, societal benefits of organizational actions could end up being zero or negative.

A common example of counter-production is when one organization or jurisdiction's actions produce "spill-over effects" or "externalities" that negatively affect other organizations. Spill-over effects are a concern especially among scholars of state and local government, since jurisdictions will try to reap the benefits of activities (e.g. economic development) while passing on associated costs to their geographic neighbors (e.g. pollution, traffic, costs of human services). One solution is collaboration though mechanisms like regional governance organizations (Feiock 2009) or inter-jurisdictional agreements (LeRoux, Brandenburger, and Pandey 2010). In the terminology of counter-production, collaboration minimizes the actions taken by one organization which cause harm to other organizations or to society overall. In some cases, like the jurisdiction that wants economic development but not pollution, efforts to shift costs are purposeful. Yet counter-production may occur through thoughtlessness and lack of communication, in which case basic information exchange will alleviate the problem.

There are a few benefits related to "coordinated action" that don't fit within the Huxham and MacDonald (1992) framework. First, collaboration standardizes activities and decisions of

organizations working on similar programs, creating greater consistency and predictability. In service delivery systems, this makes it easier for clients to attain care from multiple agencies without filling out new paperwork or learning a new system. An example from watershed management is standardization of data collection or monitoring protocols, which allows agencies to combine their data and thus improve data availability overall (Rogers and Weber 2010).

Second, collaboration ensures that the appropriate agencies are involved in solving a problem. Policy problems are often "wicked" and cannot be broken down into pieces and solved independently by isolated organizations (Rittel and Webber 1973, O'Toole 1997). Without collaboration, the policy problem is solved partially or advancements made in one area are tempered by the lack of progress in another (Beuren, Klijn, and Koppenjan (2003). Determining which organizations are needed to solve a wicked problem, and getting them to collaborate, is a key challenge for public managers. In watershed management, for instance, it is critical to involve multiple actors not directly working on water quality issues, such as local government land use managers who make zoning, development, and siting decisions, transportation departments that manage roadways, and health departments that manage sewer and septic systems (Born and Genskow 2000). Lubell (2004a) describes how collaborative structures are well-suited to this coordination task:

"Proponents argue that...the collaborative structure of the NEP [National Estuary Program] is better suited to complex watershed problems, which span administrative and political boundaries, affect multiple environmental media (e.g., air, land, water), and have complex cause- and-effect relationships with often delayed or invisible environmental responses. The inclusive style of the NEP addresses boundary-spanning problems by reaching out to stakeholders previously confined to isolated subsystems, providing them the opportunity to interact, share information, pool resources, and integrate otherwise redundant or fragmented policies (Lubell 2004a, pp. 552)."

Comprehensive thinking and action is another benefit that emerges when multiple organizations who work on various aspects or part of a problem collaborate. Multiple aspects of the problem are addressed simultaneously and in concert, as opposed to being addressed by different organizations at different times, different paces, and in different manners. As described by Lasker, Weiss, and Miller (2001), a holistic, comprehensive view of the problem is constructed, which forms the basis for action:

"By themselves, partners frequently see only part of a problem. As a group, however, they can construct a more holistic view-one that enhances the quality of solutions by identifying where multiple issues intersect and by promoting broader analyses of problems and opportunities (Lasker, Weiss, and Miller 2001, pp. 184-185)."

Based on the literature survey above, the coordinated action benefit can be summarized by the following proposition, which will be explored in my empirical data:

Proposition 3: (Coordinated Action)

By facilitating coordinated action, collaboration promotes a comprehensive, collectively rational approach to policy and avoids duplication, omission, divergence, counter-production, and other inefficiencies.

Building Social Capital

Putnam (1995, pp. 67) defines social capital as: "features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit."

Putnam's definition emphasizes social organization, while other scholars emphasize exchange and structural dimensions. For instance, the working definition provided by Adler and Kwon (2002), based on an extensive review of the concept, reflects concepts of resource exchange:

Social capital is the goodwill available to individuals or groups. It source lies in the structure and content of the actor's social relations. Its effects flow from the information, influence, and solidarity it makes available to the actor (Adler and Kwon 2002, pp. 23).

Social capital is purposefully presented as analogous to physical or human capital to emphasize that social networks are valuable and can be expected to produce future returns (Putnam 1995, Fountain 1998). Broadly, there are two ways in which social capital provides benefits, corresponding to the two types of social capital identified by Putnam (1995): bridging and bonding. Bridging social capital is generated between actors not already part of the same social organization or network, whereby relationships create a bridge between tightly bonded networks. Bonding social capital is generated and sustained by groups or individuals already in close relationships; it helps to maintain strong bonds and reinforce identities among homogenous groups (Putnam 1995). Investing in bridging capital produces benefits similar to those described under resource exchange (i.e. access to information, power, and solidarity), while bonding capital strengthens collective identity and improves the capacity of the network to engage in collective action (Adler and Kwon 2002). Bridging social capital is more important for my purposes because I study relationships among diverse organizations.

How social capital is created through collaboration

Collaboration builds bridging social capital through repeated, reciprocal interactions among organizations, allowing them to demonstrate to each other that they are competent, sincere, have good intentions, and will follow through on promises (Bryson, Crosby, and Stone 2006; Lubell and Fulton 2008; Innes and Booher 1999). Building social capital is similar to the process of "trust-building". Although "trust" is too complicated for a full treatment here, suffice it to say that trust is a component of social capital that emphasizes the inter-personal, relationship-building aspects of social capital over the exchange aspects. The process of building trust and social capital is similar, occurring through repeated interactions over a long period of time (Thomson and Perry 2006). For instance, Huxham and Vangen (2004) argue that trust is built through a cyclical trust-building loop, in which collaborative partners initially take small risks which, as trust is developed, eventually build to more ambitious investments in the relationship.

Bridging social capital can be built even among organizations with highly conflicting values or beliefs (Schneider, et al 2003) or across deep political and social divides (Connick and Inness 2003). Connick and Innes (2003), for instance, describe in detail the process by which antagonistic stakeholders broke down barriers and built relationships while engaged in collaborative water policy-making:

in the early stages of each project stakeholders representing diametrically opposing views, who often had fought each other in the courts or battled over legislation, tended to sit and talk mainly with others in their 'caucus'. But as time passed, stakeholders having opposing views came to know one another and developed empathy for each other's interests. They developed informal relationships over meals and/or through working together in groups. Participants forged personal bonds that cut across their ideologies and interests.... Individuals began to sit and talk with those representing different perspectives, sometimes to work on how to resolve differences, sometimes just because they enjoyed each other's company. On more than one occasion a stakeholder representing the development community stopped a discussion from going forward, although it favoured his interests, because one of the key environmentalists was not there and he knew this individual would object (Connick and Innes 2003, pp. 184).

In some cases, the collaborative process or structure is explicitly designed to foster interactions among traditionally antagonistic parties. Schneider, et al (2003) find that the National Estuary Program (NEP) partnerships, compared to similar partnerships outside of the NEP program, were more likely to connect business and environmental interests because NEP estuaries had to meet certain public participation requirements to quality for funding. These "ideological boundary spanning networks" encourage negotiated agreements among traditional adversaries by exposing them to repeated, long-term interactions that developed social capital.

Concrete benefits of social capital

Most scholars are interested not in social capital itself but in the benefits it produces at multiple levels (Adler and Kwon 2002). At the personal level, social connections may improve professional opportunities and/or lead to friendships and emotional fulfillment. At the organizational level, social ties are the means for conferring both informational benefits and securing power (Adler and Kwon 2002, Burt 1992). Social ties facilitate the flow of information, while power may be secured either through relationships with powerful actors or by occupying network positions that offer control over key resources (Burt 1992).

I am interested in societal or community level benefits of social capital. I focus on one key societal or community-level benefit: the formation of relationships that become the basis for future collaboration. This is discussed below. A second benefit tied to social capital, reducing conflict, is discussed separately.¹³

¹³ Other concrete benefits of social capital at the societal/community level that I do not address in my research include: 1) a reduction in transaction costs of collaboration and 2) building a better, more engaged society. These benefits, and my reasons for excluding them, are described below:

^{1.} Reduction in transaction costs of collaboration

Frequent, repeated interactions among organizations reduce the transaction costs of collaboration according to several lines of reasoning. Most essentially, game theory predicts that participants in an exchange are less likely to seek personal advantage if they may be punished in future exchanges. In addition, repeated interactions and personal

Relationships strengthened by social capital provide an enduring institutional infrastructure that can be used to address new problems. Innes and Booher (1999) describe "spin off" partnerships that occur after the primary consensus-building process is completed (i.e. a second- or third-order effect), and are based on the relationships, shared meanings/goals, and social capital built during the initial process. Similarly, they find some partners use social capital developed on one issue to reach consensus on a separate issue. In some cases, a concrete institutional structure— such as a collaborative organization or network organization— is created upon which future collaboration is built (Imperial 2005). In other cases, it is a social infrastructure (less tangible, but nonetheless real) of relationships and networks developed through collaboration, utilized to tackle new problems (Bryson, Crosby, and Stone 2006). Social infrastructure may also include cooperative attitudes (Schneider, et al 2003), knowledge and experience with collaboration (Connick and Innes 2003) and mechanisms/ techniques learned to coordinate interactions (Gray 1989).

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contacts foster respect and consideration among parties, in some cases leading to behavioral norms for cooperation (Schneider, et al 2003). The development of trust again comes into play; trust among parties reduces the complexity of interaction (and thus transaction costs), as parties worry less about controlling opportunism and manipulative behavior (Thomson and Perry 2006; Ansell and Gash 2008). Finally, repeated interactions among partners allows for social mechanisms to emerge to govern and facilitate exchanges: the use of reputation to reward good behavior and punish bad behavior, development of a network-level macro-culture that socializes participants to follow shared behavioral rules and norms, and collective sanctions for bad behavior (Jones, Hesterly, and Borgatti 1997, Ostrom 1990). Without social capital built up from repeated interaction, these social mechanisms would not function. A reduction in transaction costs improves collaboration by making it smoother and less costly to participants. *However, there is no independent benefit.* The logical flow of benefits goes like this: collaboration leads to increased social capital which reduces transaction costs which improves collaboration. I am interested in the ultimate benefits of collaboration, rather than benefits that foster or improve collaboration itself. For this reason, I do not further pursue the transaction cost-reduction benefits of collaboration.

^{2.} Building a better society through social capital

A core argument of Robert Putnam (1993, 1995) is that social capital builds a better society. The argument, as summarized in Adler and Kwon (2002), is that engagement of citizens in civic organizations (and this could be extended to collaborative organizations) leads to habits and attitudes of cooperation and public-spiritedness which spill over into society, creating higher levels of trust and reciprocity, bridging political and social divides, and creating the basis for collective action. Measuring this benefit is beyond the scope of my research; yet it clearly is important not only for achieving concrete policy goals but for creating a positive and productive policy-making environment.

"Spin-off" groups continue or extend the work of the initial collaborative partnerships. In fact, the secondary group may be successful where the primary one was not, especially if it benefits from improved working relationships and/or collective learning that occurred in the first go-round (Provan and Milward 2001). Improved working relationships and trust may help partners tackle policy problems separate from and unrelated to the original problem (Imperial 2005). Social networks may also improve coordination among organizations that do not normally consult each other before making decisions (Connick and Innes 2003).

The social capital benefit of collaboration, manifested by built relationships and institutional infrastructure, can be summarized by the following proposition to be explored in my empirical data:

Proposition 4: (Social capital – building institutional infrastructure)

Collaboration generates social capital among diverse organizations, building relationships and institutional infrastructure that can be used to address future problems.

Reduced conflict 14

Reduced conflict is not universally touted as a benefit of collaboration but is emphasized in certain literatures, such as conflict resolution and negotiation, and by public management

¹⁴ Most collaboration scholars recognize that conflict is a natural and important part of the collaborative process and should not be completely eliminated. Conflict "promotes a healthy competition of ideas and stimulates policy change and learning" (Imperial 2005, pp. 311) and provided that it is managed well, it can "sharpen partners' discussions on issues and stimulate new ideas and approaches" (Lasker, Weiss, and Miller 2001, pp. 193). Further, there are risks to the suppression of conflict. First, partnerships that work to avoid conflict might end up addressing only the easiest, "lowest common denominator" issues that all parties can agree on, making little progress on critical but less tractable problems (Poncelet 2001; Layzer 2008). Second, conflict avoidance may constrain radical, out-of – box thinking needed to produce truly innovative solutions (Poncelet 2001). And finally, collaboration and conflict reduction may be a "cover" for dominance or co-optation by powerful interests (Poncelet 2001, Walker and Hurley 2004, Amy 1987).

scholars that draw upon these areas of scholarship. ¹⁵ These literatures emphasize the process aspects of collaboration— such as consensus-building, dialogue, and negotiation— and define collaboration as an alternative to adversarial or legalistic approaches. Ansell and Gash (2008) typify this perspective in the quote below defining collaborative governance:

By contrast with decisions made adversarially, collaborative governance is not a "winner-take-all" form of interest intermediation. In collaborative governance, stakeholders will often have an adversarial relationship to one another, but the goal is to transform adversarial relationships into more cooperative ones. In adversarial politics, groups may engage in positive-sum bargaining and develop cooperative alliances. However, this cooperation is ad hoc, and adversarial politics does not explicitly seek to transform conflict into cooperation. (Ansell and Gash 2008, pp. 547)

According to this perspective, collaboration corrects weaknesses of adversarial policy approaches such as excessive cost, inflamed conflict and confrontation, and winner-take-all outcomes. In a table comparing collaborative and adversarial processes, for instance, Gray (1989, pp. 50) demonstrates how collaboration addresses several limitations of adversarial legal processes, including: the difficulty of achieving innovative solutions due to restricted communication; polarization and hostility between parties; limitations on the use of full information; the inability of courts to deal with complex technical issues; and lack of representation of all stakeholders.

My definition of collaboration is different from that posed by Ansell and Gash (2008). Collaboration is not defined in stark opposition to regulation or legal approaches, but can occur during or alongside them. My focus on structure means collaboration does not require special consensus-building or negotiation processes, and the neutrality of my definition does not require

¹⁵ My literature survey for this section focuses on public management and public policy scholarship, some of which draws upon insights and research from outside literatures such as conflict resolution, alternative dispute resolution, and negotiation. Some public management scholars have done excellent work drawing concepts from conflict resolution literature and legal literatures on alternative dispute resolution, negotiation, and mediation and applying these to collaboration scholarship. Relevant works include O'Leary and Bingham 2003, Gray 1989, Susskind and Cruikshank 1987, and Bingham and O'Leary 2006. These works were consulted in order to gain important insights on the conflict resolution benefit. However, an in-depth survey of the ancillary literatures was not conducted.

participants to be empathetic, to build trust, or to develop positive inter-personal relationships.

Coming from this neutral, structural definition, there is no reason to assume that collaborative partnerships will succeed in resolving or reducing conflicts, or even attempt to do so. That said, conflict reduction has been identified as a benefit of collaboration by a large segment of scholars and is worth exploring.

According to such scholars, the collaborative process helps to reduce conflict by "breaking logjams" among competing participants (Innes and Booher 1999, pp. 412). When traditional adversarial processes lead to an impasse, collaboration may "reopen negotiations" (Gray 1989, pp 22). Alternatively, using the collaborative process early may prevent an impasse from occurring (Gray 1989). Collaborations' ability to end (or prevent) stalemates or impasse stems from special characteristics of the collaborative process – interactive dialogue among participants with diverse interests, mutually agreed upon ground rules that increase parties' comfort level, and good facilitation—that loosen up previously withheld information and foster innovative solutions. Collaboration also resolves conflict by simply bringing adversaries together for repeated positive, friendly (or at least civil) interactions. As described, repeated interactions build social capital, reducing the likelihood of opportunistic behavior, fostering respect and consideration, and developing trust.

Conflict reduction achieved through collaboration is manifested in two main ways: 1) a reduction in adversarial practices like lawsuits and advocacy and 2) a reduction in post-decision animosity (backlash) against decisions. First, organizations may back off from adversarial practices if collaboration meets their interests. This affects not only their current decision to pursue collaboration, but future decisions. As Innes and Booher (1999, pp. 415) put it:

"[Participants] may conclude that consensus building can work more effectively for them than

confrontational tactics, and in the future they may seek out dialogue rather than bringing lawsuits or creating opposing legislative proposals."

Connick and Innes (2003), for instance, found that the Water Forum – a collaborative dialogue centered on water supply in the Sacramento, CA region—ended a long stalemate between environmental groups and the East Bay Municipal Utility District (EBMUD), the water supplier for the east side of San Francisco Bay. In nearly 20 years of legal proceedings, environmentalists had pushed to reduce diversions from the American River to protect endangered species of fish, while EBMUD was ramping up supply to meet demands of a growing population. The Water Forum stimulated productive dialogue and discussions that led stakeholders to withdraw from lawsuits and advocacy, and eventually agreement was reached. From this case and two similar cases, Connick and Innes (2003) conclude that collaborative dialogues lead to changes in in understanding and behavior that allow warring partners to "move off a collision course" (pp. 186). Collaborative dialogues, they argue, effected a remarkable transformation in the atmosphere of water policy in California:

The California water policy arena has been a notoriously conflictual one, in which parties frequently were at odds with one another on multiple fronts simultaneously, fighting one another through regulatory and resource management agencies, the courts, Congress and the legislature and the voters. Today these diverse parties are engaging in collaborative dialogues, focusing on joint problem solving rather than mutual destruction, and more often than not going to the legislative bodies and voters with one voice in seeking remedies to their problems (Connick and Innes 2003, pp. 195).

Similarly, Schneider, at al (2003) found that participants in collaborative National Estuary Programs were less likely than those in other estuary programs to consider litigation or other adversarial approaches; they preferred to resolve conflict within the partnership structure. The collaborative NEP program provided a non-adversarial venue for negotiated agreements among ideologically diverse interests.

A second way that collaboration reduces conflict is by minimizing post-decision backlash. The collaborative process brings key stakeholders together to hash out decisions.

Stakeholders are less likely to turn to adversarial approaches in response to decisions they helped craft, in part because they feel a sense of ownership and in part because dialogue and negotiation has helped them reach a mutually agreeable solution.

Connick and Innes (2003) discuss a CALFED procedure where small committees of expert water managers, representing all major government agencies and stakeholder groups, regularly share and evaluate new information on fisheries, water quality, and flows, and were given authority to respond immediately to threatening water quality conditions. The key factor in this procedure's success was that all regulatory agencies, plus stakeholders, were at the table together to discuss and make trade-offs among the slew of conflicting regulations related to water supply, flood prevention, and protecting endangered species. Previously, as soon as one regulation was violated, stakeholders supporting that regulation would file a lawsuit. Under this new system, the situation was evaluated and trade-offs were made immediately through negotiations, rather than through a post-decision adversarial process.

Regulatory negotiation (reg-neg) serves a similar role, in that key stakeholders affected by a new rule or regulation participate in the decision process and shape the final decision.

Weber and Khademian (1997) focus on rule-making by the EPA, which is normally subject to extensive post-rule litigation. Litigation is not only expensive and frustrating, but it leaves regulations in limbo as EPA is forced to repeal and rewrite rules over and over again. Reg-neg provides key stakeholders the opportunity to play a direct role in writing the rule, developing a sense of "ownership" among participants and ensuring that they understand what is expected of

them once the rule is finalized. After such involvement, stakeholders will be less likely to engage in post-decision litigation.

Based on the literature survey above, the conflict reduction benefit can be summarized by the following proposition, which will be explored in my empirical data:

Proposition 5: (Reducing/resolving conflict)

Through interactive dialogue among organizations, collaboration breaks policy impasses and reduces the use of adversarial practices among parties in conflict.

Note that even the most optimistic of scholars recognizes that participants who don't get what they want through the collaborative process may afterwards utilize adversarial venues (Ansell and Gash 2008, Weber and Khademian 1997). Yet this risk can be minimized by a well-designed collaborative process that builds trust, reciprocity, and respect, deals effectively with conflict, breaks down barriers to information flow, and sets appropriate expectations. For instance, Weber and Khademian (1997) discuss the importance of a three part "assurance mechanism" to reassure participants that final regulatory negotiation (reg-neg) agreements will be honored: (1) an entrepreneurial leader that can convince participants their interests will be protected if they participate in good faith, (2) commitment of the regulatory agency to carry out the negotiated decision, and (3) a set of formal, binding rules that commits the regulatory agency and other participants to abide by the negotiated decision.

Conceptual and empirical development of the benefits of collaboration

The five propositions developed above will be explored using a rich empirical data set on collaboration in the Chesapeake Bay watershed and the Northern Virginia (NOVA) region. The purpose of my empirical analysis is conceptual development of these benefits of collaboration: to improve understanding of the nature of the benefits and the unique processes of collaboration that produce them. Empirical data illuminates how the benefits can be identified in practice, the different forms that the benefits take, and different contexts in which they emerge.

As mentioned earlier, the focus of my empirical analysis is on Coordinated Action (or more precisely what I call harmonizing, a process of coordinated action emphasizing the need to address problems at their proper scope and scale). Aside from the work by Huxham and MacDonald (1992), the coordinated action benefit is conceptually under-developed in existing literature. Also, my most interesting and unique results came from analysis of coordinated action cases. For the other four benefits, a shorter analysis of key themes is presented, pointing towards future research opportunities.

As mentioned in the introduction, my ultimate goal—and my long-term research agenda—is to evaluate the utility of collaboration. Do its benefits outweigh the costs? How can its benefits be maximized and costs minimized? Several scholars have already developed frameworks for evaluating collaboration, although none are universally accepted or applicable to all types of collaboration. For instance, the framework by Provan and Milward (2001) focuses on effectiveness of social service delivery networks at three levels of analysis: community, network, and organization/participant. Innes and Booher (1999) provide a framework featuring lists of process and outcome criteria by which to evaluate the "consensus-building" aspect of collaboration. Other scholars, such as Agranoff (2008) and Leach (2006), identify and categorize benefits of collaboration derived from the analysis of empirical data.

A common problem with these frameworks is that the benefits themselves are conceptually under-developed. For instance, one evaluative criteria on the list by Innes and Booher (1999) is "[production] of creative ideas" (also called "innovative strategies"). However, the authors provide little conceptual or empirically-based discussion of what the "innovation/creativity" benefit looks like, or how collaboration is uniquely poised to bring it about. Presumably the benefits featured in these evaluative frameworks will be operationalized and applied to cases of actual collaboration. Without serious conceptual development of the benefits themselves, however, measures will be hollow and may inaccurately reflect the true nature of the benefit. My contribution is to elaborate, conceptually and empirically, on the benefits that will be entered into such conceptual frameworks. I apply insights from the literature to a rich set of empirical data, providing a multitude of examples of how each benefit is manifested through collaboration.

Chapter 4: Methods and Data

The five research propositions developed in the previous chapter (each representing a key benefit of collaboration) are examined using an empirical data set. Coding my data reveals hundreds of "instances" in which collaboration leads to one of these five concrete, policy-related benefits.

Through analysis of these "instances" of collaboration I improve our conceptual understanding of the five benefits of collaboration – particularly the benefit of coordinated action – and processes of collaboration that bring about them about. I also utilize my data to explore the context under which collaborative benefits emerge.

Key methodological decisions

I start this chapter by summarizing and justifying four key decisions made regarding the type of data collected, case selection, and empirical analysis. Next I discuss case selection and introduce my two cases, providing an overview in this chapter and more detailed information in Appendix A. I then describe my data sources and data collection methodology. I end the chapter with a description of my coding process and an overview of data analysis methods.

Key decision #1: Qualitative data and analysis

I collect qualitative data because in this project I aim to develop concepts and understand processes of collaboration, both of which require context-rich information. Also, my theory-building goals require me to understand collaboration in depth from the perspective of variety of participants. The best means to get such information is in-depth interviews, which allow for planned and spontaneous variation in questions.

Qualitative analysis techniques are critical to my project because theory building requires iterative cycles of empirical analysis and concept development. Every step of my project – from the literature survey presented in Chapter 3, to refinement of the coding scheme, to coding, to analysis and thematic development— was part of a conceptual development process. More than just rich empirical data, conceptual development requires working in close contact with the data. For me, analysis mainly involved using tables and spreadsheets to lay out examples of different codes, categorize and sort them, and pull out common themes. These methods allow me to work closely enough with the data to develop complex concepts, while retaining a systematic, logical approach.

Key decision #2: Unit of analysis

My unit of analysis is an "instance" of collaboration that produces one of the five identified benefits. Because I utilize a broad definition of collaboration, instances of collaboration analyzed for each benefit are diverse in geographical scope, time, and importance. For instance, all of the following were instances of collaboration in my data, categorized under the "Coordinated Action" benefit:

- Neighboring municipalities work together to ensure that shared walking/biking trails maintain consistency as they cross municipal lines.
- 2. Maryland and Virginia, via a Bi-State Blue Crab Committee, cooperate to phase in harmonized, more stringent regulations for blue crab harvests.
- Two local government citizens committees, an environmental committee and a low income housing committee, worked together to reduce tree canopy requirements in exchange for energy conservation in low income homes.

4. Through the Chesapeake Bay Gateways Network, the National Park Service helps disparate public and private park sites coordinate an overall Chesapeake Bay educational and recreational experience.

These four instances demonstrate a variety of collaborative partners, including municipalities working together (#1), states working together (#2), citizens' committees working together (#3), and a variety of public and private park sites working together under the auspices of a Federal program (#4). They also vary in time: for instance, #3 is a relatively isolated, short case, while #4 is a program that extended over many years and was mentioned several times in my data. Further, one could argue that some instances of collaboration, such as the historic agreement between Maryland and Virginia on blue crab regulations (#2) are more impactful and important than others, such as municipalities harmonizing trails (#1).

What holds these instances of collaboration together is their illustration of the concept of "Coordinated Action". My research fleshes out this theoretically derived concept by exploring the wide variety of collaborative arrangements in which it occurs empirically. My theorybuilding goals **require** a wide variety of instances of collaboration illustrating each proposed benefit. Drawing upon many instances, which occur in different contexts and under different conditions, builds a more comprehensive theory for each benefit.

To present an analogy, the instances of collaboration are like "snapshots" of how each collaborative benefit plays out in real life. Using descriptive and typological analysis, I sort, describe, and display these snapshots to build a "collage" of sorts that illustrates each benefit. The "collage" is meaningful to the extent that I can draw out of these diverse arrangements,

occurring in different contexts and under different conditions, the common collaborative benefit they illustrate.

Key decision#3: A different kind of case study

Unlike a traditional case study where cases themselves are the unit of analysis, my cases are used to collect hundreds of instances of collaboration which, as described above, are my units of analysis. The Chesapeake Bay restoration, for instance, is a hub of collaborative activity.

Choosing this case defines or bounds the documents I read, the people whom I interview, and the universe of problems and activities I focus on. Once collected, this data generates a wealth and diversity of instances of collaboration to be categorized and analyzed.

Rather than select cases, I could have used a random sampling of watershed managers, planners, and others from around the nation. This would generate instances of collaboration needed for my analysis and provide greater generalizability. However, drawing instances of collaboration from hundreds of locations and water bodies all over the nation would make it impossible to develop the level of contextual knowledge needed to interpret each. Drawing data from a single case or a small number of cases greatly reduces the burden of contextualizing the collaborative instances, since they all occur within a similar context. This reduced need for contextual information is the main draw of a case study approach.

Key decisions #4: Inductive approach to analysis

The overall structure of my research project is deductive. I begin with a set of five research propositions, derived from existing literature, about the benefits of collaboration. These are translated into codes and used to analyze my data.

However, concepts represented by these "benefits codes" require further elaboration, and for this I take an inductive approach. For instance, the benefit of coordinated action was vague and under-developed in the literature until my development of the harmonizing concept. In the development of this and other concepts, I rely heavily on examples from the data, using tables and spreadsheets to sort and review examples, develop themes, and pull out insights. This inductive approach meshes with the theory-building emphasis of this project. A major aim of this research is to elaborate on the benefits of collaboration as they manifest themselves in the real world in a diversity of contexts. As described, I pull together, synthesize, and sort various empirical "snapshots" of these benefits into a meaningful "collage".

Case selection

For my purposes, a good case generates many "instances" of collaboration. It also standardizes some contextual aspects (to reduce the burden of collecting contextual information), while offering variation. For instance, cases where instances of collaboration occur in a constant regulatory and institutional context reduce the burden of collecting contextual information. However, to meet my theory building objectives cases should provide opportunities to interview people with different perspectives, who work in different policy areas, and/or interact within different institutional contexts.

I meet these criteria by selecting one large case of watershed planning/management (the Chesapeake Bay watershed restoration) and one region embedded within the Chesapeake Bay watershed (the Northern Virginia, or NOVA, region). In the following sections I briefly introduce the cases and explain my reasoning behind each case selection. More detail on the cases themselves can be found in Appendix A.

Chesapeake Bay Restoration case

This case focuses on watershed management and restoration activities occurring in the Chesapeake Bay watershed under the auspices of the US-EPA Chesapeake Bay Program¹⁶ or through affiliated organizations. The US-EPA Chesapeake Bay Program partnership was created in 1983 under the first of three major Bay agreements. ¹⁷ Central Bay Program partners are the US-EPA, the six states that comprise the watershed plus the District of Columbia, and the Chesapeake Bay Commission. 18 However, there are many other partners, including fifteen more Federal agency partners, several academic institutions, and several NGOs (US-EPA Chesapeake Bay Program 2012a). In addition to Bay Program partners, a multitude of public and private organizations work on associated restoration activities within the confines of the Bay watershed. These organizations range from small NGOs and local governments to private companies and large regional organizations. Appendix A provides more detail on the U.S. EPA Chesapeake Bay Program Partnership and the inter-state agreements that govern it, as well as other key organizations involved in Chesapeake Bay restoration activities. (The appendix provides useful contextual background but it is not necessary for understanding my empirical analysis; relevant details will be provided as needed in the empirical chapters).

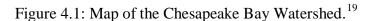
1

¹⁶ Although called the US-EPA Bay Program, this is not a program of EPA Central or any particular EPA region. Rather, it is a separate partnership in which US-EPA is one of the key partners. Its funding comes directly from Congress.

¹⁷ Others have dated the beginning of the Bay Program to 1976, when Congress gave the US-EPA \$25 million to conduct a 5-year study of the Chesapeake Bay. As part of this study, US-EPA was tasked with coordinating existing research on the Bay, establishing a data collection and analysis program, and making recommendations on Chesapeake Bay management. Although this was mainly a research program, it laid a foundation for the inter-state coordination solidified by the 1983 Bay Agreement.

¹⁸ The Chesapeake Bay Commission is tri-state legislative assembly representing Maryland, Virginia and Pennsylvania. It assists these state legislatures in responding to Bay concerns and promotes, where appropriate, uniformity of state legislation.

Figure 4.1 shows a map of the Chesapeake Bay watershed, which covers 64,000 square miles of land area. It includes land in six states (Maryland, Virginia, Pennsylvania, and smaller parts of New York, West Virginia, and Delaware) and the District of Columbia.





There are three main reasons for selecting the Chesapeake Bay Restoration as my "large" case:

(1) it is a hub for collaborative activity, (2) it features collaboration in a diversity of institutional settings (within the confines of a particular context), and (3) it is data rich.

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¹⁹ Source: US-EPA (2012c).

The description of key collaborative organizations working on Chesapeake Bay restoration activities, provided in Appendix A, makes it clear that the region is a hub for collaborative activity (reason #1). Collaborative organizations and partnerships actively coordinate inter-jurisdictional and inter-organizational programs, plans, and projects at the Bay level and within embedded areas of the Bay watershed. These organizations offer collaborative opportunities that vary from localized to regional, structured to unstructured, regulatory to non-regulatory, and formal to informal.

Because of the diverse geographical, demographic, and ecological makeup of the Bay watershed, the Bay Restoration case "features collaboration in a diversity of institutional settings" (reason #2). There are key differences by state. For instance, the three States that comprised the original Bay Program (Maryland, Virginia, and Pennsylvania) have long-standing Bay restoration institutions. Some are inter-state organizations such as the Chesapeake Bay Commission, while others are intra-state laws, organizations, or programs. The Bay is less central to environmental programming in New York, West Virginia, and Delaware, since a small portion of their total land area is in the watershed and they did not join the Bay Program until 2000. The District of Columbia offers a completely unique institutional environment for the implementation of Bay-related policy. It is fully within the Bay watershed and has been part of the Bay Program from the beginning, yet it lacks the autonomy of its State partners.

With so many States and D.C., there is great diversity in the regulatory structures used for Bay restoration. For instance, Maryland has a Department of Planning that runs its smart growth and green infrastructure programs; no other State has such an agency. Also, most states have regional satellite offices for their State environmental agencies, but Delaware (probably because of its small size) does not. There are also differences in State regulatory culture and preferred

procedures. Historically, Maryland has had the most stringent environmental regulations related to the Bay, and its people have been more willing to accept State intervention. This "interventionist regulatory culture" is often compared to Virginia and Pennsylvania, where voluntary approaches are strongly preferred.

Local governments also provide significant regulatory and procedural variation. More than 1,650 local governments are located within the Chesapeake Bay watershed, including cities, counties, towns, townships and boroughs, providing further opportunities to see how collaboration unfolds in a variety of institutional contexts. They vary significantly by size, capacity, authorities, and departmental structures. This variation is significant for my policy interests because key decisions about stormwater management and land use are made locally.

The Chesapeake Bay watershed includes areas that are rural, urban, and suburban. Cities and metro regions include Washington D.C.; Baltimore, MD; the Norfolk/Hampton Roads metro area in VA; Richmond, VA; and Harrisburg, PA. All these, and many smaller cities, have suburban areas surrounding them or areas in transition from suburban to urban development. In fact, development pressure in the DC suburbs, the DC/Baltimore corridor, and around Harrisburg and Richmond is intense. Yet the Bay region has some quite rural areas, such as the Delmarva Peninsula on the east side of the Bay (this land is split between Delaware, Maryland and Virginia), the Shenandoah and Piedmont region of Virginia, and most of central Pennsylvania. 21

Diversity in population density indicates diversity in institutional and regulatory structures. Urban, suburban, and rural areas face different water quality impairments. The people who cause the impairments and/or are affected by them are different, and they handle these

²⁰ See the 2030 expected population map by County from the Chesapeake Bay Program (US-EPA Chesapeake Bay Program 2012d). This can be compared to the 2010 map found on the same site.

²¹ See the 2010 population map by County from the Chesapeake Bay Program (US-EPA Chesapeake Bay Program 2012d).

impairments in different ways. In rural areas, for instance, impairments tend to come from agriculture and are dealt with through agricultural cost-share programs where farmers are major participants. In urban-suburban areas, impervious surface and stormwater pollution are the major issues. Local plans and ordinances, plus MS4 permits²² issued under Clean Water Act regulations, are used to solve these problems. Environmental and development interests usually are involved. Finally, the Chesapeake Bay has a wide variety of natural landscapes, including forests, inland and tidal wetlands, and pasture. Some natural features fall under additional regulatory or incentive programs, adding institutional layers to watershed management.

Variation in all these aspects – state regulatory structures, procedures, and culture; local government type, structure, and capacity; population density; and natural landscapes— means that Bay restoration will occur in a wide variety of institutional settings within the geographical confines of my case. Combined with the longevity of the Bay restoration project and the intensity of collaboration, I can expect a wide variety of collaborative partnerships and programs. At the same time, all "instances" of collaboration related to the Chesapeake Bay restoration are subject to the same broad management plans orchestrated by the US-EPA Chesapeake Bay Program. They face the same constraints and opportunities, such as the opportunity to apply for certain grants. This reduces my burden of collecting contextual information: there is no need to research, again and again for every instance, the main organizations that influence regional water quality efforts. At the Bay-scale, these organizations are already described in Appendix A. 23

²² MS4 stands for Municipal Separate Storm Sewer Systems. MS4 permits are issued from US-EPA or its State affiliate agencies under the National Pollution Discharge Elimination System (NPDES) stormwater program and require urbanized municipalities and Counties to regulate their stormwater runoff.

²³ There are smaller-scale regional organizations (such as the NVRC in Northern Virginia) and state-wide organizations (like the Virginia Outdoors Foundation) that will still be important on a case-by-case basis. It is only at the Bay-wide scale that the organizational context is the same for different "instances" of collaboration.

Finally, the Chesapeake Bay case is data-rich (reason #3). The restoration has been active since 1976, when US-EPA was given a \$25 million grant to study the Bay. Bay restoration scientists, managers, and administrators have been prolific at collecting data, writing reports, and assessing progress. The available data and information is varied, as are the sources. Reporting on the Chesapeake Bay restoration goes all the way to the top of the Federal government; for instance, searching for "Chesapeake Bay Program" in the Government Accountability Office (GAO) database yields 42 reports (GAO 2012). The following websites give a sense of the breadth and depth of data easily available:

- The Chesapeake Bay Program publications page:
 http://www.chesapeakebay.net/publications
- USGS publications by year: http://chesapeake.usgs.gov/publications.html
- Chesapeake Bay Foundation publications page: http://www.cbf.org/page.aspx?pid=548
- Chesapeake Bay Journal back issues, published by Chesapeake Media Service (used to be published by the Alliance for the Chesapeake Bay):

http://www.bayjournal.com/backissues/

Northern Virginia (NOVA) case

In addition to the overall Chesapeake Bay restoration case, I selected one case that is physically "embedded" within the Chesapeake Bay watershed .The Northern Virginia (NOVA) region encompasses several local governments, regional organizations, citizens' groups, and partnerships. There was no single overarching collaborative project; rather the NOVA region includes many collaborative projects in various stages of planning and implementation. The same research questions apply to the Chesapeake Bay restoration and the embedded NOVA case.

However, because it is smaller in scope the NOVA case allows for examination of collaborative mechanisms in more depth and with a richer contextual understanding.

Figure 4.2 shows a map of the NOVA region. I use the same regional boundaries as the Northern Virginia Regional Commission (NVRC), an organization described in Appendix A.²⁴ Washington, D.C. is located just northeast of Arlington across the Potomac River, as indicated in the figure by a light grey shaded area. In fact, the entire NOVA region is part of the Washington-Arlington-Alexandria Metropolitan Statistical Area.

²⁴ Other definitions of the region may include Fauquier County (located south of Loudoun and southwest of Prince William) and Stafford County (located directly south of Prince William).

Figure 4.2: The Northern Virginia region. ²⁵ (The small picture in the bottom left shows the location in relation to the rest of Virginia)



The jurisdictions from which I interviewed at least one government representative include four counties (Arlington, Fairfax, Loudoun, and Prince William), four cities (Alexandria, Falls Church, Fairfax City, and Manassas), and one town (Leesburg). All are featured in the Figure 4.2 map except Leesburg, which is located in Loudoun County close to the Potomac River.²⁶

Illustrative statistics for NOVA jurisdictions are presented in Appendix A, but I will summarize them here. First, NOVA jurisdictions have relatively high population densities and face significant development pressures. This drives rapid land conversion and an increase in

²⁵ Source: Northern Virginia Regional Commission (2012a)

²⁶ The map does not show towns because in Virginia they are not independent political jurisdictions.

impervious surface, which in turn can lead to flooding and stormwater pollution if effective stormwater controls are not put into place. Significant development pressures also mean private developers and the organizations that represent their interests are active in regional and local policy. Environmental groups and neighborhood groups are also numerous and powerful in the region. Second, residents of the region are wealthy compared to the rest of the State (and the nation), meaning that most NOVA jurisdictions have the tax revenue to fund a wide variety of environmental programs. Many NOVA jurisdictions also levy a stormwater tax, the revenue from which goes directly to flood control and stormwater projects. Finally, the relatively high education level of NOVA residents translates into high levels of citizen participation in the policy process and strong and organized citizen commissions, advisory groups, homeowners associations, and nonprofit groups. Some citizen participants have powerful jobs in nearby Washington, D.C. where they influence policies that affect local government.

The NOVA case provides a nice balance of contextual similarity and contextual variation. Compared to the Chesapeake Bay case, the NOVA region provides a tighter, less varied institutional context. State regulatory structures and regulatory culture are the same.

Levels of wealth, education, and population density are similar. The same regional coordinating organizations provide opportunities and support. Although some commutes are further than others, the whole region is oriented to Washington DC.

At the same time, the NOVA region captures significant variety in collaborative arrangements, in terms of structure, participants, goals, and challenges faced. The obvious source of variation is the multiple local governments in the region, plus multiple government types including counties, cities, and towns. This leads to variation in both capacity and approach. Small towns and cities have fewer government employees and less land area, which limits their

capacity to do large scale projects. Also, a larger portion of their total land area borders on a County; thus, small cities and towns have a more compelling motivation for inter-jurisdictional work than the large Counties they border. For their part, Counties tend to have larger, more active governments than cities or towns, but their capacities vary significantly by wealth and political orientation. There is also variation in the stage of development. Some places are rapidly transitioning from suburban to suburban/urban (e.g. Prince William County), while others have been urban for a long time (e.g. Arlington County). This affects the type of stormwater and land use problems faced, solutions and their feasibility, and the groups who get involved.

There are two reasons for selecting the NOVA region in particular, rather than another multi-jurisdiction region embedded in the Chesapeake Bay watershed: (1) it has several active regional coordinating organizations and (2) it has a high level of institutional complexity and diversity.

Four NOVA regional organizations are described in Appendix A: the Northern Virginia Regional Commission (NVRC), the Metropolitan Washington Council of Governments (COG), the Northern Virginia Conservation Trust (NVCT), and the Northern Virginia Parks Authority. The fact that there are multiple regional organizations indicates many collaborative projects and activities are occurring (reason #1). Further, NVRC and COG are set up *specifically* for the purpose of facilitating collaboration on a regional basis. Both organizations have a Commission or a Board with representation from all member jurisdictions and multiple committees on which local government bureaucrats communicate with their peers; this indicates collaboration in both formal and informal settings.

The NOVA region also has a high level of institutional complexity and diversity (reason #2). This helps with theory-building by allowing me to capture collaboration in many contexts.

Institutional complexity is a result of the regions' large population, urban and suburban nature, and high education levels. High population regions, especially those that are mixed urban and suburban, tend to have thick institutional environments. There are multiple government jurisdictions and active groups supporting development, water quality, land conservation, farms, "community character" of particular neighborhoods, recreation, and other causes. With the high education and income levels of NOVA residents, these groups draw upon capable and persistent leadership and members. The institutional environment that results, thick with private and public organizations, offers the opportunity to witness collaboration among many types of groups.

Combining data from the two cases

One of my cases for this research is a 64,000 square mile watershed that covers parts of six states; the other is a smaller multi-jurisdictional region embedded in the first. My data sources for each also differ significantly. For the Chesapeake Bay case, my main sources are articles from a monthly newsletter called the *Bay Journal*. For the NOVA region, my main sources are semi-structured interviews with people working on water quality-related issues in the region. I code and interpret Bay Journal and interview data in exactly the same way. However, characteristics of the data sources themselves and their respective cases mean they tell different aspects of the same story.

Data sources selected for the two cases make unique contributions, but are complementary. My data on the Chesapeake Bay case covers the whole watershed. It is necessarily superficial and selective: there are 10-20 *Bay Journal* articles per monthly edition, which cannot begin to cover all Bay restoration activities that occurred over that time. Articles tend to focus on Federal and State government rather than local government activities, and on

tangible, visible events versus daily, informal interactions. This complements my interview data for the NOVA case, which has a bias towards local government actors and daily, routine interactions among organizations. NOVA interview data also offers in-depth context and personal commentary from interviewees, neither of which are normally available from Bay Journal articles.

Although the original Bay States (Maryland, Virginia, and Pennsylvania) get the most coverage in the *Bay Journal*, events/activities from the whole watershed are addressed. Examples come from six states and the District of Columbia, rounding out the NOVA case focus on Virginia. Examples also range over urban, suburban, and rural parts of the watershed, rounding out the urban/suburban focus of the NOVA case.

Data sources and collection

As described, my main data sources were the *Bay Journal* (for the Chesapeake Bay case) and transcribed interviews (for the NOVA case). For the Chesapeake Bay case, I used additional sources not included in the final analysis. Preliminary interviews provided initial orientation and aided in the selection of the embedded case, while one month's of articles from the Chesapeake Bay news were used to develop the coding scheme. Each source is described below.

Preliminary interviews (Chesapeake Bay restoration case)

Preliminary interviews conducted in the Spring and Summer of 2008 oriented me to the Chesapeake Bay restoration case, providing information about the structure of the overall restoration and some specific information on collaborative projects. They also aided in my

selection of the embedded NOVA case. Except for four interviews relevant to the NOVA region, however, these interviews were not included in my analysis.

Twenty five preliminary interviews were conducted; these were semi-structured, over the phone, and about an hour long on average. The interview protocol was an earlier version of the one used for NOVA interviews (see Appendix B). Using the protocol as a guide, interviews were more conversational than structured. Also, individualized questions were added based on research prior to each interview.

Tables 4.1a and 4.1b provide descriptive information about the 25 preliminary interviewees. Table 4.1a categorizes interviewees by type, generally the type of organization the interviewee works for. The most common category (with 11 interviewees) is "nonprofit organizations". This includes two interviewees who work for land trusts, five who work for localized watershed associations²⁷, three who work for Bay-wide non-profits (the Chesapeake Bay Foundation and the Alliance for the Chesapeake Bay)²⁸, and one who works for a regional branch of Ducks Unlimited. Another common type was a representative of a regional organization (7 interviewees). This includes five people who work for the US-EPA Chesapeake Bay Program, one person from the Interstate Commission for the Potomac River Basin, and one person from the Upper Susquehanna Coalition (a coalition of 19 Soil and Water Conservation Districts in New York and Pennsylvania).

²⁷ These organizations focus on watersheds "embedded" in the Chesapeake Bay watershed. Note that for two of the "watershed association" interviews, the interviewee is a volunteer board member rather than an employee. In these cases, interview questions focused on the interviewee's volunteer work rather than his/her "day job".

28 One of the two "Alliance for the Chesapeake Bay" interviewees was a retired director of that organization, but we

discussed the interviewees' past work with the Alliance rather than her current work.

Table 4.1a: Breakdown of interviewees by type (preliminary Chesapeake Bay interviews)

Interviewee type	# of interviewees
Nonprofit	11
Regional	7
Organization	
State government	2
Local government	2
Citizen activist	2
Academic	1
TOTAL	25

Table 4.1b describes the same interviewees based on the geographic focus area of their work. I was trying to capture collaborative arrangements occurring at variously sized landscapes. The two most common are either the Bay watershed as a whole (8 interviewees) or some smaller, embedded watershed (8 interviewees). The other geographic focus areas are self-explanatory, except for "other", which includes the Mid-Atlantic region (1 interviewee) and the Upper Susquehanna region (1 interviewee).

Table 4.1b: Breakdown of interviewees by geographic focus area (preliminary Chesapeake Bay interviews)

Type of geographical	# of
focus area	interviewees
Bay watershed	8
Embedded watershed	8
County	4
City	1
State	2
Other	2
TOTAL	25

Bay News (Chesapeake Bay restoration case)

This source aided in the development of my coding scheme, a process described later in this chapter. The Bay News is a free daily e-newsletter, compiled by the Chesapeake Bay Program, with links to Bay-related news articles from newspapers and online sources around the Bay watershed. The newsletter, which comes every business day and contains somewhere between 5 and 12 links, is an incredible source of data that has yet to be mined by researchers. For an illustration of the types of articles available, see the website:

http://www.chesapeakebay.net/headlines.²⁹

Certain limitations of this data source convinced me to instead use the *Bay Journal* for the bulk of my analysis. First, information in the Bay News links is scattershot. Stories come from daily newspapers, whose job is to report on events that are "hot" at the moment. Without continuity from day to day, it is difficult to follow stories over time. The *Bay Journal*, on the other hand, is a monthly publication that focuses on the bigger, more lasting and impactful events and builds on previous stories. Second, most of the Bay News stories are short and lack contextual background. This makes it hard to identify instances of inter-organizational collaboration, let alone determine the collaborative forum, groups that are collaborating, and benefits produced. Third, articles compiled by the Bay News vary in the thoroughness and accuracy of their reporting. Many come from small town newspapers that lack the staff time for in-depth coverage. More recently, the Bay News has been including blog posts which can vary in quality.

Limitations aside, the Bay News is a phenomenal source of information. Because it describes a wide variety of events in locations across the Bay watershed, I used it to develop my coding scheme. For this purpose, I downloaded and coded all of the Bay News articles (200

²⁹ Note that there is a separate page for "Chesapeake Bay News" which is more like a blog for the Chesapeake Bay Program. What I used is found under the tab "In the Headlines".

articles) from one month, December 2008.³⁰ These articles, plus about 300 Bay Journal articles from 1997-1998, formed the basis for an intensive code development and refinement process described later in the chapter.

Bay Journal (Chesapeake Bay restoration case)

The Bay Journal, a monthly newspaper covering Chesapeake Bay related news, is my main data source for the Chesapeake Bay case. Back issues from January 1994 to the present are available electronically from the following website: http://www.bayjournal.com/backissues/.

From 1991-2010, the Bay Journal was produced and published— electronically and in newsprint— by the nonprofit Alliance for the Chesapeake Bay. Thus, the Alliance was the publisher for the 1997-2007 issues used my data analysis. The Bay Journal aims to "inform the public about issues and events that affect the Chesapeake Bay" (Chesapeake Bay Journal 2012). The US-EPA Chesapeake Bay Program Office provides the majority of its funding, supplemented by grants from the NOAA Chesapeake Bay Office, the Chesapeake Bay Trust, and other foundations and individuals. With two staff writers, three editors, and a photographer, they have the staff to do thorough and accurate reporting on a monthly basis.

The Bay Journal is a serious news organization, not a newsletter. It is a member of the Associated Press and the recipient of the Renewable Natural Resources Foundation's 2001

³⁰ At the time this coding was done, this was the most current completed month. I did not want to go back too far because links sometimes become inactive.

³¹ In March 2010, the Bay Journal was official taken over by the Chesapeake Media Service, a nonprofit formed in 2008 with the mission to "expand independent, unbiased reporting" on the Chesapeake Bay (Chesapeake Media Services 2012). Chesapeake Media Service has kept the Bay Journal structure and reporting essentially the same, but added more in-depth stories covering a greater diversity of subject matter and wider geographic range. The biggest change was adding a separate syndication service, the Bay Journal News Service, which produces and distributes a weekly op-ed piece to newspapers around the Bay watershed (Blankenship 2010).

³² The Chesapeake Media Service has been trying to decrease the proportion of funding coming from US-EPA. Although their reporting is independent, this connection to the Bay Program makes people think they are in the EPA's pocket (Brainard 2011).

Excellence in Journalism Award, which recognized the Bay Journal for "for its commitment to informing the public through accurate and scientifically based reporting on issues surrounding the Chesapeake Bay" (Blankenship 2001). In the May/June 2011 issue of the Columbia Journal Review (CJR), the Bay Journal editor Karl Blankenship was honored with an extended interview to commemorate the Bay Journal's 20th anniversary. In the article based on the interview, the CJR credited the Bay Journal for "[chronicling] efforts to restore an ecosystem degraded by manmade pollution with practically unparalleled attention" (Blankenship 2011). Karl Blankenship, who has been the editor for more than 20 years, has personally received several awards for his the Bay Journal work, including the June Sekoll Media Award from the Virginia Soil and Water Conservation Society in 1998, the Environmental Excellence Award from the Maryland Department of Environment in 1992, the Salute to Excellence Award from the Maryland Governor in 1992, and a Lifetime Achievement Award from the Chesapeake Bay Foundation in 2006 (Chesapeake Bay Journal Facebook page 2012).

Behind these awards and honors is a newspaper with high quality reporting and writing. They strive to be unbiased and accurate, interviewing people with various perspectives on an issue. The writers and editors have developed broad knowledge of the Chesapeake Bay restoration, from the laws and regulations governing it, to the living resources and habitats of the Bay, to the effects of pollution on these living resources. Plus they have developed a network of scientists, regulators, and others to verify information. This depth of knowledge and their network of contacts allow them to write detailed and compelling stories, and build on/update these stories over time. It also helps them distinguish stories that are impactful and important, versus those that are the whim of the moment or are based on a personal "axe to grind".

 $^{^{\}rm 33}$ Excerpts from the interview can be found online (Brainard 2011).

The Bay Journal is known for its depth on scientific and technical issues. The Renewable Natural Resources Foundation, in awarding the Bay Journal with the 2001 Excellence in Journal Award, credited the Bay Journal with being "extremely successful in covering technical and often complex issues in a very readable and understandable way" (Blankenship 2001). In addition to technical and scientific issues, the Bay Journal provides significant depth on the plans, programs, laws, and regulations affecting Bay restoration. These are usually at the State level (e.g. Pennsylvania and Maryland's smart growth efforts) or at the Federal level (e.g. new regulations for large animal feedlots). The Bay Journal was, and continues to be, especially thorough in its coverage of the Chesapeake Bay TMDL process.

Finally, the Bay Journal has wide geographic and topical coverage. Geographically, it covers stories ranging over the entire Chesapeake Bay watershed. Topically, it covers stories on land use, land conservation, recreation, fisheries, solid waste, wildlife habitat, community- and neighborhood-development, environmental education, and more. This diversity provides contextual variation for my study of collaboration.

All these qualities make the Bay Journal the "journal of record" for anyone chronicling Bay history. As noted by Karl Blankenship in his interview with the Columbia Journal Review: "
If you pick up most recent books about the bay and look at the bibliography—whether they're positive or critical reports about [the] bay—they draw heavily on Bay Journal reporting"
(Brainard 2011).

The Bay Journal has some biases in reporting. As a newspaper it focuses on tangible, visible, impactful events. Officially released plans, grants awarded, budget proposals, new legislation, and new regulations are usually reported on. On the other hand, I cannot expect to garner Bay Journal data on the daily formal and informal interactions between people, or to get

substantial personal commentary on events. In addition, the Bay Journal has a bias towards
Federal and State actions. This makes sense since it is largely funded by the US-EPA
Chesapeake Bay Program, a State-Federal partnership. Further, in a monthly newspaper format
and with limited staff resources it is impossible to cover all localized activity occurring within
the Chesapeake Bay Watershed. Instead, they focus on regional and State efforts that affect
multiple communities.³⁴

A total of 1,081 Bay Journal articles were uploaded into Atlas ti and coded, ranging over the years 1997-2007. For the years 1997-1998, every article from every month's edition was coded, for a total of 291 articles. For the remainder of the Bay Journal articles (1999-2007), every article from every other month's edition was coded, for a total of 790 articles. Switching to every other month should not significantly affect my data because critical events spawn articles spanning several months' editions. The decision to include every article in an edition, rather than choose based on content, was made to minimize my own selection bias. In addition to data analysis, the Bay Journal data from 1997-1998 was used to develop and refine my coding scheme, a process described later.

Main in-depth interviews (NOVA case)

In-depth interviews are the main data source for the NOVA case. There are a total of seventy-six (76) interviewees. ³⁶ This includes seventy-two (72) people interviewed in the Spring/Summer

³⁴ Although this does not affect my analysis of data from 1997-2007, the Bay Journal has been expanding coverage of local governments in the past few years. Further, they intend to expand coverage of pollution management efforts in urban areas and upstream parts of the Bay (i.e. New York, West Virginia, and Delaware).

³⁵ For the years 1999, 2001, 2003, 2005, and 2007, the editions coded included January/February, March, May, July/August, October, and December. For the years 2000, 2002, 2004, 2006, the editions coded included January/February, April, June, July/August, September, and November.

³⁶ In three interviews, the main interviewee invited a second person to join in the conversation on speakerphone. However, for simplicity sake I only count one interviewee for these conversations. If these others are included, I spoke with 79 people regarding the NOVA case.

2010 and four (4) preliminary interviews from Spring 2008 relevant to the NOVA case.³⁷ The total audio interview time is 86 hours, for an average time of 68 minutes and a median time of 65 minutes per interview.

Interviews were semi-structured using the protocol shown in Appendix B. This protocol was emailed to interviewees ahead of time, along with a summary of my research. Interviews were done over the phone and all but two were recorded and transcribed. For the two interviewees who did not want to be recorded, notes were written up the same day and sent to the interviewee for corrections or additions.

Although the protocol was used as a guide, interviews were conversational. Before each, I reviewed information online about the interviewees' work and organization, and added a few tailored questions. Most of the time, interviews began with either a tailored question or the general question "Which organizations or agencies do you collaborate with most often in your work"? Conversation would flow from there, with follow up questions that guided us back to the key themes of benefits and costs of collaboration.

My main goal in selecting interviewees was to maximize the variety of perspectives on collaboration. Although most interviewees work on water quality issues, I purposefully pursued interviewees from related fields such as land use, land conservation, water supply, recreation, agriculture, transportation, and economic development. They shared collaborative experiences in their own fields and described how water quality initiatives affected their work. A second goal in selecting interviewees was obtaining sufficient information on the context of collaboration. Thus it was important to interview people from regional organizations and the two main Virginia environmental agencies, the Department of Conservation and Recreation (DCR) and the Department of Environmental Quality (DEQ).

³⁷ There are actually 78 interview documents because two people were interviewed twice.

Table 4.2 illustrates the variety of interviewees by breaking them down into categories. Local government employees represent the largest category. This was purposeful, since key land use and stormwater management decisions are made by local government bureaucrats and their perspective is under-reported in the Bay Journal. Further, I wanted representation from as many NOVA counties and cities as possible. I also worked to achieve variation in the types of departments. Of the 29 local government interviewees, about an equal number focus their work on planning (7), stormwater management (7), watershed management (7), and economic/community development (6). The rest work on environmental issues in general (2).

Table 4.2: Breakdown of NOVA interviewees by type

Interviewee type	# of	
interviewee type	interviewees	
Local government	29	
State government	13	
Regional organization	10	
Nonprofit organization	6	
Citizen activist or advisor	5	
Local water utility	3	
Soil & Water	3	
Conservation District		
Academic	2	
Private sector ¹	2	
USDA-NRCS District	2	
Conservationist	2	
Farmer	1	
TOTAL	76	

¹ Includes an environmental consultant and a land use attorney.

Table 4.3 breaks down these 29 local government interviewees by jurisdiction. County governments are larger, and thus provided a larger pool of relevant employees than cities or

towns. Note that an interview with a stormwater manager from Stafford County (conducted in 2008 as part of the preliminary interviews) was included because Stafford County is directly south of Prince William County and is included in some definitions of the NOVA region.

Table 4.3: Number of local government interviewees from each NOVA jurisdiction.

	# of LG		# of LG
	interviewees		interviewees
Arlington County	4	Alexandria	1
Fairfax County	6	City of Fairfax	1
Loudoun County	5	Falls Church	3
Prince William County	5	Leesburg (Town)	1
Stafford County (2008)	1	Manassas	2
TOTAL COUNTY	21	TOTAL CITY/TOWN	8

State government employees are the second most common interviewee type. Virginia has two main environmental agencies whose work is relevant to water quality: the Department of Conservation and Recreation (DCR) and the Department of Environmental Quality (DEQ). My interviewees included six (6) DCR representatives and three (3) DEQ representatives. I also interviewed one person each from the Virginia Department of Transportation (VDOT), Virginia Department of Forestry, the Virginia NEMO program³⁸, and the Virginia Outdoors Foundation. Because of my interest in the NOVA region in particular, most State employees I interviewed either worked in a regional office or were focused on a region that included NOVA jurisdictions.

³⁸ NEMO stands for "Nonpoint Education for Municipal Officials". NEMO organizations offer workshops on stormwater and other water quality topics tailored to local government officials, helping them find the resources they need, in the form they need them and at the time they need them.

Eight (8) of the thirteen state government interviewees have a regional focus. Regional organizations, the third most common interviewee type, included the following organizations, all described in Appendix A: the Northern Virginia Regional Commission (4 interviewees), Metro Washington Council of Governments (2 interviewees), Inter-state Commission on the Potomac River Basin (2 interviewees), the Northern Virginia Regional Park Authority (1 interviewee), and the Northern Virginia Conservation Trust (1 interviewee).

Table 4.4 breaks down the NOVA interviewees by the policy area they focus on. Most interviewees focus on watershed management, stormwater, land use or the environment more generally. However, one of the unique features of my research is my efforts to interview supporters and promoters of economic development (7 interviewees) and agriculture (8 interviewees), two areas whose adherents often come in conflict with water quality regulations.

Table 4.4: Breakdown of NOVA interviews by policy area

Interviewee policy area	# of	
1 7	interviewees	
Environment, general 11		
Watershed planning or	10	
management	10	
Land use or planning	10	
Agriculture	8	
Stormwater	8	
Water supply/quality	8	
Economic development	7	
Water quality regulations	5	
Land conservation	2	
Recreation	2	
Scenic Rivers	2	
Other ¹	3	
TOTAL	76	

³⁹ Note that the NVRPA and NVCT are also nonprofits, but were categorized here because their regional character was more relevant than their nonprofit status for this research.

¹ Other category includes Solid Waste (1), Transportation (1), and Urban Forestry (1)

Interview data have distinct advantages, notably the ability to personalize questions and follow up with clarifying questions. The flexibility of a conversational interview allowed me to obtain in-depth information and personal commentary, providing a richer context for each instance of collaboration.

Developing and refining my coding scheme

Bay Journal articles and transcribed interviews were coded and analyzed in the same manner. My primary purpose in coding the data is to identify empirical manifestations of the five collaborative benefits as described by my research propositions. The first step is to translate the research propositions into a corresponding code to be applied to text passages. Note that propositions were specific and descriptive because they were developed through an analysis of existing empirical evidence. However, much of this detail must be stripped away to apply these propositions to the data; otherwise there is little space for inductive findings. The purpose of the empirical data is to extend, enrich, adjust, and flesh out findings from the literature survey. If the data is approached too narrowly, no new insights will emerge. For example, the first proposition (resource access/exchange) reads:

Collaboration leverages financial, technical, human, and/or informational resources, expanding the resource base available to solve collective problems and overcoming resource constraints of individual organizations.

This is translated into a code called "Resource access/exchange" denoting the following broader scenario:

Collaboration leverages financial, technical, human, and/or informational resources, generating a concrete, policy related benefit unique to the collaborative process.

Once detail has been stripped away to form basic codes, detail can be added back through analysis of the empirical evidence. The codes must be fleshed out inductively using empirical data before being applied in earnest to the whole data set. This is what I call "code refinement"; it was conducted in two stages as described below.

The first stage of code refinement utilized 200 Bay News articles from December 2008. 40 The Bay News was chosen because of its breadth. It covers the whole Chesapeake Bay watershed and has a broad scope of sources, since it pulls articles from hundreds of newspapers. Because the Bay News describes a variety of events in a variety of locations, it is a good source for developing an inclusive and widely applicable coding scheme. I began with bare-bones codes reflecting the initial research propositions. Codes were enhanced and broken down into subcodes as more articles were coded. After 200 articles were finished, quotes for each code were reviewed and the coding scheme was refined. The final coding scheme included the initial proposition codes, plus codes for related concepts that emerged from the data. It was then applied to the 25 preliminary interviews to check its utility.

The second stage was similar to the first process-wise, but used two years of articles from the Chesapeake Bay Journal (291 articles from 1997-1998). Rather than exporting the coding tree from the first stage, this second-stage coding scheme was developed separately, again starting from bare-bones codes reflecting the initial research propositions. The results from the second stage of coding, which drew upon a different data source and different time period,

⁴⁰ At the time this coding was done, this was the most current completed month. I did not want to go back too many months because some links become inactive.

confirmed the logic of the initial coding tree and most of the initial codes. Codes were further refined and edited. Once I was satisfied with the new coding scheme, a codebook was written.

Two separate code refinement stages might seem excessive. However, the important codes in this research are conceptual, which means they are difficult to use consistently. It required many rounds of applying these codes to empirical examples before their contours and bounds became clear. Further, development and refinement of the coding scheme is part of the conceptual development for this research. It is a dialectical process: propositions from the literature were applied to empirical data, while the empirical examples elaborated and shaped the propositions themselves and offered new, emergent concepts and ideas. Multiple iterations between theory and empirics solidified my research into concepts, like the concept of harmonizing, that can be applied consistently over time.

Coding process

After these two stages of code refinement, codes were ready to be applied to the remainder of the Bay Journal data and to the interview data. ⁴¹ Bay Journal articles and interview transcriptions were coded together in a single Atlas ti hermeneutic unit, using the same code lists. After extensive work on the coding scheme, codes applied easily across different data sources. Three different "levels" of codes were applied, which I call primary, secondary, and tertiary codes.

Primary codes

-

⁴¹ The 1997-1998 Bay Journal data was recoded using the codebook and included with the rest of data. The December 2008 Bay News data, on the other hand, was left out of the final analysis because of the limitations of the source described above.

Primary codes represent the five research propositions or any other collaborative mechanisms (emergent in the data) that led to concrete, distinct policy-related benefits. In most cases, primary codes were broken down into sub-codes and sub-categories as the coding process proceeded.

Primary codes are applied to text segments that clearly indicate collaboration is generating a particular collaborative benefit. The "instance of collaboration" indicated by a text segment must meet my minimal definition of collaboration: I must be able to identify two or more organizations directly coordinating with the intent to cooperate. Also, the text must clearly identify a forum for collaboration and the groups/parties collaborating, so secondary codes can be applied. These criteria eliminate vague references to collaboration. More than one primary code could be applied only if the two codes refer to analytically distinguishable aspects of the collaboration.

Secondary codes

Secondary codes describe key contextual aspects of each "instance" of collaboration. Whenever a primary code was applied, secondary codes were applied to the same text segment. This way, contextual information is physically linked to the description of each collaborative event. Secondary codes were developed inductively from the data; codes were added as needed and periodically reviewed and refined. Three main categories of secondary codes were applied: (1) codes that describe the Forum of collaboration, (2) codes that describe the Groups that are collaborating, and (3) codes that describe the Policy Area in which collaboration occurs.

Forum codes

Forum codes describe how collaboration occurs. Several point to particular motivating factors that facilitated or encouraged collaboration, such as a plan, regulation, or the assistance of a coordinating organization. Table 4.5 shows the five most commonly applied Forum codes and describes them briefly.

Table 4.5: The most common secondary codes describing Forum for collaboration

Common forum codes	Description
Voluntary, independent	Parties collaborate voluntarily, informally,
coordination	and of their own accord.
Coordinating	Collaboration is facilitated or administered
organization	by a coordinating organization
Regulation or law	A regulation or law requires or motivates
	collaboration.
Financial incentives	Financial incentives encourage or facilitate
	collaboration
Plan	Collaboration is facilitated or structured by
	a plan

Groups codes

Groups codes identify, for each instance of collaboration, the groups or parties involved in the collaborative exchange. Generally, they refer to types of organizations that are collaborating. For instance, the Groups code "Federal agencies and state agencies" indicates that a particular Federal government agency is coordinating with a particular state government agency. The code "Counties/municipalities with each other" indicates two particular counties or municipalities are coordinating.

In some cases, Groups codes indicate coordination among organizations from different policy areas. For instance, the code "Agriculture and Environment" indicates some agricultural organization and environmental organization working together. This is useful auxiliary information, but does not substitute for Groups codes that identify the specific collaborating

organizations. If it is impossible to identify specific collaborating organizations, as a rule of thumb the quote is too vague to receive a primary code.

Multiple Groups codes may be applied to a single quote; this is necessary if the collaboration involves more than two organizations. Rather than list all Groups codes here, they will be described as needed in the empirical chapters.

Policy area codes

Policy Area codes were added to account for the variety of policy sectors in my data. Although my main policy context is water quality, there are a multitude of sub-areas, such as stormwater, watershed management, and wastewater treatment. There are also a multitude of distinct policy areas related to and affecting water quality, such as land conservation, land use/land development, fisheries, wildlife, recreation, agriculture, and transportation. Policy Area codes will be described as needed in the empirical chapters.

Compared to Forum and Groups, Policy Area codes are less relevant to the dynamics of the collaborative event. However, they are useful for later analysis. For instance, they allow me to see whether patterns of collaboration apply across policy areas or are unique to one. This provides a test of generalizability, even if restricted to water quality-related policy areas.

'Resource type' and 'Resource provider' codes

Two additional secondary code categories were used only in conjunction with the "Resources access/exchange" primary code. Resource exchange relationships were coded as "resource provision", where one organization provides resources to another, since resource provision is the basic process underlying other more complex interactions such as resource levering and

exchange. When instances of collaboration are defined as resource provision, however, it does not make sense to code Groups or Forum. Instead, I use secondary codes to specify: (1) the type of resource provided, and (2) the resource provider.

The most common codes for 'resource type' included: financial resources, technical expertise or resources, labor (separated into technical and nontechnical); information; policy legitimacy; and facilitation assistance. Like the Groups and Forum codes, these were inductively determined. Resource provider organizations ranged greatly, from the smallest nonprofit group, to private sector corporations, to the US-EPA. They will be described as needed in the empirical chapters.

Tertiary Codes

Tertiary codes describe key concepts related to collaboration but not captured by primary or secondary codes. While tertiary codes do not directly answer my research questions, some have proven useful in describing collaborative mechanisms or explaining patterns in the analysis. For instance, in my analysis I find that coordinating organizations were one of the two most critical "Forums" for Coordinated Action. Looking to the tertiary code "Facilitator Role" for an explanation, I found examples of the benefits and services coordinating organizations provide to facilitate collaboration.

Table 4.6 lists selected tertiary codes and provides a short description. Although only some were useful in the analysis, they all had significant resonance and presence in my data and represent key concepts related to collaboration. This table provides a sampling of codes used outside of the strictly limited primary and secondary coding system, providing greater insight into the data collected and possibilities for future research.

Table 4.6: Sample of tertiary codes

Tertiary codes (sample)	Description		
Limitations or challenges of	Examples of limitations, challenges, costs, and constraints		
collaboration	of collaboration.		
Failures of collaboration	Examples where collaboration failed.		
	Examples of individuals who facilitate inter-organizational		
Facilitator role	meeting/workshops, or coordinating organizations that		
	administer partnerships on a longer-term basis.		
Importance of getting the right	Examples illustrating benefits of including certain groups		
people participating	and/or getting the right mix/diversity of people.		
Importance of existing	Examples illustrating benefits of existing inter-		
relationships	organizational relationships.		
Importance of personalities	Example illustrating how personalities help or hinder		
	collaboration.		
Organizational niches	Description of the niche and the "value added" of certain		
	organizations.		
Collaboration during the	Examples describing how collaboration is part of the		
regulatory process	regulatory process.		
Regulatory hammer hovering	Examples where collaborating is occurring under the		
	shadow of impending regulations.		
Regulation and Collaboration,	Other quotes describing the relationship between		
other	collaboration and regulation.		
Landscape level information	Examples where single organizations utilize landscape		
	level information. Could lead to coordination if plans are		
	carried out at landscape level.		
	Examples illustrating peoples' desire for fairness during the		
Desire for fairness/equity	collaborative process.		
	1		

Data analysis overview

The central task of my data analysis is to elaborate on and flesh out the benefits of collaboration as identified in my five research propositions. Much of this analysis occurs through the coding process: as empirical instances of collaboration are put into the conceptual "boxes" of the primary codes, I flesh out the concepts behind these codes. Beyond categorizing, I use empirical examples to illuminate essential aspects of the primary codes. For instance, my in-depth analysis of the "Coordinated Action" benefit (Chapters 5 through 7) reveals that coordinated action solves

geographical and organizational cross-border problems through a process called harmonizing. I introduce a model and typology of harmonizing and describe the cross-border problems solved by each type. My analysis may be applied by future researchers to other policy contexts plagued by cross-border problems.

Conceptual discoveries like harmonizing occur through a combination of theoretical and empirical work. Instances of collaboration in multiple contexts are categorized, sorted, and examined to look for important themes. This empirical work is combined with extensive efforts at conceptual development through review and recoding, consultation with the literature, and discussion with colleagues.

My second data analysis task is to describe the context(s) in which collaboration is associated with benefits. Examining which secondary codes occur concurrently with the primary codes provides information regarding when, where, and how collaboration is most likely to provide benefits. These relationships are explored using qualitative analysis software by examining instances where primary codes co-occur with secondary codes. This type of analysis, for instance, shows whether "Coordinated Action" happens most often through voluntary, independent coordination or via a coordinating organization. From this, I can make predictions (which would require further testing) regarding which kind of forum is most conducive to achieving the benefit.

Preview of empirical chapters

As described, my greatest contribution from this research relates to the benefit of "Coordinated Action". Chapters 5 through 7 are devoted to a thorough, structured analysis of the "instances" of coordinated action found in my data. In particular, I identify and describe a process called

harmonizing common to all cases of coordinated action. In the next chapter, I describe harmonizing both conceptually and empirically, and introduce an original typology. In Chapter 6, I delve more deeply into the benefits of harmonizing, discussing how each type of harmonizing solves a distinct cross-border policy problem faced in many areas of policy, not just water quality. The analysis of harmonizing continues in Chapter 7, where I explore the context in which harmonizing occurs by presenting the results of an analysis of the secondary codes (collaboration forum, collaborating groups, and policy area) most commonly associated with harmonizing. Finally, a less structured analysis is presented in Chapter 8 for the other four benefits, in which relevant themes were pulled from the data to illustrate the nature of each benefit and the processes/mechanisms of collaboration that generate them.

Chapter 5: Conceptual Development of the "Harmonizing" benefit

The central task of my coding process was to apply five "primary codes" to the data, representing the five research propositions presented in Chapter 3. For a primary code to be applied, it must be clear from the passage text that the benefit represented by that code (e.g. conflict reduction, resource access) emerges from a collaborative process.

Table 5.1 shows how many times each primary code was applied. Resource exchange and coordinated action occurred on a frequent basis in the Chesapeake Bay and NOVA regions over my study period (243 and 99 times, respectively). Innovation and conflict resolution/reduction were both rare. This is an indication of the significance of the benefits in my cases. One caveat is that the nature of the data may have limited my ability to capture innovation and conflict resolution/reduction benefits, an issue discussed in the sections in Chapter 8 devoted to these benefits.

Note the large <u>total</u> number of instances of collaboration identified in my data (456). Altogether, this represents a unique and valuable database of collaborative arrangements produced through original data collection and analysis which can be employed for other scholarly projects.

Table 5.1 Frequency of primary codes applied to the data

Primary code	Frequency	
Resource exchange/access	243	
Coordinated action	99	
(harmonizing)		
Social capital: relationship	62	
building	02	
Innovation generation	28	
Conflict resolution / reduction	24	
Total cases of collaboration	456	

The analysis in this dissertation focuses on the 99 coordinated action results. More specifically, it focuses on a process of coordinated action called "harmonizing" that I discover and develop through the empirical data. There are several reasons for focusing my energies on coordinated action. First, with 99 examples, it emerged as one of the two most commonly occurring benefits in my data, providing a wide base of empirical data to work with. Although the most commonly occurring benefit was resource exchange/access, this has received significant attention in various literatures and already has a well-developed theoretical basis.

Coordinated action, on the other hand, is discussed superficially in the literature. Benefits are painted with broad brush strokes: coordination should lead to greater efficiency by reducing duplication and targeting resources; and to greater effectiveness because important actors are coordinating their work. Yet there is little prodding into what coordinated action means and why it produces benefits, leaving open the opportunity for conceptual development. From my empirical examples of coordinated action, I build the concept of harmonizing, a process of coordinated action that solves specific policy problems and produces specific benefits. Public managers who apply harmonizing in their work can expect to generate these benefits.

This chapter is dedicated to developing the concept of harmonizing. First, I explain the term and describe how cases were identified in the data. Second, I describe, in conceptual terms,

three types of harmonizing: geographical/spatial, organizational, and ecological. Third, I illustrate each type using cases from my data. In Chapter 6, I delve more deeply into the benefits of harmonizing, discussing how each type of harmonizing solves a distinct policy problem (called a "boundary problem") faced in many areas of policy, not just water quality. I also discuss benefits related to efficiency and standardization. The analysis of harmonizing continues in Chapter 7, where I explore the context in which harmonizing occurs by presenting the results of an analysis of the secondary codes (collaboration forum, collaborating groups, and policy area) most commonly associated with harmonizing.

The analysis in Chapters 5 through 7 is thorough, structured conceptual development of the coordinated action benefit. A less structured thematic analysis is presented in Chapter 8 for the other four benefits, in which relevant themes were pulled from the data to illustrate the nature of each benefit and the processes/mechanisms of collaboration that generate them.

Terminology: "Harmonizing" and "Coordinated Action"

Coordinated action is a broad term. It occurs when organizations or groups align their actions or decisions to achieve some larger "good" at the organizational, community, and/or societal level. Upon exploring cases of coordinated action in the data, a particular process common to my empirical examples took shape. This process, which I call "harmonizing", describes how coordinated action works and why it produces benefits. When organizations or groups "harmonize" their decisions or actions, they achieve collective benefits by acting in a way that better approximates the true scope of a problem. I also call this working across the appropriate "problem landscape".

Harmonizing fleshes out the broad brush concept of coordinated action from the literature. Coordinated action is the broader term, and not all instances of coordinated action involve harmonizing or fit within my harmonizing typology. As it turns out, all 99 examples in my data fit in both categories; in fact, it was through examining the instances of coordinated action in my data that I recognized and developed the concept of harmonizing.

I chose the term "harmonizing" because it is expressive of the essence of coordinated action. Coordinated action is about individual actors coordinating their decisions or actions in a way that, collectively, is "harmonious". The analogy to harmonizing in music is helpful. When harmonizing, each singer must find the right pitch and tone that fits with all the other singers. When they harmonize correctly, they collectively produce something better and more beautiful than if they sang alone. On the other hand, if each singer picks the pitch and tone that works best for him individually, the result will likely be bad. Similarly, when individual actors "harmonize" their actions or decisions, they chose actions or decisions that, when added together, make sense on a collective level and produce good collective outcomes. On the other hand, when each actor makes decisions or take actions appropriate only for their own needs, these actions are unlikely to be "harmonious" at the collective level. Disharmony may lead to missed opportunities or, even worse, create outcomes that leave everyone (collectively) worse off.

For the primary code "harmonizing" to be applied to a text passage, two things must be clear in the text, either explicitly or implicitly: (1) Organizations/jurisdictions are addressing the problem more holistically than they would if acting in isolation, and (2) Policies, decisions, or actions were improved **because of** the holistic, regional, or landscape-level perspective applied to decision-making or action. When both occur, organizations are acting in a way that achieves, or at least approximates, the appropriate scope for addressing a problem.

As shown in Table 5.1, the "harmonizing" code was applied to ninety-nine (99) cases of collaboration. These cases form the basis for my analysis in this chapter and chapters 6 and 7. Before presenting a sampling of cases, I will present my conceptual model of harmonizing and my typology. Both are original and based on extensive analysis and interpretation of the empirical data.

Definition of harmonizing

Harmonizing can be defined as the process by which independent organizations purposefully coordinate their decisions or actions at a scale that approximates the actual scale or scope of the problem. When organizations harmonize their decisions and actions, they are taking into account actions, concerns, and/or events outside of their normal self-centered view of the world. The result should be better collective outcomes—outcomes that make sense from a broad, comprehensive, or holistic perspective— even if outcomes do not improve for all individual organizations.

Imagine a policy problem where the "problem landscape" (i.e. the space, physical or institutional, that the problem affects) is larger than the units with the legal or institutional capacity to manage the problem. In this situation, it behooves the management units to work together so that they can manage the problem on the proper scale.

Take the case of polluted stormwater. Most regulatory decisions about managing stormwater are made by local governments, but the physical "landscape" of the stormwater problem is a watershed, which includes multiple local governments and possibly multiple states. In this scenario, some of the units (jurisdictions) affected by the stormwater problem might decide they cannot solve the problem on their own. Pollutant-laden stormwater is, quite literally,

spilling over their borders from neighboring jurisdictions. Even stringent management on their part could be undone by the actions of their neighbors. Knowing that the watershed is the proper management scale, jurisdictions might form a watershed-wide arrangement through which they coordinate to address stormwater problems.

The stormwater example focuses on the appropriate spatial management scale. Because of topography, all rain that falls within a watershed eventually end up in the same shared waterbody. However, "appropriate management scale" can be thought of in less physical ways. Consider how stormwater gets polluted. It collects pollutants as it runs off the land, such as sediment from construction sites, fertilizer from farm fields, salt or other chemicals from highways and roads, and pet waste from private properties. If stormwater pollution is to be minimized, people who put this pollution on the land, and the agencies that regulate its application, must be involved. Local government planning departments that decide where and how land development occurs, agricultural agencies that regulate the application of fertilizers, private homeowner associations that regulate the collection of pet waste: they must all be involved. These organizations have their own core interests, most of which have little to do with stormwater. Yet they comprise the appropriate management landscape for the stormwater problem, where the landscape is conceptualized in an **organizational** sense, rather than a physical or spatial sense.

A third way to think about an "appropriate management landscape" is to consider ecological interdependencies. Let's say that high stormwater flows are a threat to in-stream aquatic species. However, high flows are critical for survival of certain near stream amphibian species that live in temporary pools created by stormwater scouring. ⁴² Here you have two potentially important species whereby proper management of one may negatively affect

⁴² This is a hypothetical example. As far as I am aware, this is not a problem in the Chesapeake Bay region.

management of the other. A landscape level approach which takes into account this interdependency is necessary to address both problems. If the in-stream species and the near-stream species are managed by different agencies, collaboration between these agencies will more closely approximate the appropriate management landscape.

Overall, harmonizing can be conceptualized as striving, through collaboration, to achieve a more appropriate management landscape over which to solve a shared problem. Here I conceptualize landscapes in geographical, organizational, and/or ecological terms because these are the three types identified in my data (other landscapes might be considered). Through harmonizing, organizations representing all or a significant portion of the relevant parts of the "problem landscape" are mobilized collectively to solve a problem.

Typology of harmonizing

I divided instances of harmonizing into three categories based on the character of the problem landscape: "geographical/spatial", "organizational", or "ecological". This distinction illuminates key aspects of harmonizing and how it occurs. In the next three sub-sections, I describe these types in conceptual terms. Afterwards, I provide illustrative empirical examples.

Geographical or spatial harmonizing

Geographical harmonizing addresses a "spatial mismatch" whereby the appropriate spatial management area for a policy problem is physically larger than the units with authority to manage the problem. If management units continue to focus only within their jurisdictional boundaries, they will not solve the problem. Or, more likely, they will solve the problem within their own jurisdiction by shifting it into neighboring jurisdictions.

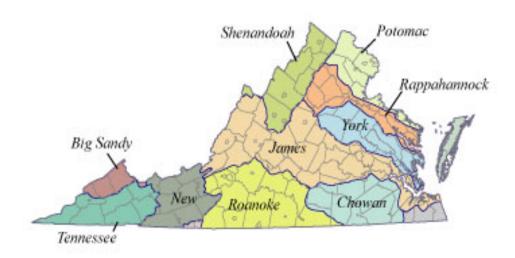
Figure 5.1 illustrates the "spatial problem landscape" and the "management units" for a typical example of geographical harmonizing in my policy context: watershed management. This map of Virginia shows the boundaries of Virginia's main watersheds (the darker lines) superimposed over the boundaries of counties, municipalities, and cities. Note that the James, York, Rappahannock, Shenandoah, and Potomac watersheds are all sub-sheds of the Chesapeake Bay Watershed.

The geographical or spatial "problem landscape" for each watershed is marked by the watershed boundaries. Within the watershed boundaries are a multitude of counties and municipalities, marked by the lighter boundaries on the map, which constitute "management units". ⁴³ The dilemma is that these management units each have their own independent governments that make independent decisions and take independent actions. For instance, the Rappahannock watershed includes all or part of 15 counties and several independent cities. To properly manage the watershed, actions and decisions of these independent actors must be harmonized. ⁴⁴ Otherwise, you run into the problems typically associated with "disharmony" and described in general terms by Huxham and MacDonald (1992): duplication of efforts, omission of important management tasks, a lack of resource targeting, and actions or decisions taken by one management unit that counteract actions of others or undermine collective management goals.

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⁴³ Counties and municipalities are not the only relevant management units for watersheds. State agencies play a major role, as do non-profit watershed organizations. Private landowners may take on some responsibility for watershed management actions on their property. However, counties and municipalities have the most power over stormwater management and land development decisions and therefore are the most relevant management units. ⁴⁴ Note that the Rappahannock is a relatively simple case because the entire watershed falls within Virginia. Other watersheds contain multiple states. For instance, the Potomac watershed (also nested within the Chesapeake Bay watershed) includes all or part of 18 counties in Virginia plus several counties in West Virginia, Maryland, and the southern part of Pennsylvania. Harmonizing management units over this geographic range and between multiple states is quite challenging; in this case harmonizing tends to occur in smaller clumps rather than over the whole problem landscape. For instance, the Potomac Roundtable includes only representatives from Virginia. Another option, used by the Chesapeake Bay Program, is to simplify coordination by treating the States, rather than counties and municipalities, as "management units".

Figure 5.1: Virginia watersheds are comprised of multiple management units, such as counties, towns, and cities (Source: USGS 2012)



Harmonizing may occur through spontaneous, voluntary cooperation among these management units or, more likely, via some kind of coordinating organization. (Forums will be discussed in Chapter 7). Ideally, **all** management units with responsibilities and authorities in the problem landscape would coordinate so the problem is addressed across the entire problem landscape. Typically, however, not all management units participate, meaning that geographical harmonizing will *better approximate* the appropriate problem landscape but not fully achieve it.

Geographical harmonizing addresses the *physical connectivity* between management units, whereby actions by one organizational actor physically affect actors located nearby. This physical connectivity applies not just to polluted stormwater, but to shared fisheries, trails that cross geographical borders, shared water supply, and invasive species. Addressing issues that

physically cross borders requires a more comprehensive approach that, as much as possible, accounts for the actions and decisions of physically connected management units.

With geographical harmonizing, the "problem landscape" and its component management units are defined in geographical (or spatial) terms. As I demonstrate below, the problem landscape and its components may also be defined in organizational terms and by ecological components.

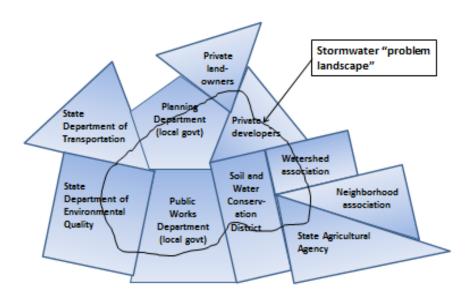
Organizational harmonizing

Policy problems such as water quality impairment are often "wicked problems" that cannot be solved by organizations working in isolation (Rittel and Webber 1973, O'Toole 1997, Bueren, Klijn, and Koppenjan 2003). Frequently with wicked problems, organizations take independent actions or make independent decisions that aggravate, alleviate, or change the nature of the problem. Further, the problem's effects spread outwards to many different organizations, creating uncertainty about the set of organizations that should be responsible. As described by Bueren, Klijn, and Koppenjan (2003), institutional uncertainty of wicked problems "results from the fact that decisions are made in different places, in different policy arenas, in which actors from various policy networks participate...the institutional setting in which complex problems are dealt with is thus highly fragmented...decisions are only loosely coupled and sometimes not at all (pp. 194)."

Organizational harmonizing occurs when organizations, each of which addresses some piece or portion of a policy problem, coordinate their decisions and actions. In conceptual terms, organizational harmonizing is knitting together the actions and decisions of the various organizations that comprise the relevant "problem landscape".

Figure 5.2 is an original schematic diagram created to illustrate a hypothetical "problem landscape" for stormwater management defined in organizational terms. I chose stormwater management to continue the example above, but a similar diagram could be created for other policy challenges. The diagram illustrates how, in order to fully and properly manage stormwater, the decisions and actions of various organizations must be coordinated. Also note that, for most organizations, stormwater is not their only or even their primary task, as illustrated by the fact that only a small portion of their "shape" is included in the problem landscape.

Figure 5.2: Diagram of a hypothetical "problem landscape" for stormwater, as defined in organizational terms. ⁴⁵



⁴⁵ This is not meant to be an accurate picture of what these organizations or the stormwater issue look like. It is simply a schematic for illustrating the concept of "organizational harmonizing"

Note the similarity of Figure 5.2 to the watershed diagram in Figure 5.1. In the watershed case, the "problem landscape" (the watershed) does not correspond with the boundaries of its constituent "management units" (counties and municipalities). To property manage the watershed, actions and decisions of these counties and municipalities must be coordinated. In stormwater case, the "problem landscape" does not correspond with the purview of any one organization. To properly manage stormwater, organizations that comprise the problem landscape must coordinate their decisions and actions.

Achieving organizational harmonizing requires some person or group to assemble the organizational "landscape". Which organizations impact the problem, whether or not they know it? Which organizations are actively working on the problem, in whole or in part? Which organizations are affected by the problem? Ideally, all these organizations would be integrated into efforts to address the problem.

There are numerous challenges. Some organizational actors may feel removed from the problems of polluted stormwater and be unaware of their impact. Transportation planners, for instance, might not recognize the water quality effects of impervious surface and the use of road chemicals; these problems lie outside their normal purview. In other cases, relevant organizations understand their impact but have little incentive to address a problem outside their core mission. For transportation departments, dedicating resources towards stormwater control detracts from priorities such as easing traffic congestion and maintaining road safety. Similarly, some organizations perceive coordination as extra work with little reward. For instance, developers have little incentive to install innovative low impact development (LID) techniques if they can get what they want through a development-friendly city council.

Given the above limitations, organizational harmonizing tends to occur unevenly, generally among small groups of organizations that recognize how their work is intertwined, work well together, and/or have some history of working together on unrelated projects. These "clumps" of organizations comprise some portion of, rather than the full, problem landscape. Although this falls short of the ideal situation portrayed by Figure 5.2, it is a more appropriate "problem landscape" than if organizations worked in isolation.

Policy sector harmonizing (a special case of organizational harmonizing)

Another way to conceptualize the organizational landscape is by policy sector. Of 49 examples of organizational harmonizing in my data, 34 reflected coordination of actions/decisions among organizations representing different policy sectors. For instance, organizations focused on water quality frequently harmonize their actions with organizations focused on land use planning, agriculture, economic development, and/or transportation.

This inter-sectoral relationship is hinted at in Figure 5.2, where the "problem landscape" includes organizations representing various policy sectors. However, policy sector harmonizing is more specific than organizational harmonizing because it excludes coordination among organizations in the same policy sector. In Figure 5.3 below, I adapted Figure 5.2 to reflect "policy sector harmonizing" for stormwater management. The "problem landscape" of stormwater management is shown in terms of its policy sector components, such as surface water quality, flooding/erosion, transportation, agriculture, and planning.

Figure 5.3: Diagram of the "problem landscape" for stormwater, as defined by policy sectors. 46

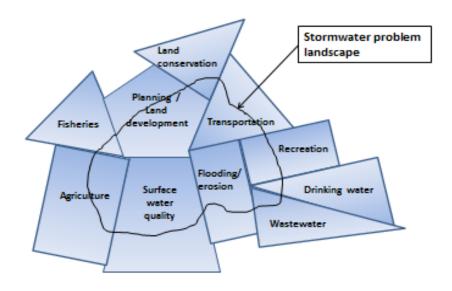


Figure 5.3 illustrates visually how stormwater management encompasses parts of multiple policy sectors. Managing stormwater over its full problem landscape requires coordination of the decisions and actions of organizations from these policy sectors.

Ecological harmonizing

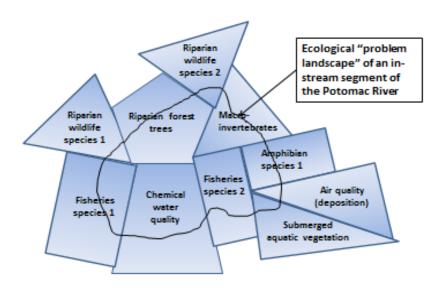
Ecological harmonizing occurs when managers of interdependent ecosystem elements coordinate their decisions and actions to make sense from a broader, ecosystem perspective. In this case, the "problem landscape" is the particular ecosystem being managed, such as a tidal wetland, stream segment, or forest region. The constituent "units" are different elements of that ecosystem, each of which may be managed by a different organization or set of organizations. Ecosystem

⁴⁶ This is not meant to be an accurate picture of what these policy sectors or the stormwater issue look like. It is simply a schematic for illustrating the concept of "policy sector harmonizing"

elements are interdependent and connected via ecological relationships. For instance, aquatic plant species provide habitat and food for fish species, and tree species in the riparian zone of streams provide leaf litter for bottom-dwelling stream macro-invertebrates. Because of this interdependence, management practices applied to one species or element affect the others.

Figure 5.4 uses the same schematic as Figure 5.2 and 5.3 to illustrate how ecological interdependence creates the need for ecological harmonizing. It shows an ecological "problem landscape" for a hypothetical ecosystem, in this case an in-stream segment of the Potomac River. The geometric shapes represent ecosystem elements that comprise the "problem landscape", such as species of fish, trees and wildlife in the forested areas surrounding the river (called the riparian zone), air quality, and water quality. Because these ecosystem elements interact, this instream river segment cannot be properly managed without coordinating management of all relevant ecosystem elements. This means the actions and decisions of different organizations managing these ecosystem elements must be harmonized over the ecological problem landscape.

Figure 5.4: Diagram of the ecological "problem landscape" for a hypothetical in-stream segment of the Potomac River.⁴⁷



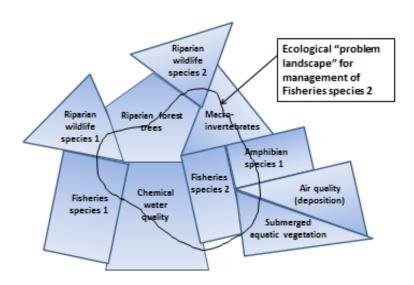
Further, any one ecosystem element cannot be properly managed without attention to the others. In fact, it is often management of a *target species* which stimulates interest in collaboration. In an example described later, managers of the beloved Chesapeake Bay blue crab crossed traditional boundaries to work with marine agencies on conserving submerged aquatic vegetation (SAV), a critical habitat for juvenile blue crabs.

When the goal is management of a target species—rather than management over a whole ecosystem—ecological harmonizing looks different. The diagram in Figure 5.5 adjusts Figure 5.4 to indicate the "problem landscape" for a particular target species, Fisheries species 2. Fisheries species 2 has ecological interdependencies with all other ecosystem elements included

⁴⁷ This is not meant to be an accurate or full picture of all relevant ecological elements. It is simply a schematic for illustrating the concept of "ecological harmonizing"

within its problem landscape. Proper management thus requires harmonizing decisions and actions of management agencies with responsibility for these other elements. Even if harmonizing does not stretch across the entire problem landscape, it should, at a minimum, include the elements most critical for survival and health of the target species.

Figure 5.5: Diagram of the ecological "problem landscape" for the management of a hypothetical target species, called Fisheries species 2.⁴⁸



Ecological harmonizing, like all collaboration, requires inter-organizational coordination, in this case between different organizations that manage ecosystem elements. A single organization

 $^{^{48}}$ This is not meant to be an accurate or full picture of all relevant ecological elements. It is simply a schematic for illustrating the concept of "ecological harmonizing"

that broadens its perspective to include, say, predators or habitat in its management plan is addressing the ecological interdependence problem but is not harmonizing.⁴⁹

Empirical examples of harmonizing

Table 5.2 below shows the categorization of my 99 cases of harmonizing into the three types described above. The number of cases of geographical and organizational harmonizing is approximately equal in the data. There are very few cases of Ecological harmonizing. Although single organizations frequently write ecologically holistic plans, there is often no evidence they carry out these plans via collaboration. For instance, a fisheries agency may write a management plan with harvest rates that account for interrelated ecosystem elements like habitat features, predators, and prey. In this case, the harvest rates are determined through "landscape-level" thinking; i.e. by accounting for the ecosystem "problem landscape". Yet the planning process does not require coordination with organizations managing the habitat, predator species, or prey species. ⁵⁰

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Integrated scientific assessment → Awareness of relationships among ecosystem elements & processes→ A comprehensive plan that accounts for these relationships

This whole chain can be accomplished by a single organization. To turn this into harmonizing, there would have to be evidence that, for instance, the agency managing some ecosystem element was directly coordinating with the agency managing an interdependent ecosystem element.

⁴⁹ I emphasize this point because, in the literature, an "ecosystem approach" by single organizations is often incorrectly conflated with collaboration. A comprehensive, ecosystem-based plan is seen as "collaboration" because it identifies ecological and organizational interdependencies underlying a complex policy problem. However, if the plan was written by one organization and does not lead to inter-organizational coordination, it cannot be collaboration. Instead, it is a comprehensive ecosystem-level thought process. One proposition in Layzer's (2008, pp. 24) optimistic model of collaboration, for instance, goes like this:

I applied a tertiary code, called "Landscape level information", to indicate when organizations engage in comprehensive or "landscape-level" thinking or planning but do not follow this up with collaboration. This would include not just ecosystem-level thinking, but also holistic, comprehensive thinking or planning along other problem landscapes (e.g. a spatial landscape or an organizational landscape). This code contained 105 passages, so it was a relatively common phenomenon. At some point, this type of comprehensive thinking might lead to comprehensive action that includes collaboration.

Table 5.2: Number of examples of each harmonizing type found in the empirical data, in total and broken down by data source.⁵¹

Harmonizing type	All (N=99)	Bay Journal (N=30)	Interviews (N=69)
Geographical (GEO)	48	20	28
Organizational (ORG)	49	8	41
Ecological (ECO)	2	2	0

A "case" of harmonizing is generally indicated by a single text passage (of varying length) coded from the Bay Journal or the interview data. To meet criteria for a primary harmonizing code, passages should indicate that (1) there is collaboration occurring according to my definition, (2) collaborating organizations are addressing a problem or issue more holistically than they would if acting in isolation, and (3) there is some benefit achieved through their harmonized decisions or actions. The example must be specific enough that secondary contextual categories (forum, collaborating groups, and policy area) can be coded. Finally, I must be able to identify the example as a case of geographical, organizational, or ecological harmonizing.

I provide sample passages in Appendix C. Passages were selected to represent the two data sources and the two main types of harmonizing in the data (geographical and organizational). I also present Table C.1, which summarizes 16 harmonizing cases including 7 cases of geographical harmonizing (GEO), 8 cases of organizational harmonizing (ORG), and 1 case of ecological harmonizing (ECO). Of the 8 cases of organizational harmonizing, 5 fit the "policy sector" formulation of organizational harmonizing described above and are labeled ORG-POL. Secondary codes applied to these cases are also shown, including the Forum for

⁵¹ Interviews produced more than twice as many cases of Harmonizing as the Bay Journal data. With interviews, it is possible to ask a follow up question to ensure collaboration occurred. In Bay Journal passages, it was sometimes hard to tell whether organizations actually collaborated, were planning collaboration, or were just "talking a good game" about collaboration. If it was unclear whether collaboration actually occurred, no primary Harmonizing code was applied.

collaboration, Groups that are collaborating, and Policy area. These 16 examples are a good representation of the 99 total cases and demonstrate the diversity of harmonizing that occurred in my study areas.

Where the source description indicates multiple data sources, the same "incident" of harmonizing was described in more than one text passage. Most often, this occurs with Bay Journal data, where the same harmonizing event (especially a significant or complicated one) is discussed in multiple articles. For instance, the signature of Memoranda of Agreement between upstream Bay States (New York, West Virginia, and Delaware) and the Bay Program to meet the 2000 nutrient reduction goals (case #3 in Table C.1) was discussed in several articles as the process unfolded over time.

In the following sections, I use selected cases from Table C.1 to illustrate the three types of harmonizing. Throughout, I emphasize benefits of harmonizing that will be described in more detail in Chapter 6.⁵²

Geographical harmonizing

Geographical harmonizing addresses a "spatial mismatch" whereby the appropriate spatial management area for a policy problem (the spatial "problem landscape") is physically larger than the units with authority to manage the problem. Further, the shared problem being addressed is caused by some kind of *physical connectivity* between collaborating actors, whereby the actions or decisions by one organizational actor physically affect actors located nearby. The classic

⁵² Interviews and Bay Journal articles used in the course of data analysis will be cited in footnotes rather than in the References section. To maintain anonymity, interviewees have been given random numbers ranging from 1-100. In the three cases where I talked to two interviewees on speaker phone, there will be one interviewee number and interviewees will be distinguished by letters (e.g. Interviewees 19a and 19b). Bay Journal articles will be referred to by their month, year, and article title.

example is when polluted stormwater physically spills over borders from one jurisdiction to another. However, examples described below provide a sense of the broader concept.

Joint TMDL plan for Maryland, Virginia, and D.C., coordinated by ICRPB (Case #4 in Table C.1)

In this example, the Interstate Commission on the Potomac River Basin (ICPRB) assisted three jurisdictions (Maryland, Virginia, and the District of Columbia) in developing a combined Total Maximum Daily Load (TMDL) plan for the Potomac River and its tributary, the Anacostia River. The jurisdictions' other option was to write separate plans that apply only to their own portion of these watersheds but take into account upstream contributions. US-EPA, however, wanted a joint TMDL plan, especially because the impairment being addressed (PCBs, or polychlorinated biphenyls) was the same for all jurisdictions. In conceptual terms, the appropriate "problem landscape" for the PCB impairment was the whole watershed. This is mismatched with the management units which are, for the purpose of TMDL regulations, the States and D.C. The logic for inter-jurisdictional harmonizing in this case was described to me by an ICPRB employee:

each of the three jurisdictions, Maryland, Virginia and the District of Columbia, each had a PCB impairment, and each was upstream of one other jurisdiction, and downstream of one other jurisdiction. The way the Anacostia and the Potomac flow, you get that upstream downstream issue and if you have an individual TMDL for Maryland, as an example, for PCBs, they can impact both Virginia and the District. And it's the same thing with Virginia, they can impact both Maryland and the District. So it became obvious that we should try to do one TMDL rather than having three TMDLs. So that's what was done. ⁵³

The logic for geographical harmonizing in this case is the upstream/downstream relationship.

Jurisdictions are physically connected because polluted river water flows from one to the other,

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⁵³ Interviewee #29a

clearly affecting their independent ability to address pollution problems. The appropriate spatial landscape for this PCB problem is to include all connected jurisdictions (or as many as possible). Thus, this example illustrates the theme that *geographical harmonizing addresses a problem on a more appropriate, more comprehensive spatial landscape*. With upstream/downstream relationships, there is also the potential for upstream communities to pass costs off downstream (i.e. create negative externalities for their downstream neighbors). This is less of an issue under TMDL regulations because upstream jurisdictions have responsibilities under a TMDL plan written by downstream jurisdictions, but it comes up in other contexts.

A little later in the interview, the second ICPRB employee indicated the joint TMDL produced other benefits:

[with] the PCB TMDL, [the jurisdictions] were using ICPRB as a platform for collaboration [and this] has resulted in reduced replication of effort and some serious economic advantages to the individual jurisdictions. ⁵⁴

In addition to addressing the PCB problem at a more appropriate spatial scale, harmonizing in this case reduced replication, which is good for overall efficiency and saves time and money for the jurisdictions. This links to the idea by Huxham and MacDonald (1992) that *collaboration* can help to avoid the pitfall of duplication and its associated inefficiencies.

Launching the Mid-Atlantic Regional Panel on Aquatic Nuisance Species (Case #1 in Table C.1)

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⁵⁴ Interviewee #29b

In this case, mid-Atlantic states including Maryland, Virginia, Pennsylvania, Delaware, West Virginia, New Jersey, New York, North Carolina, and the District of Columbia formed a joint panel to address invasive aquatic species that spread across state lines. The panel is writing "rapid response plans" to stop the spread of invasive species across borders and developing regional management strategies for established problem species. ⁵⁵

Although their movement is slower, invasive species travel across borders just as polluted river water does. Like all problems addressed by geographical harmonizing, there is a critical physical connectively between jurisdictions. For aquatic invasive species, this includes all jurisdictions connected to "infected" areas by rivers, streams, wetlands or other water features that have climates, soils, and other conditions suitable for growth of the species. By including all Mid-Atlantic states and North Carolina, this new Panel has approximated the appropriate management scale for invasive species affecting the Chesapeake Bay region. This example, then, illustrates the theme that geographical harmonizing addresses a problem on a more appropriate, more comprehensive spatial landscape than if jurisdictions were working alone.

Another problem arising from physical connectivity is when management actions (or the lack of management actions) by one jurisdiction negatively affect its neighbors. The story at the beginning of the source article for this case is about New York's failure to prevent invasive zebra mussels from taking hold in the Susquehanna River headwaters, even after warnings from downstream neighbors. It illustrates the concept of "counter-production", one of the pitfalls of individualism described by Huxham and MacDonald (1992) whereby the actions of one organization working in isolation conflicts with the actions of another, leading at a minimum to "cancelling out" of benefits and at worst to a negative overall effect. In the zebra mussel case,

⁵⁵ The coded passage for this case is copied in Appendix C; it is not necessary to repeat it here because the main ideas have already been paraphrased.

counter-productive actions generated a harm that affected downstream neighbors and the region as a whole. This is exactly the type of problem that the new Panel hopes to avoid in the future. By harmonizing the actions and decisions of physically connected jurisdictions, this Panel has the additional potential benefit of *avoiding counter-production*.

Two of the other "pitfalls of individualism" identified by Huxham and MacDonald (1992) are omission and divergence. Omission is when important activities "fall through the cracks" either because they don't belong under any one organizations' mandate, or because they are a shared responsibility that each organization assumes the other is doing. Divergence is when a lack of coordinated resource targeting dilutes the collective effectiveness of organizational actions. A separate passage from the source article for this case indicates the Panel will address both omission and divergence problems. This passage features a quote from a biologist with the U.S. Fish and Wildlife Service's Chesapeake Bay Field Office:

Despite the magnitude of the issue, combating-and even monitoring-foreign invaders is typically not an explicit responsibility for most agencies. "It is sort of an orphan issue, and it competes with a lot of other issues," Thompson said. "It's important to really pool our resources among the states and make sure that we are not just doing things randomly, that we are really trying to work together strategically to prevent and control invasive species." ⁵⁶

The statement that combatting foreign invaders is "not an explicit responsibility for most agencies" and "is sort of an orphan issue" points to the problem of omission, while the exhortation that States need to "pool their resources" so they are "not just doing things randomly" alludes to solving the problem of divergence through coordinated resource targeting. It is not guaranteed that the Panel will ultimately be successful in preventing the problems of omission, divergence, and counter-production. What is clear is that the Panel hopes and plans to alleviate these problems, and that they are doing this by coordinating the decisions and actions of

⁵⁶ Bay Journal, May 2005, "Regional agencies join forces against exotic invaders"

relevant jurisdictions over the appropriate geographical landscape (i.e. by geographical harmonizing).

Intertwined stormwater systems and coordinated action (Case #5 in Table C.1)

In this case, geographical harmonizing occurs between neighboring jurisdictions that operate their own MS4 permits for stormwater management. MS4 permits, issued by the State under the Federal National Pollution Discharge Elimination Program (NPDES), require urbanized municipalities over a certain population to control stormwater flows and associated pollution impacts. Permit requirements include development and maintenance of stormwater management infrastructure, controlling illicit discharges, regulating construction site runoff, and conducting stormwater education.

Each municipality is responsible for its own MS4 permit which covers the stormwater system and flows within its jurisdictional boundaries. In Virginia, there is an added twist: the Virginia Department of Transportation (VDOT) maintains its own MS4 permit that applies to all the State's roads and highways. Thus, VDOT's MS4 permit, following the road network, runs like ribbons through the MS4 permits of urban and suburban localities.

Stormwater, of course, does not recognize MS4 boundaries between neighboring municipalities, or between VDOT-controlled roads and the municipalities they criss-cross.

Stormwater simply moves unimpeded over the landscape. Thus, municipal and VDOT stormwater systems are *physically intertwined or interconnected* – water runs from one into the other—but are regulated separately. In conceptual terms, you have a mismatch of the "problem landscape" and the "management units". The problem landscape is the area of physically connected municipalities and roads over which stormwater actually flows, while the management

⁵⁷ MS4 stands for municipal separate storm sewer systems.

units are municipalities and VDOT, their jurisdictions defined by municipal boundaries and the State road network, respectively.

Proper management of stormwater systems requires coordination between neighboring municipalities and between VDOT and all of Virginia's MS4 communities. The extent of actual coordination varies. In the interview exchange below from the source article for this case, a County stormwater manager explains that coordination is good with the town embedded within his County's jurisdiction, but poor with VDOT:

Interviewee: the MS4 communities have to work a little bit with each other from the boundary areas. So there's some collaboration that goes on there and that's very successful so far.... We border on [Town X] with our MS4 - great cooperation with [Town X]. They have some water that goes into our systems. We have some that goes into theirs and total cooperation on that. On the other hand, ...[the Virginia Department of Transportation, or VDOT is] required to have a stormwater permit to supposedly control the water that runs off the streets. And because they border on our permit - and virtually everybody else's - because they run as ribbons throughout the permit, they're supposed to collaborate with us on the pollution that comes off and basically there's no collaboration there....

Rachel: Okay so VDOT runs its own MS4 then?

Interviewee: Right. Right. And, like I said, there's virtually no cooperation there. What we found is we're better off pretending they're not there and go out and just extend our efforts into the streets than to try to work with them on it...

Rachel: You said you have good cooperation with [Town X]. Do they have some of their own authority to manage stormwater within the town?

Interviewee: Yeah. They basically run their own permit and everything within the town limits is their jurisdiction and everything outside the town limits is ours. But there are places where the storm sewer systems comingle. And so we have to cooperate on that and there's no real problem with that. They work with us really well. ⁵⁸

By coordinating with Town X on their intermingled stormwater systems, this County is engaging in geographical harmonizing – that is, they are *addressing the stormwater control problem on a more appropriate, more comprehensive spatial landscape.* They are not working within the full

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⁵⁸ Interviewee #23

spatial "problem landscape", however, in part because they lack coordination with VDOT over embedded road networks and in part because they are not, as far as I can tell, concerned about stormwater that flows outside of the County boundaries. However, they are working at a more appropriate spatial scale than if the County and Town acted in isolation.

Harmonizing in this case has both individualized and collective benefits. From the County stormwater manager's perspective, harmonizing decisions and actions is necessary for proper management of his own system. He can ensure that neighbors are not pushing off their stormwater problems onto the County. Thus, like other cases above, *harmonizing helps to avoid counter-productive actions and decisions*. Management over a more appropriate problem landscape should also improve the stormwater system as a comprehensive whole, since it makes it harder for individual jurisdictions to "fix" their stormwater problems by shifting them to neighbors.

Other geographical harmonizing examples

Other geographical harmonizing examples in Table C.1 repeat the same themes. In one example, Maryland and Virginia harmonize their harvesting regulations for the blue crab. Since fish, crabs, and other mobile aquatic species flow freely between state fisheries, harmonized regulations help to avoid counter-production, where strict regulations by one state are undermined by another state's lenient regulations. In another case, Northern Virginia localities develop a coordinated emergency response system for drought conditions. By harmonizing actions of major water users in the region, they conserve water for the system overall and prevent individual localities from monopolizing water in times of scarcity. This is especially important for river sources, where upstream jurisdictions can easily take more than their share to the detriment of downstream

neighbors. In another interesting case, Prince William County and the embedded city of Manassas coordinate to ensure that recreational trails do not end or die off at the city/county border. Without coordination, counter-production can occur: if, for instance, Manassas decides not to continue a trail, or does not properly maintain its portion of a trail, the utility of that trail is decreased for everyone regardless of how nicely it is maintained by Prince William County.

Organizational harmonizing

Organizational harmonizing involves coordinating the decisions and actions of various organizations that comprise the relevant "landscape" needed to solve a policy problem. Because each organization addresses some piece or portion of a policy problem and/or is affected by the problem, assembling them in a coordinated way generally leads to more comprehensive and collectively rational solutions. Harmonizing also addresses the fragmentation of authority, jurisdiction, expertise, and information associated with "wicked" policy problems.

Policy sector harmonizing, a more specific type of organizational harmonizing, harmonizes the decisions/actions of organizations working in different policy sectors. Because water quality problems have a wide range of causes, some originating in other policy sectors such as transportation, agriculture, and land development, the majority of organizational harmonizing examples in my data fit this description. Thus I included several examples of policy sector harmonizing in Table C.1, identifying them with the special abbreviation ORG-POL to distinguish them from general organizational harmonizing (ORG).

Organizational harmonizing is a broader concept than geographical harmonizing because it does not require physical inter-connection or a spatial relationship between coordinating

actors. The examples provided below, pulled from Table C.1, illustrate the concept and demonstrate its breadth.

State agencies coordinate to ensure consistency of their regulations (Case #11 in Table C.1)

In this example, the state agency overseeing implementation of the Virginia Chesapeake Bay

Preservation Act (known as the "Bay Act") coordinates with "sister" state agencies to ensure
their actions are consistent with Bay Act regulations. Regulations inconsistent with the Bay Act
make compliance difficult for local governments and undermine the Act's effectiveness.

The Bay Act requires Virginia localities in the tidal part of the Chesapeake Bay watershed to adopt certain land use regulations into their local codes; these regulations are designed to protect sensitive tidal wetlands, streams, and other features by restricting development in and around them. Local governments are responsible for adopting and enforcing these codes, but the state Chesapeake Bay Local Assistance Department (CBLAD), part of Virginia DCR, helps local governments stay in compliance by clarifying the regulations and, in some cases, providing enforcement assistance.

Bay Act land use regulations affect disparate land development activities, many instigated by agencies that know or care little about water quality. For instance, State and local health departments make decisions about septic system requirements which impact both groundwater and surface water pollution. Also, the State Transportation department (VDOT) makes decisions about road placement and stormwater management. These agencies may not be aware of Bay Act restrictions, in part because water quality is not foremost in their minds and in part because the regulations only affect Virginia localities in the tidewater region. As a result, decisions and actions taken by these other agencies may be inconsistent with, or even counter-

productive to, the Bay Act. CBLAD recognizes the potential for conflict and works with "sister" state agencies to ensure consistency between their regulations and the Bay Act. The quote below from a CBLAD employee (the source for this case), describes this effort:

In addition, we'll work with the Health Department. Like over the last couple of years they are revising their regulations to accommodate these new types of septic systems that are out there. And we're kind of working with them so they don't put anything in their regulations that would conflict with what's in the Bay Act regulations. So we'll interact.

[Then there is the State Department of Transportation (VDOT), which has] promulgated some regulations regarding streets and things like that and different development patterns and development requirements that [have a] a bay water quality impact, so we'll tend to work with them on a few things as well....as they revise their regulations and requirements, we'll provide input into that saying, "Hey, look, you're doing something here that's not completely consistent with the Bay Act," that kind of stuff. ⁵⁹

CBLAD is working hard to ensure that actions/decisions by other State agencies are harmonious with Bay Act goals, and for good reason. If other departments' regulations truly conflict with Bay Act regulations, local governments will find it impossible to comply with both. This illustrates the *counter-production problem* described by Huxham and MacDonald (1992). Counter-production in this case appears to result from simple oversight rather than a true conflict between health/transportation priorities and environmental priorities. If this is true, instituting basic communication and coordination between the State agencies, as CBLAD has done, prevents unnecessary obstacles to compliance with the Bay Act.

Above is the practical argument for organizational harmonizing. Framing this example in conceptual terms, the true "organizational problem landscape" for protecting Bay water quality includes these other State agencies and the policy sectors (Health and Transportation) they represent. By bringing them into the conversation about Bay Act regulations, CBLAD is working to address Bay water quality at a more appropriate organizational problem landscape. In fact,

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⁵⁹ Interviewee #19a.

these agencies, whose own policy priorities are far removed from water quality, may not realize they are part of the problem landscape and may need CBLAD to remind them to consider water quality impacts of their actions.

There are also efficiency benefits to CBLAD's coordination efforts. Uncoordinated regulations create inefficiencies and inconveniences for regulated entities. Later in the interview, the same CBLAD employee describes this problem when asked about the "value added" of coordination with the Health and Transportation Departments:

Rachel: [What is] the value added of [your coordination with the other State departments]?

Interviewee: The value added is you avoid redundancy. You provide for consistency of message and consistency of requirements. And I think nobody hates it more than when two governments agencies, particularly if they're somewhere related, tell you two different things.... And also, you have government agencies that have similar responsibilities over the same kind of thing. If you think of a given project that somebody wants to do that's kind of complicated and it has environmental impacts of some sort, there are going to be multiple entities that put their hands in it.

And what these people don't like is when they're getting twenty different responses and it's because everybody's looking at it from a different perspective. They don't get their stuff together beforehand and make sure that they're not conflicting with each other [and] the person doing the project has to sort it out... And so that's why we try to collaborate with some of these agencies before we go out, to understand what they're going to say, and you just try to avoid it getting kind of ugly in front of your constituents.

And you know how people like developers or property owners, they'll have some awful experience, and they'll come out going, "Why don't these guys talk to each other?" They'll point to three or four government agencies and say, "Why don't you guys talk to each other? You're all the Commonwealth of Virginia." or, "You're the same department, why aren't you talking to each other? You're in the same building." That's what you want to try to avoid. It's just a colossal waste of time and you can't do that.

In addition to greater efficiency for regulated entities, harmonizing regulations has collective efficiency benefits. A lack of coordination is equivalent (conceptually) to fragmenting the organizational "landscape". As a result, efforts to solve the shared problem will be piecemeal and

⁶⁰ Interviewee #19a.

resources spread thinly, as each agency pursues its own separate programming. This is the *Divergence* pitfall described by Huxham and MacDonald (1992), whereby resources are dispersed inefficiently and in an uncoordinated fashion, undermining the collective ability to solve a shared problem.

In the quote below, for instance, a County watershed planner describes how uncoordinated regulations undermine his ability to address water quality problems. Two major regulations (the MS4 permit and the TMDL) address similar water quality problems but are implemented differently and enforced by separate sets of regulators. Beyond being an inconvenience, this causes a Divergence problem where the County has to split its limited resources between the programs, such that they never have enough money and time to properly implement either. According to the interviewee, the more "efficient, cost effective way" to address water quality would be for TMDL regulators and MS4 program regulators to coordinate their programs:

Interviewee: [In 2002] I was sitting on a statewide group that they had put together of local jurisdictions to brainstorm on how do we come up with plans and what would be a strategy going forward.... [W]e told them, "Look, rather than having all these different requirements that require different resources allocated, why not try to have just one thing that satisfies everything?" And that would the most effective, cost efficient way because, basically, we're after the same goal...... So it seems like, over the years, we're just talking in isolation on different things. And the EPA itself, the folks who write [MS4] permits are different from the people who develop TMDLs and so sometimes there's a big disconnect - TMDL goals and what's realistic and what can satisfy your permit and also satisfy your TMDL. It's like, okay, you know?

Rachel: Yeah. I guess I hadn't thought about that but that's true - that the TMDL Program is separate from the [MS4] Program.

Interviewee: Right. And sometimes the folks don't even talk and they're probably in the same building.... So it's a big challenge for us because we're going to have, like I said, limited resources or capacity to go back to taxpayers and say, "Okay, this is what we want to do and this is how much it's going to cost you." By the time you finish explaining that for one program, you don't want to go back and explain, "Well, we have

this other program over here that we're going to need additional." You just want to go to them one time and, hopefully, your program will cover everything. 61

With these additional quotes, I have drawn attention to complications that can arise from a *lack* of coordination, such as inefficiency, divergence (i.e. a lack of resource targeting), and fragmentation of the organizational "problem landscape". These complications are minimized by assembling the appropriate landscape to address a policy problem and harmonizing the decisions/actions of organizations across this landscape. In the Bay Act case, CBLAD did not assemble the full "landscape" of organizations necessary to address Bay quality, but moved in that direction by harmonizing key decisions/actions of the State Health and Transportation departments.

Stormwater managers coordinate with County agencies on MS4 permit requirements (Case #12 in Table C.1)

In this example, a County stormwater manager coordinates with other County agencies to improve stormwater management and compliance with the county MS4 permit. She gets involved in early planning stages for these agencies' capital projects so improved stormwater treatments can be considered:

I think what we're trying to educate people on is that this is a countywide permit; it's not just a stormwater permit.... And we're doing a lot better coordination more recently with the schools and with parks to try to be aware of when they're doing [in terms of capital projects]. [We ask them:] Can we be involved early on in the planning stages so that we can help give you ideas about how you might treat your stormwater in a different way or provide additional stormwater treatment than you would otherwise? And we're even willing, in some cases, to help fund some of that. But the idea is you can spend all of your money going and trying to patch things up after people have done what they're going to do, or you can try and work with them ahead of time and your money goes a lot further when you're preventing impacts rather than trying to fix them. ⁶²

⁶¹ Interviewee #54

⁶² Interviewee #4

For these other agencies (the two mentioned are Parks and Schools), stormwater is not a high priority. However, because Parks Departments and School Districts own and manage large swaths of land, how they handle stormwater affects the Counties' ability to meet MS4 requirements. Further, since the County has limited ability to make stormwater improvements on private land, ⁶³ it often uses public lands such as schools, parks, and libraries as places to install stormwater infrastructure or demonstration projects. Addressing County stormwater issues in a comprehensive manner, then, requires involvement of these agencies (plus others not mentioned in the quote, such as transportation, agriculture, water supply, and health). In other words, *stormwater must be addressed at the appropriate organizational landscape*.

MS4 regulations explicitly require participation by multiple agencies of County government. As the interviewee puts it, it is a *county-wide permit*, not just a stormwater permit. This requirement is rarely enforced, however, and most agencies like Parks and School districts do not realize their obligations under the permit, especially because their own priorities and goals seem quite removed from stormwater. This highlights the common situation where *organizations may not realize they are part of the appropriate "organizational landscape" for solving a problem*. The same situation applied above when the VDOH and VDOT proposed regulations conflicting with the Bay Act.

Another theme shared with the CBLAD example is that the *organizational landscape* was "assembled" by an actor for whom the problem is most central. Just as CBLAD actively pursued coordination with VDOH and VDOT because of its responsibility to protect Bay water quality, the County stormwater manager actively attempts to harmonize decisions and actions of County agencies (particularly in regard to capital projects) with stormwater management

⁶³ This is because of constitutional restrictions that limit spending tax dollars for improvements on private property.

priorities. In conceptual terms, she is incorporating these agencies into the "organizational landscape" for stormwater. This active pursuit might be necessary if, as described above, the agencies do not recognize their obligations under the MS4 permit.

The rationale for coordination in this example is *preventing* negative stormwater impacts. If left to their own devices, county agencies are likely to install poor stormwater systems that will later need to be "fixed" by County stormwater managers. "Fixing" mistakes is much more expensive than preventing them, and could quickly drain the stormwater budget. If, on the other hand, these agencies coordinate with County stormwater managers initially, their decisions are likelier to be harmonious with stormwater priorities. In conceptual terms, the interviewee is talking about *avoiding counter-production*, whereby organizations working in isolation take actions that "cancel out" or undermine the benefits produced by other organizations' actions (Huxham and MacDonald 1992). By harmonizing decisions and actions of these agencies with stormwater priorities, inefficiencies could be avoided.

District Conservationists and SWCD employees coordinate cost-share decisions (Case #10 in Table C.1)

USDA-NRCS District Conservationists are local implementers for cost-share programs funded by the Federal government, in particular the Natural Resource Conservation Service (NRCS) programs under the United States Department of Agriculture (USDA). Under these programs, they assist interested farmers in installing best management practices (BMPs) on their farms and maintaining them properly. Soil and Water Conservation District (SWCD) employees have a similar job except their main responsibility is to promote State rather than Federal cost-share

programs. District Conservationists and SWCD employees work together closely. In fact, the District Conservationist is often co-located in the SWCD office or in the same building.

District Conservationists and SWCD employees tend to harmonize decisions and actions. In fact, decisions are often made jointly regarding which programs (Federal or State) are most appropriate for a farmer based on his/her desires and the specifics of his/her farm. In conceptual terms, they harmonize their decisions and actions towards what is best for the land and the farmer, even if this decision is incompatible with their individual organizations' programmatic goals.

This coordination relationship was described during an interview with a District Conservationist and an SWCD employee who work in the same office. Note that the quoted interviewee is the SWCD employee and that she calls state-funded programs "local" since they are administered at the local level by the SWCD:

Interviewee 43b: When you are meeting with a landowner for the first time it's not uncommon for a federal and a local staff member to be there. And then you don't talk which programs are federal and which programs are local, you just talk about the conservation and then figure out which program is best suited for the farmer and handle that behind the scenes back at the office.

Rachel: Is there any competition? You were saying before about how the reporting is separate and how people want to take the credit?

Interviewee 43b: That's happening in the state offices. That's happening in Richmond. That's not happening in the field. There is no competition in the field. ⁶⁴

In the field, both parties harmonize their decisions/actions towards what is best for the farmer and his land. To the extent that competition occurs, it happens in the administrative offices at the State level where employees are directly responsible for meeting State targets. Ostensibly,

⁶⁴ Interviewee #43b

however, the "team" on the ground does not let this competition creep into their working relationship.

In terms of the "organizational landscape" for agricultural BMPs, the District Conservationist and the SWCD are critical organizational components but not the only relevant actors. The farmer, although not an organizational actor, is critical, as are the State and Federal offices that fund and oversee these programs, farmer advocacy groups, and others. Therefore, this example represents harmonizing over a small "clump" of actors with close working relationships, rather than coordination over the whole organizational landscape. This is significant, however, since field staff have great influence over which management practices get installed.

Ecological harmonizing

Ecological harmonizing occurs when managers of interdependent ecosystem elements coordinate their decisions and actions to make sense from a broader, ecosystem perspective. There are two ways to view the ecological "problem landscape". The first conceptualizes the problem landscape as the set of ecological elements relevant to managing a particular ecosystem, such as a stream segment or a wetland. The second conceptualizes the problem landscape as the set of ecological elements relevant to managing a target species, such as the blue crab or Atlantic Sturgeon. Either way, the problem landscape is comprised of a set of critical ecological elements (such as species of plants and animals, aspects of water chemistry, soils, and forest components). Organizations managing these ecosystem elements are the "management units" whose actions and decisions are harmonized. Another critical aspect of ecological harmonizing is the interdependence of ecosystem elements comprising the problem landscape. Because they are

connected via ecological relationships, management practices applied to one element affect the others and the health of the system as a whole.

The example of ecological harmonizing presented in Table C.1 is best understood using the second conceptualization of ecological harmonizing because it revolves around protecting a target species, the beloved Chesapeake Bay blue crab. Harmonizing occurs primarily between managers of the blue crab and managers of a critical habitat feature called submerged aquatic vegetation (SAV). SAV beds are found in shallow areas of the Bay and its tributaries and serve as protective habitat for juvenile blue crabs. Unfortunately, SAV grasses have been dying off because of sediment in the water (which blocks light), pollution, and dredging. During the time of my research, the survival of blue crab population was a concern due to lost habitat and overharvesting.

In the late 1990s, fisheries managers in the Chesapeake Bay were considering the novel idea of including habitat protection in their fisheries management plans. Traditionally, fisheries management plans set harvest levels of target species, restrict the times/places for harvesting, and restrict types of equipment used. However, the need for an expanded approach became clear as dwindling or impaired habitat threatened the survival of various species.

Most times, habitat features like vegetation or water quality are regulated and managed by different entities than fisheries. Appropriate management of blue crabs, then, requires (at a minimum) coordination of decisions and actions between fisheries agencies, State marine agencies who manage SAV beds and other habitat features, and Federal and State environmental agencies who manage water quality. A 1998 Bay Journal article, the source for this example, discusses a new blue crab plan sponsored by the Bay Program and signed by the governors of all

three Bay States (Maryland, Virginia, and Pennsylvania) which requires coordination among these executive agencies:

The new policies recognize that protecting aquatic habitat isn't just for fisheries agencies: It's also a job for state environmental departments that manage water quality. The blue crab plan - signed by the governors of all three Bay states - flatly says, "It is the responsibility of all executive agencies, not simply the fishery management agencies, to carry out and abide by the habitat protection and restoration provisions in the Plan." ⁶⁵

Although it is unclear how much coordination ultimately followed from this plan, it was an important starting point. Generally, Bay Program directives like this one carry significant weight because they have been developed by high level officials and signed by the Governors of Bay States.

Wrap up and preview of coming chapters

Although my data yielded results on all five benefits of collaboration, I focus my analysis on coordinated action — a benefit that not only yielded many empirical cases but lacks conceptual development in existing literature. Upon exploring coordinated action cases, I identified a process common to them called harmonizing, an intriguing concept which deserved further study. By harmonizing, organizations achieve collective benefits by acting in a way that better approximates the true scope of a problem, or by working across the true "problem landscape"

In this chapter, I presented my original conceptual model and typology of harmonizing. Three types were identified (geographical/spatial, organizational, and ecological) and illustrated with empirical cases from my data. The next two chapters continue my analysis of harmonizing. In Chapter 6, I further develop the conceptual model to explain how each type of harmonizing addresses a particular policy problem common to complex policy environments (not just water

⁶⁵ Bay Journal, Jan/Feb 1998, "Growing respect for grass"

quality). I also describe specific benefits that can be expected through harmonizing, including more comprehensive, holistic policy, greater efficiency, and standardization. In Chapter 7, I present a contextual analysis of harmonizing that examines the secondary codes (collaboration forum, collaborating groups, and policy area) most commonly associated with harmonizing. Finally, in Chapter 8 I present the results from a less structured thematic analysis of the other four benefits.

Chapter 6: Benefits of Harmonizing

In Chapter 5, the *process* of harmonizing is discussed conceptually and empirically. In this chapter, I provide more specific details on the concrete, policy-related benefits that can be expected when harmonizing occurs.

As described in Chapter 5, harmonizing solves a problem at the appropriate "landscape", whether this landscape is defined in geographical, organizational, or ecological terms. This means policy problems are addressed comprehensively and holistically, accounting for many interrelated elements and actors critical to solving the problem effectively. Thus, we can expect harmonizing to result in more comprehensive, thoughtful, and ultimately sustainable and implementable policies. This is the most central benefit of harmonizing.

Explaining how harmonizing links to holistic policy requires adding another conceptual layer to my typology. Each type of harmonizing generates more comprehensive and holistic policies, but in different ways. For instance, geographical harmonizing uses a comprehensive spatial or physical approach, while organizational harmonizing uses a comprehensive institutional approach by assembling the right organizations, with the right resources and authorities. One way to explore these different paths is to think about the problems or obstacles that stand in the way of comprehensive, holistic policy making and how each type of harmonizing addresses them. I have discovered that each type of harmonizing is a solution to a different problem plaguing policy-makers. Further, these problems are not unique to water quality; they occur in other complex policy environments.

My thoughts are illustrated by Table 6.1 below. The terms chosen to represent the three "problems" solved by harmonizing are the "Border" problem, the "Stovepiping" problem, and

the "Species- or media-specific programming" problem. These problems are associated, respectively, with geographical, organizational, and ecological landscapes. As a group, I call them "boundary problems" because they describe situations where artificial boundaries fragment the true problem landscape. For instance, state and municipal boundaries break up watersheds, which are the true *geographical* problem landscape for addressing water quality problems (this is the "Border Problem"). Departmental boundaries between Planning and Public Works departments break up the true *organizational* problem landscape needed to reduce stormwater pollution (this is the "Stovepiping Problem"). Finally, programmatic boundaries based on specific ecosystem elements such as species or media (air, water, soils) fragment the true *ecological* problem landscape needed to manage a target species.

Table 6.1 also indicates that a "landscape-level approach" (i.e. harmonizing decisions/actions over the appropriate problem landscape) alleviates boundary problems. For instance, geographical harmonizing helps to alleviate the "Border" problem, while organizational harmonizing helps to alleviate the "Stovepiping" problem. When harmonizing is not present, the problems persist.

Table 6.1 Types of harmonizing, the boundary problems they solve, and the benefits they create

		Landscape Level Approach		Dogult if was
		No	Yes	Result if yes
Character of landscape	Geographical/ Physical	Border problem	Geographical harmonizing	Holistic policy from a spatial perspective
	Organizational	Stovepiping problem	Organizational harmonizing	Holistic policy from an institutional / policy sector perspective
	Ecological	Species- or medium- specific	Ecological harmonizing	Holistic policy from an ecosystem
		programming	0	perspective

The final column of Table 6.1 indicates the result (i.e. the benefit) associated with each type of harmonizing. These benefits relate to achieving more comprehensive, holistic policy decisions and outcomes, but in different ways. For instance, geographical harmonizing generates policy that is more comprehensive from a physical, spatial perspective, while organizational harmonizing generates policy that is more holistic from an institutional perspective, often incorporating relevant policy sectors. Ecological harmonizing generates policy that is more holistic from an ecosystem perspective.

The holistic policy benefits described in the final column of 6.1 are the concrete benefits associated with harmonizing. By coordinating decisions and actions over the appropriate geographical, organizational, and/or ecological landscapes, policies are more comprehensive, taking into account all or most relevant factors that affect policy success. For instance, how will a water supply policy affect downstream neighbors or be affected by upstream neighbors (a geographical issue)? How will a stormwater policy be affected by regional

transportation plans (an organizational/policy sector issue)? Will management actions taken on a predator species affect its prey species (an ecological issue)? Addressing these interrelationships should lead to better, more robust policies.

Harmonizing leads to other related benefits. For instance, greater efficiency was brought up frequently in the Chapter 5 examples. By coordinating actions and decisions, organizations were able to pool their resources, utilize existing resources rather than generate new ones, avoid creating problems that other organizations would have to fix, avoid programmatic redundancies, and target their combined resources more efficiently. These efficiency gains can largely be understand, in conceptual terms, as avoiding the "pitfalls" of independent action described by Huxham and MacDonald (1992). Avoiding the pitfalls of duplication, divergence of resources, and counter-production are especially critical for achieving efficiency gains. A separate benefit, which received less attention in the examples already described, is <u>standardization</u>. Harmonizing can lead organizations to standardize their procedures or programs in ways that make programming more logical, effective, or fair.

In the remainder of this chapter I elaborate on the holistic policy benefits of harmonizing and the benefits of efficiency and standardization, illustrating them with empirical examples. For holistic policy benefits, I again organize my discussion based on the three types of harmonizing, this time focusing on the three "boundary problems" that harmonizing solves. ⁶⁶

Solving the Border Problem through Geographical Harmonizing

Like all boundary problems, the Border Problem occurs when artificial boundaries fragment the problem landscape needed to solve a policy problem. Boundaries are geographical, most often

⁶⁶ Because these concepts were already introduced, there is some repetition, for which I apologize. However, the boundary problems are a critical conceptual piece to understanding why Harmonizing produces benefits, and as such they deserve separate treatment.

between local jurisdictions or States. Because each jurisdiction has independent authority within its borders, coordination is needed to address the problem at the appropriate spatial landscape. In the previous chapter, I called this a "spatial mismatch", where the appropriate spatial management area for a policy problem is physically larger than the units with authority to manage the problem.

Another characteristic of a border problem is physical connectively, where the actions or decisions by one actor physically affect actors located nearby. This "spill-over effect" may be literal, like polluted stormwater moving over the land. Other spill-over effects are less literal, such as when a jurisdiction engages in sprawl development that increases traffic and pollution for its neighbors, or depletes the fisheries stock available to neighboring jurisdictions by overharvesting.

The "Border problem" was explored during data analysis by applying a tertiary code to cases where physical connectivity causes one actor to suffer harm because of its neighbor's actions. ⁶⁷ The code was applied to 72 text passages, which form the basis for my analysis. Table 6.2 provides a brief description of some common "border problems" from my data, organized by the policy area in which they occur. Those identified with an asterisk are illustrated with empirical examples in the following sections.

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⁶⁷ This phenomenon is commonly referred to as a negative externality; yet the border problem refers only to negative externalities stemming from physical connectivity and physical proximity of neighbors, whereas the term "negative externality" is more general.

Table 6.2: Border problem examples by policy area (those marked with an asterisk will be described in more detail)

Policy area	Border problem description	
Surface water quality *	In-stream pollutants flow from upstream to downstream jurisdictions. High flows caused by poor upstream management actions scour downstream sections of streams/rivers.	
Stormwater	Stormwater flows across land managed by different jurisdictions and may carry pollution, cause flooding, or scour streambanks.	
Water supply *	Water users draw from the same river, such that water supply for downstream users may be depleted during drought. (Similar problems apply to shared reservoir or groundwater sources).	
Land use and sprawl *	Incompatible land uses on shared borders affect neighbors. For instance, cross-border effects of sprawl include polluted stormwater and fragmentation of open space.	
Fisheries	Lax regulations and high catches by one jurisdiction jeopardize the stock for others.	
Invasive species	Lax prevention or eradication efforts by one jurisdiction increase the threat of invasive species spreading from one jurisdiction to another.	
Recreation *	Trails and some open spaces cross jurisdiction borders. Poor maintenance by one jurisdiction decreases the utility of these trails/parks for residents of the others.	

Border problems related to managing surface water quality

The border problem that directly affects surface water quality management is the upstream to downstream flow of pollutants. This could be expanded to include water quantity, since high flows cause damage downstream through scouring and flooding. An interviewee who handles watershed management for Prince William County identified this problem in general terms:

We had an interaction with a board member whose comment was, "You need to just tell that county that that's their problem." They were saying that the county above us, Fauquier County, has a lot of agriculture and....that a lot of the problems with the stream were coming into the county from them. My point was, that may be true, but [we] drain

into a county too and so you're saying all our problems coming in at the top are from Fauquier County, all our problems coming out of the bottom go to Stafford County. ⁶⁸

Water quality border problems are sometimes successfully addressed through collaborative partnerships. For instance, Case #3 in Table C.1 (Appendix C) describes how the "upstream states" (New York, Delaware, and West Virginia) signed Memoranda of Agreement with the Chesapeake Bay Program to work towards the nutrient reduction goals of the Chesapeake 2000 agreement. This was not a totally altruistic decision on the part of upstream states; a looming regulatory stick and the promise of financial assistance prodded them. The Chesapeake Bay TMDL, expected in 2010, was likely to impose regulatory controls on the upstream states' contribution to the Bay. Also, the Bay Program offered direct funding to upstream states for nutrient reduction and access to Bay Program grant programs. Still, the decision of these states to take on responsibility for the Chesapeake Bay, located hundreds of miles away, was remarkable. A December 2007 passage from a Bay Journal article illustrates the effect of this distance. It starts out with a quote from Jim Curatolo of the Upper Susquehanna Coalition, an organization working in the upper reaches of the Bay watershed in New York:

"You ask anyone if they've ever been to the Chesapeake Bay..." Curatolo said, shaking his head. "It's like going to the moon. Flooding is what people worry about." [Nowhere] is the Bay more distant than New York. ...Most people have no idea they live in the Chesapeake basin, said Steve Lorraine, who heads the Madison County Soil and Water Conservation District, which includes the northernmost reaches of the Chesapeake Bay watershed-**fully 444 miles upstream of the Bay**. "I didn't, either, until I started working here," added Lorraine, whose office is about an hour's drive from Lake Ontario and six hours from the Chesapeake (emphasis added). ⁶⁹

While the distance in this case is extreme, essential characteristics of the border problem are the same. These upstream, or "headwater" states, contribute large portions of the Bay's nutrient and

⁶⁸ Interviewee #72

⁶⁹ Bay Journal, December 2007, "Far upstream, New York lays plans to stem tide of runoff to the Bay"

sediment loads. In 2002, it was estimated that about 11 percent (or 32 million pounds) of the nitrogen and about the same percent of phosphorus entering the Bay in an average year comes from the three headwaters states. ⁷⁰ Dual quotes from a June 1997 Bay Journal article indicated frustration and concern that upstream states were not participating in the cleanup, especially as it became clear that the Bay Program was not going to reach its 40% nutrient reduction goal: ⁷¹

"The only effective way to manage water resources is with a whole-basin approach," said Keith Gentzler, of the Pennsylvania Department of Environmental Protection. "To exclude major portions of the basin based on political boundaries is almost certain to create situations where priority water quality problems cannot be addressed.".....

"It's coming to more of a head than it ever has in the past because it is getting more real in terms that we are not going to be able to do nutrient reductions alone," said Rich Batiuk, associate director for science with the EPA's Bay Program Office.

The solution to the border problem was clear: include the upstream states as partners in the Bay restoration. This was done in 2000, as the governors of each of the three upstream states signed a memorandum of agreement (MOA) committing their States to the water quality goals of the Chesapeake 2000 Agreement. This is a classic case of geographical harmonizing: jurisdictions (in this case, States) adopted the appropriate spatial management scale through collaboration with neighboring jurisdictions.

Border problems related to managing water supply

When water users draw from the same river, conflict often erupts between upstream and downstream users in times of low flow or drought, since it becomes possible for upstream users take a large share and leave downstream users dry. ⁷² In the case of upstream/downstream

⁷⁰ Bay Journal, April 2002, "Bay Program gives headwater states funds to help reduce runoff"

⁷¹ Bay Journal, June 1997, "Some suggest adding all watershed states to Program".

⁷² Note that drawing from the same reservoir or groundwater source creates similar problems, but has less of a geographical element because there are no "upstream" and "downstream" users.

management of water quality, upstream communities have some incentive to reduce pollutant loads and stormwater velocity because these cause localized problems like flooding and scouring. These incentives are weak, but combined with financial incentives and a looming regulatory hammer, they were, for instance, enough to convince "upstream states" to join the Bay Program. In the water supply case, however, there are no localized benefits to taking less water during a drought. This may be why water supply border problems seem to require a coordinating organization with the authority to exercise regulatory powers. In my data, coordination on watershed management problems was frequently achieved without a coordinating organization, yet all cases of harmonizing related to water supply were achieved with one.

The water supply border problem and its solution were discussed in multiple stories about the Susquehanna River Basin Commission (SBRC) and the Interstate Commission on the Potomac River Basin (ICPRB), two organizations that coordinate water supply and quality on their respective rivers. Both were formed by inter-state compacts, signed by the states that comprise their respective watersheds, and formally adopted by Congress. They help water users manage water supply at the appropriate spatial landscape. It was evident from an exchange with two ICPRB employees whom I interviewed on speaker phone that even upstream users recognize the value of achieving the appropriate management scale:

Interviewee 29b: ...if there wasn't cooperation among the [water] utilities, in a severe drought some of the utilities would become unable to meet their plentiful water demand. The river demand can get to be about, what, almost 600 mgd?

Interviewee 29a: Almost 600 mgd, million gallons per day.

Interviewee 29b: From the heat of summer and the low flow of the river was about 688, so back in the '60s, when that happened, there was an epiphany of sorts among the utilities and among local governments that something had be done or there were going to be severe water supply shortages during the summer.

Rachel: Okay, so they sort of agreed that for their best interest they needed some larger entity that could look at the big picture...

Interviewee 29a: That is correct. That's a pretty good statement. The commission staff, along with some folks from Johns Hopkins University, did a series of computer runs and visits to the utilities...and then modeled the system and came up with the theory, and it's still valid today, that operating as a cooperative venture is much better and there's much more assured water supplies for everybody if it's done cooperatively, rather than individual water supply organizations taking the water on their own without this big picture overview and big picture cooperation and coordination. They look at it as a big system..... (emphasis added).

Border problems related to land use and sprawl

Jurisdictions' land use decisions affect their neighbors. For instance, one county might create a peaceful park on its side of the border while its neighbor moves ahead with a large-scale commercial development. Or one county sets aside forested land for a wildlife refuge while its neighbor clear cuts the other side of the border, fragmenting the forest and limiting its ecological value.

County and municipal planners have little control over their neighbors' actions and decisions, regardless of how detrimental spill-over effects might be. Further, because each municipality is (understandably) committed first and foremost to serving its own residents, spending taxpayer dollars to coordinate with neighboring municipality is unlikely.

Regional-level organizations will sometimes identify potential land use conflicts and provide a neutral space and staff resources for municipalities to work through them. The Northern Virignia Regional Commission (NVRC), for instance, runs a Conservation Corridors project that maps existing open space in the region, identifies areas across municipal boundaries that could be conserved, and works with municipalities to make this conservation happen. They run up against the land use border problem, as described by one NVRC employee:

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⁷³ Interviewees #29a and #29b (joint interview).

....there are some competing land use types. For example, the western side of Fairfax County and the eastern side of Loudoun County: It's the furthest west for Fairfax County from Washington DC, so it's a little bit more suburban... but in Loudoun County it's the closest to Washington DC, so they're concentrating...their development there....And so as Fairfax County looks to conserve some lands, it abuts the boundary of Loudoun County and that's where they're trying to concentrate some developments. ⁷⁴

This exact issue was pointed out in a different context by an interviewee from Prince William County, this time referring to the Prince William / Fairfax border. She said: "Our Northern most boundary is of course our most inhabited because it is close to Washington D.C. whereas on the reverse side, the Fairfax side that is the most rural, that is the most protected to them". 75

These quotes illustrate the tension between regional planning objectives and the independence of local jurisdictions. From a regional perspective, it is irrational to have development abutting semi-rural protected areas. Yet from the perspectives of Fairfax, Loudoun, and Prince William County individually, their decisions were rational. What we see is a spatial mismatch between units with the authority for land use (counties and municipalities) and the appropriate management scale, which is regional. This is a difficult problem to fix, since land use is commonly thought of as an exclusively local government function, and a cherished one at that. Regional organizations like the NVRC can achieve some coordination via consensus building, but have few regulatory powers.

This problem was well-described in a Jan/Feb 2005 Bay Journal article about sprawl. The article discusses a Regional Lands Assessment tool, developed by the Chesapeake Bay program, which graphically shows the location of ecologically valuable lands most threatened by nearby development. This tool was being promoted to local planners and land trusts, in hopes that they

⁷⁴ Interviewee #76

⁷⁵ Interviewee #97

would use the regional-level information to inform local decision-making. The tool promoters recognized the difficulty of convincing local decision-makers to adopt a regional-level approach. The passage starts with a quote from Dan Marcucci, a regional planner with the Pennsylvania nonprofit South Central Assembly for Effective Governance:

"The county planners are good at looking at what is going on inside their borders, but there is really no mechanism that enables us to look more regionally, and even more importantly, within the context of the larger Baywide region," he said. As a result, local planning can help protect local farms, forests and waterways. But if the impact is merely to push development into the next jurisdiction, there is little net benefit from a Bay perspective. ⁷⁶

Solving the land use border problem requires geographical harmonizing among neighboring jurisdictions whose actions and decisions create cross-border effects. However, as the Lands Assessment tool promoters realized, jurisdictions are reluctant to coordinate for several reasons: they are busy with what is happening within their borders, uninterested in regional benefits if there are no direct benefits to their own jurisdictions, and reluctant to spend time and money on coordination that might not go anywhere.

Border problems related to recreational areas

This border problem has little impact on water quality, but provides an excellent visual illustration. It arises when trails or open spaces are maintained or treated differently across jurisdictions. Users experience discontinuity as they cross between jurisdictions, decreasing the utility of the recreational space. This problem was raised in different contexts by five interviewees. One interviewee called the Potomac Heritage trail a "hodge-podge" because its segments are each managed by a different agency. She continued:

⁷⁶ Bay Journal, Jan/Feb 2005, "Maps show where Bay's treasures are threatened by development"

[the Potomac Heritage Trail doesn't] have the continuity of character because...parts of it in Arlington County are paved, in Prince William County there are paved bike trails and in Loudoun County they're dirt hiking trails. You have different experiences along the trail because there are so many different managing agencies. ⁷⁷

Another interviewee expressed frustration regarding what he sees as the unwillingness of some Northern Virginia jurisdictions to connect their trails to their neighbors' trails:

Especially where you have trail networks, you do want to make sure that the trail networks connect and that takes a lot of work on both sides of the jurisdictional line. [You have to say], "So instead of this, why don't you re-route the trial this way because then it will connect to the trail in the other jurisdiction", and a lot of times they don't care.... 78

Later on, this interviewee singled out one jurisdiction for its lack of concern for connectivity and regional approaches. I will call this City Y, and its adjacent County will be County X.

[For instance], you look at City Y and if you look at all the plans, it looks like an island. No, it's not an island. All those trails, they've got to connect to the other side, the jurisdiction next to them. They've got to connect to County X. You're not an island. You're just part of a regional system. You don't want to look at a map and actually see where the political boundaries are just by looking at an aerial photograph. "Look at this, there's this big swath of green space on one side of the line and on the other side of the line is all houses." You want to have some kind of continuity across these jurisdictional lines 79

This interviewee points out a key element present in all examples of the border problem: individual jurisdictions or organizations act as if they were not an integral part of a larger regional system. This is generally not because of ignorance or malicious disregard. The most common reason is the lack of incentives to take actions that are rational on the regional level but offer little chance of localized benefits. It is especially difficult to expend resources if there is a

⁷⁷ Interviewee #66 Interviewee #74

⁷⁹ Interviewee #74

possibility that neighboring jurisdictions (who are your economic competitors) will receive more of the benefits.

Border problems related to trail or park discontinuity are solved easily (or, even better, prevented) in many cases by voluntary coordination among neighboring municipalities. One case of coordination between Prince William County and the city of Manassas is summarized in Table C.1 (Case #6). There did not seem to be any conflicts between the municipalities regarding the use of this land for trails— just concerns that the trails are properly connected and similarly maintained.

Geographical harmonizing: a solution to the border problem

Geographical harmonizing solves the border problem. Like all boundary problems, the Border Problem occurs when artificial boundaries break up or fragment the true spatial problem landscape. Through coordination, jurisdictions are breaking through these "artificial boundaries" to address policy problems at the proper scale. Addressing policy problems at the proper geographical scale generates more holistic, comprehensive (and presumably better) policy. Such policies consider and incorporate the needs, concerns, and ideas of all jurisdictions comprising the affected landscape.

Solving the Stovepiping Problem through Organizational Harmonizing

With complex policy problems, various organizations address some piece or portion of the problem and/or are affected by the problem. Further, key resources needed to solve the problem, including authorities, expertise, and information, are fragmented among various organizations.

Ideally, all organizations that comprise the relevant organizational landscape will be assembled to address the problem in a coordinated way.

The "Stovepiping Problem" refers to the common phenomenon that organizations tend to be concerned with a narrow set of goals related to their own needs and interests. They work within their own "stovepipe", separate from the "stovepipes" of organizations around them. By focusing so intently on their own goals, "stovepiped" organizations may fail to recognize effects of their work on others or effects of other organizations' work on their own. As a result, they fail to identify opportunities to coordinate in a way that is **collectively rational** from a community or societal perspective.

The prevalence of Stovepiping was described by many interviewees. For instance, the County government water manager quoted below admitted that his department is very "compartmentalized", but has recently broadened coordination efforts with other County agencies:

[We're] so compartmentalized... How do we get a comprehensive view? How do we look from a thousand feet up...? What we've been attempting to do is these watershed management plans where we try to look a little bit more holistically....

We're starting to include other agencies, like Planning and Transportation and saying, "Hey, do you guys want to look at some stuff too while we're out here doing this?" ... That's been relatively new for us because previously, everything was very compartmentalized. We had storm water pond maintenance, drainage management, dam safety, and site inspections and no crossover. ⁸⁰

A tertiary code for the "Stovepiping Problem" was applied to cases where an organization failed to coordinate or communicate with other organizations engaged in solving the same, similar, or related problems. It was also applied to general quotes, like the one above, describing the

⁸⁰ Interviewee #72

Stovepiping problem. The following analysis is based on the 76 text passages to which this code was applied.

Stovepiping occurs between all sorts of organizations, but is especially common among organizations in different policy sectors because they may not understand each other's work. They are also less likely to see each other at events, workshops, and conferences. Perhaps because of these obstacles, most stovepiping examples in my data involve organizations in different policy sectors. Although many policy areas share the same problem space as water quality, three are chosen for illustration:

- 1. Water Quality and Land Use.
- 2. Water Quality and Transportation.
- 3. Water Quality and Agriculture

Below I address the three policy area combinations in turn, presenting at least one empirical stovepiping example for each.

Stovepiping related to water quality and land use

Surface water impairments are almost always the result of pollutants washed off the landscape by stormwater, so the type of landscape matters. High percentages of impervious surface hasten stormwater flows, preventing infiltration and filtering. Forested and vegetated areas, on the other hand, absorb stormwater and filter out pollutants before they reach waterbodies.

Several interviewees were puzzled and frustrated by the lack of attention to land use by water quality managers. One woman interviewed in 2008, for instance, expressed concern about the lack of attention the Bay Program was putting towards land use:

Have you ever noticed.... it drives me crazy.... that the biggest single problem is the 41% impervious surface increase in the watershed, but when we get to land use, everyone sidesteps the issue? Have you ever noticed that no one really wants to engage this issue? Well guess what, boys and girls, if we don't deal with land use [we are not addressing the problem]....I'm going to say this until I die: "The best stormwater implementation in the world is not going to adequately compensate for really bad land use management." 81

Two years later, I asked the same woman about this issue. She responded positively this time, saying that stormwater concerns were being fully integrated into the land development process in her home County in Northern Virginia.

Rachel: [Last time] we talked about how land use is so critical when it comes to stormwater. Do you feel like there has been some integration between the water quality work and land use?

Interviewee: There is still an issue there. But I will tell you this, and this is something that I've heard from within even [the Planning Department]. A lot of people who used to do development, they would do the development plans, and then [say], "Oh yeah. We need to do something about stormwater," and fit it in afterwards. My sense from the development community....is that stormwater is [now] part of the integrated design of development. It's not an afterthought. And that's a biggie. It's a huge biggie. It means you're going to do things like build in swales and rain gardens and infiltration trenches into your design.....And I saw that happening. 82

Another interviewee from a County Planning Department described a "big wall" between his County's regulatory efforts related to water quality, which are "largely based on enforcement of regulations handed down from the state" and land use planning. 83 To truly manage water quality, he said, we need to "bridge the gap". Otherwise, rather than preventing water quality problems, water quality managers are waiting for poor land use decisions to cause water quality problems and then solving them. Apparently, coordination between planners and watershed

⁸¹ Interviewee #48 (2008 interview)82 Interviewee #48 (2010 interview)

⁸³ At the request of the interviewee, this interview was not recorded, yet I managed to copy some phrases verbatim in my notes. Interviewee notes were also reviewed, edited, and approved by the interviewee.

managers improved after high-level discussions were initiated between the leadership of the Planning and Public Works Departments. ⁸⁴

A lack of coordination between land use and water quality managers can lead to inefficiencies. A high level manager in a County Stormwater agency describes one example below, in which the Planning Department approved water quality devices that are difficult and expensive for the Stormwater agency to maintain: ⁸⁵

Interviewee:...the [Planning] Department is the one that reviews new construction coming in. Well sometimes the engineers.... will propose water quality devices that are particularly difficult or expensive to maintain. And since we maintain them we will contact the [Planning] Department and say, "No. We don't want that kind of thing because that's going to create some real problems for us." And they don't usually cooperate with us on that one. So that creates a little bit of a problem. It doesn't get in the way of the permit but it increases internal costs, which you would think you could develop some cooperation on but we're having some problem there.

Rachel: So, I guess, whatever their goals are that they're trying to meet are better met by buying this fancier piece of equipment?

Interviewee: Basically they don't want to take on the role of dictating to developers specific types of solutions because it ends up running afoul of competition or suppliers of those types of facilities. For example, there's a lot of proprietary devices out there....if we tell the [Planning] Department not to allow those systems, then the manufacturer of that system comes down to the [Planning] Department....and they're not interested in getting involved in that, so the county, instead, ends up with an added cost of maintaining those types of things. Whereas if we had somebody that was over all of these different functions to the stormwater then they could make that decision and it would be a county decision that, "Okay, the manufacturers don't like it but that's what we do in this county." ⁸⁶

In this case, Stovepiping between the Planning and Stormwater agencies led directly to inefficiencies and extra costs for the County. At the end of the quote the interviewee expresses his wish for coordination (i.e. organizational harmonizing) to solve this problem.

⁸⁵ To protect the interviewee, the uncooperative department is generically called the "Planning Department" rather than its full name.

⁸⁴ Interviewee #91

⁸⁶ Interviewee #23

Stovepiping related to water quality and transportation

Transportation decisions with major effects on water quality include the number and placement of roads (which can promote sprawl), the width of roads and the existence of features like cul-desacs (which increase impervious surface), decisions about salting and sanding, and decisions regarding stormwater management techniques used to handle runoff.

Stovepiping between these policy areas is widely recognized as a problem. One article from the Jan/Feb 2002 edition of the Bay Journal discussed a directive signed by the Chesapeake Bay Program Executive Council which, among other things, encouraged more aggressive stormwater actions by State Transportation Departments. The following quote illustrates the novelty of even this basic level of coordination. It starts with a quote from Kelly Shenk, who oversees stormwater issues for the EPA Bay Program Office:

"This is the first time that we've had the departments of transportation at the table talking about how to manage stormwater on roadways," Shenk said. "Highways and streets make up a large portion of our impervious surfaces in the watershed." In fact, she said, it's estimated that about two-thirds of the impervious surfaces in urban areas are roads and parking lots. "So if we really want to see a reduction in pollution loads and flooding, we have to tackle roadways," she said.

Several interviewees echoed the idea that transportation departments must be brought into the process of managing stormwater in a more integrated fashion. An employee of a program that educates local government officials about stormwater management argued that transportation (and health) departments were acting as quasi-planning agencies without taking responsibility for the effects of their actions:

⁸⁷ Bay Journal, Jan/Feb 2002, "Developing a better watershed: Executive Council agrees to lead by example with stormwater controls"

One of the things we are trying to [do] is get transportation to the table, which is not typically involved... Transportation drives a lot of growth, you put a bypass in and [if] VDOT says "sure you can do a median break here and a curb cut" there is going to be a strip mall there before you know it. [Departments of Transportation and Departments of Health] serve as quasi planning agencies without wanting the responsibility of being that planning agency. They set roads, they set septic rules, they set these limits and requirements on site distances and separations between curb breaks and lights and intersections that ultimately plan what a community will grow into. [So these organizations] need to be at the table. 88

Stovepiping related to water quality and agriculture

Agricultural agencies have long been involved in controlling nonpoint source pollution. Federal cost-share programs managed by the USDA Natural Resource Conservation Service (NRCS) and the Farm Service Agency address problems of nutrient and sediment runoff and animal waste management on a farm-by-farm basis. State agricultural agencies run similar cost-share programs.

On the ground, however, agricultural and water quality programs are managed in isolation from each other. This lack of integration starts at the top with USDA and US-EPA, and continues down the line to States and localities. State agricultural agencies and regional Soil and Water Conservation Districts (SWCDs) manage Federal and State agricultural cost-share programs, while state environmental regulatory agencies and local stormwater departments manage EPA regulations like TMDLs, erosion and sediment control, and MS4 permits. They come together on certain projects, like watershed planning or TMDLs, but their day-to-day work is accomplished within separate "agricultural" and "urban stormwater" silos. 89

Various efforts have aimed for greater integration. At the local level there is significant coordination between SWCDs and stormwater agencies on educational programs, like promoting

⁸⁸ Interviewee #46

⁸⁹ Even the terminology is different. "Stormwater" generally refer only to runoff in urban or suburban areas, while agricultural runoff is just called runoff. This is nonsensical since stormwater flows over agricultural lands, suburban areas, and urban areas in the same manner; basically, it is an artifact of the way they are managed separately.

best management practices for suburban/urban landowners. Other efforts focus at the Federal and State level. For instance, a key objective of the Federal "Clean Water Action Plan" was greater coordination between the EPA and the USDA. It was recognized that the two agencies have very different "cultures", stemming in large part from their history, clients, and the regulatory and non-regulatory tools they have at their disposal:

Top environmental and agricultural officials from all six states in the Bay watershed met with their federal counterparts in late May to discuss working together to improve rivers and streams. The meeting was in response to President Clinton's Clean Water Action Plan unveiled in March. A large part of the plan was aimed at having the EPA and the U.S. Department of Agriculture, as well as their state counterparts, working more closely together. That means breaking down some "cultural barriers," said Bill Matuszeski, director of the EPA's Bay Program Office, who helped to organize the summit. Historically, agricultural agencies have sought to achieve their objectives through incentives such as cost-sharing programs and technical assistance, while environmental agencies have often relied on regulations. ⁹⁰

An article published almost 10 years later indicated that coordination between EPA and USDA fell short of what was needed to achieve the 2010 goals for nonpoint source pollution reduction. The article describes the results of a report published jointly by the EPA and USDA. Rather than placing the blame on "cultural barriers", however, it describes the coordination problem as a classic example of Stovepiping:

The Bay region is unlikely to meet its cleanup goals by 2010-and may not for decades-because of a failure to substantially promote and fund pollution control efforts by farmers, a federal report concludes. The report, an unusual combined effort by the inspector generals of the EPA and the U.S. Department of Agriculture, found that efforts to engage the agricultural community in Chesapeake cleanup activities have been hampered by the failure of the two agencies to work together and a lack of funding. "At the federal level, EPA and USDA are key to accomplishing the environmental goals of the Chesapeake Bay watershed," the report said. "However, in the past, their relationship has been one of two independent entities, often constrained by their mandated goals and directions, rather than partners with a common objective." (emphasis added). 91

90 Bay Journal, July/Aug 1998, "Six Bay states meet to discuss working on clean water plan".

⁹¹ Bay Journal, Jan 2007, "Agencies must to more to control farm runoff: Inspector generals of EPA and USDA cite failure of both agencies to work together and a lack of funding"

Organizational harmonizing: a solution to the stovepiping problem

Recall that all boundary problems occur when artificial boundaries fragment the "true" problem landscape. For Stovepiping, "artificial" *organizational* boundaries fragment the set of people needed to properly address the problem; because these people work within their own organizational "stovepipes" they do not coordinate. Organizational harmonizing breaks down these artificial boundaries so decisions and actions are coordinated at the proper scale.

The concrete benefit of addressing policy problems over the "true" organizational landscape is more holistic, comprehensive policy. Organizations who work on some aspect or piece of the problem are able to adjust their decisions and actions to avoid the "pitfalls" of individualism – things like omission of critical tasks and counter-productive actions.

Organizational harmonizing also addresses the fragmentation of authority, jurisdiction, expertise, and information often associated with wicked policy problems. Perhaps most importantly, organizational harmonizing provides access to critical information that improves policy. ⁹² For instance, one example above described how water quality managers have critical information regarding which stormwater devices are inexpensive and easy to maintain, versus those which cost the county extra money. When the Planning department acted without consulting the Stormwater agency, inefficient decisions were made. Solving the Stovepiping problem through organizational harmonizing, then, is more than just a "feel-good" approach. It has real consequences for the quality of resulting policy and the efficient use of taxpayers' money.

 $^{^{92}}$ This overlaps with the Resource Exchange benefit, illustrating that many benefits of collaboration are interconnected.

Solving the problem of "Species- or medium-specific programming" through Ecological Harmonizing $\frac{93}{2}$

As described in Chapter 5, there are two ways to view the ecological "problem landscape". In the one which centers on management of a "target species", which is more relevant to empirical examples in my data, the problem landscape is the set of ecological elements – such as predator and prey species, aspects of water chemistry, soils, and habitat features— affecting the survival and health of a particular target species. To properly manage the target species, decisions and actions of organizations that manage these critical ecosystem elements must be coordinated. However, coordination is frequently hindered by the fact that species and environmental media (such as air, water, and soils) are managed in isolation by different agencies. "Artificial" organizational boundaries fragment management of ecosystem elements comprising the problem landscape.

Species-by-species and medium-by-medium management would be fine if not for the fact that ecosystem elements are **ecologically interdependent**, i.e. intimately connected by ecological relationships like food webs, chemical cycles, and erosion. Management practices applied to one species or element affect the others and/or the health of the system as a whole, making a fragmented approach to ecosystem management ineffective. The real problem, therefore, is *the clash (or incompatibility) between ecological interdependence and species or medium-specific management*.

During data analysis, I applied the tertiary code "ecological interdependence" to cases where species- and medium-specific management was insufficient to manage ecologically connected systems. Most of the 12 coded passages revolved around fisheries policy, describing

⁹³ Since ecological harmonizing was so rare in my data, I have little empirical evidence to contribute; thus, my discussion of this problem and its solution will be short.

how traditional species-by-species management was insufficient to address the wide variety of stressors on target species. Stressors are caused by ecosystem elements (e.g. predator species, prey species, or habitat) managed by separate agencies.

For instance, it was discovered that health problems affecting striped bass (rockfish), the Bay's most popular recreational fish, were partly the result of low menhaden stocks. Menhaden, a small oily fish, is a key food source for striped bass. From this and similar discoveries, fisheries managers converged on the idea that traditional "single species" management was not effectively accounting for conditions of ecological interdependence:

Stock by stock, species by species, fish are usually managed, as one official put it, "with blinders on," as if each lives in its own little ocean. By tracking things such as the number spawned and harvested each year, managers try to set harvest levels that won't jeopardize the stock. Interactions between species are not accounted for. ⁹⁴

The striped bass problem was resolved by writing joint management plans for striped bass and menhaden that accounted for their ecological interdependence. In this case, there was no interagency coordination because the same coordinating organization developed management plans for both species. All that was needed was to incorporate relevant ecological information and adjust both plans accordingly. Generally, however, the solution is *ecological harmonizing*, where managers of interdependent ecosystem elements coordinate their decisions and actions over the appropriate ecological "problem landscape".

The concrete policy benefit of ecological harmonizing is holistic policy that makes sense from an ecosystem perspective. Managers are better able to understand and, with the help of

⁹⁴ Bay Journal, May 1998, "It's a fish eat fish world".

partners, control multiple factors causing problems for their target species. For instance, fisheries managers under traditional "single species" management have limited options for how to maintain their target stocks: they can reduce harvest levels, adjust harvest locations and times, and restrict the use of certain equipment. By harmonizing actions and decisions with managers of other species and media, however, they have a wider range of options to pursue, such as restoring degraded habitat, improving water quality, or increasing the stocks of prey species.

Efficiency benefits of Harmonizing

In addition to holistic policy, it is typical for harmonizing to generate efficiency benefits.

Through coordination, organizations utilize existing resources rather than generating new ones, avoid creating problems that other organizations have to fix, avoid programmatic redundancies, and target their combined resources more efficiently.

A good way to discuss efficiency benefits is to use, as a framework, the "pitfalls" of independent action described by Huxham and MacDonald (1992). Avoiding these pitfalls, particularly duplication, divergence, and counter-production, largely explains the connection between coordinated action and efficiency. Thus, in the sections below I discuss how harmonizing helps to avoid each pitfall and how this avoidance is associated with efficiency gains (or, equivalently, stemming efficiency losses).

Avoiding Duplication

The first pitfall of individualism identified by Huxham and MacDonald (1992) is **Repetition**, or, as I prefer to call it, **Duplication**. Duplication occurs when "two or more organizations carry out an action or task which need only be done by one" (Huxham and MacDonald 1992, pp. 51).

Clearly, this is an inefficient use of organizations' collective time and effort. Fortunately, duplication is a relatively simple problem that coordination or even communication among the "duplicating" organizations can fix.

One example discussed in Chapter 5 was the coordination by ICPRB of a joint TMDL plan for Maryland, Virginia, and DC. All three entities were required to write a plan for the same PCB impairment. Further, because of upstream/downstream relationships among the jurisdictions, the appropriate spatial landscape to address this shared impairment was the whole Potomac/Anacostia watershed. Writing a joint plan, then, not only addressed the problem at the proper scale, it also: "resulted in reduced replication of effort and some serious economic advantages to the individual jurisdictions", according to an ICPRB employee. ⁹⁵

Another example involves the two premier regional organizations in Northern Virginia: the Northern Virginia Regional Commission (NVRC) and the Metropolitan Washington Council of Government (MWCOG). NVRC is a Planning District Commission (PDC) created under Virginia State law to coordinate regional programming and planning for NOVA localities. COG serves the metropolitan Washington DC area, including the District and surrounding Counties and municipalities in Maryland and Virginia. There is significant overlap between the organizations in programming and functions. For instance, they both have "water supply" committees through which local water utilities managers coordinate their work, "green infrastructure" programs that encourage regional and cross-border land conservation, and regional transportation planning programs. Employees from both organizations recognize the overlap and try to avoid duplication where possible. An NVRC employee described how the two organizations "split" environmental work based on their respective jurisdictions. COG, taking

⁹⁵ Interviewee #29b

advantage of this employee's efforts in the NOVA region, focuses their environmental efforts on Maryland:

I hate to say it but there is a lot of duplication in many areas between COG and ourselves but the difference is that [COG's] sphere of influence is Washington DC, the southern portion of Maryland, and the northern portion of Virginia. They are geographically spread out much larger and their area of concern of course tends to be that larger area whereas here, all I'm worried about is Virginia. COG at least on the environmental side is probably geared a little more towards the Maryland portion than they are the Virginia portion and that is simply because of the relationships that exist between COG and myself. There are Virginia members who rely on me for a lot of things so they tend not to be as active on some of these environmental committees as the Maryland folks are. The Maryland folks don't have a NVRC comparable entity. 96

Interviews with COG employees echo the idea that the two entities work to minimize duplication. In meetings between staff members from NVRC and COG, they have discussed merging and/or coordinating their efforts related to stormwater education, green infrastructure, and other problems. One interviewee described the reasoning behind these coordination efforts:

Another is, like you say, we don't want to be duplicating efforts; we want to make our efforts complementary to the extent that we can do it... I don't know a ton of the staff over there, but I know at least the ones that work in the environmental area. To the extent that we can do it, we try to work collaboratively on things as opposed to duplicating things. We just had a meeting with them last week on green-infrastructure mapping. They are doing some things now, and we're looking at doing some things under what's called our Region Forward Initiative. Again, we wanted to have a meeting up front and make sure we're not reinventing the wheel. If they've already done something, let's take advantage of that and not duplicate it. And likewise, if we have something we're planning to do that they could take advantage of, let's do that. So, we try to look for opportunities like that as much as we can, where we can work together. Obviously, our members appreciate that. ⁹⁷

Duplication is a simple problem, but is not necessarily easy to fix. Each organization has its own mission, objectives, and requirements to fulfill; failure to do so threatens the success and sometimes the survival of the organization. Although another organization may be doing similar

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⁹⁶ Interviewee #42

⁹⁷ Interviewee #50

work, it may not be adequate to simply use their product or adopt their results. First, products created by other organizations many not fit with what an organization needs. Research might be conducted differently or ask different questions; programs might not address key concerns or may be closed to certain constituencies. Second, organizations will not be able to take credit. For the organization's donors, funders, or stockholders, it may not be enough to say that some other organization is implementing the expected work. Finally, the lack of control is problematic, especially for critical products or programs. How does an organization know their partner will continue to produce the product or run the program? What if the quality declines or they are not done on time? Because of these concerns, most organizations retain control over key programs and products, even if these are duplicated elsewhere. Although harmonizing reduces duplication, it does not eliminate it.

Avoiding Divergence

The pitfall of **Divergence** occurs when resources are spread so thinly that the "actions of the various organizations are diluted across a range of activities rather than used towards common goals (Huxham and MacDonald 1992, pp. 51)." It is essentially a lack of coordinated resource targeting. This is inefficient if key goals go unaccomplished because resources have been diverted across a variety of less critical projects.

Harmonizing helps avoid divergence by building and sustaining relationships needed for resource pooling and targeting. One example from my data is a shared stormwater education program that will be discussed in Chapter 8. This program, run through the NVRC, pools money from NOVA municipalities and water utilities for shared radio and television spots on stormwater education. All municipalities with MS4 permits are required to conduct stormwater

education, yet it would be expensive and duplicative for them to each pay for their own media outreach, especially when they share the same media outlets. Several interviewees confirm that this program allows them to do higher quality stormwater education than they could afford on their own.

Although this is clearly a case of resource pooling, organizational harmonizing is occurring below the surface. What allows resource pooling to occur is the set of relationships among NOVA municipalities created and sustained through repeated interactions and programming over the regional landscape. These relationships are important for the success of even this basic resource pooling activity for several reasons. First, the municipalities must jointly agree on how much money each contributes to the fund, and there is no "fairest" way to distribute the burden (they decided to contribute on the basis of population). Second, they have to jointly agree on the content of messages; they solve this problem by allowing NVRC to write the messages, pending approval by all partners.

A second relevant example is the Chesapeake Bay Gateways Network (Case #9 in Table C.1). Administered by the National Park Service (NPS), the Gateways Network coordinates Bay-related activities of a host of separate park sites, trails, open spaces, and museums into a combined Chesapeake Bay "education experience". In fact, the concept was developed as a less expensive alternative to a single Chesapeake Bay National Park. NPS coordinates the program, produces brochures and a website to guide visitors, and provides technical and financial assistance.

The Gateways Network avoids "resource divergence" by pooling the unique resources of each site and targeting them towards the common goal of Chesapeake Bay education. Without coordination, the Bay education visitors received from visiting multiple sites (if any) would be

scattershot and ineffective. Further, this Network is a cheap, efficient way to provide Bay education: through small adjustments made by individual sites and easy coordination tools like the website and brochure, the overall Bay education experience is improved dramatically. The other option, creating a single Chesapeake Bay National Park, is prohibitively expensive.

Avoiding Counter-production

The pitfall of **Counter-production** occurs when actions of one organization working in isolation conflict with actions of another organization working in isolation. "At best, this may lead to a 'cancelling out' of the benefits of each action; at worst it could leave both [organizations] worse off than they were before (Huxham and McDonald 1992, pp. 52)." Further, the collective, societal benefits of organizational actions could end up being zero or negative.

Avoiding counter production means organizations adjust their actions to be complementary or at least neutral. Note that, while the benefits of avoiding duplication and divergence are almost all efficiency-related, avoiding counter-production produces more holistic and thoughtful policy as well as greater efficiency. By accounting for the actions and needs of partners, organizations don't just save money but make better policy.

Harmonizing is the central process at work in avoiding counter-production. By coordinating their decisions and actions across a problem landscape, organizations avoid undermining each other. There are two relevant examples in Table C.1 (cases #1 and #2). The first, described in Chapter 5, was the formation of an inter-state Panel to address aquatic invasive species management in the mid-Atlantic region. With invasive species, coordination is sorely needed to avoid counter-production and associated inefficiencies. Good management practices by one jurisdiction, perhaps undertaken at significant expense, may be undermined or undone by

neighbors' poor practices or judgment. In this case, the Panel aims to avoid counter-production and its inefficiencies by developing joint "rapid response systems" for species that are "on the move" between states, as well as regional management plans for entrenched species.

A similar situation is addressed by Case #2 in Table C.1, where Maryland and Virginia harmonize blue crab fisheries regulations through the joint Bi-State Blue Crab Committee. Blue crabs cross freely between the two states' fisheries, making management of the stock prone to counter-production. One state's strict regulations, perhaps implemented at some expense to its own fishermen and fishing industry, may be easily undermined by the other state's lax regulations. Worse, the situation could deteriorate into a "tragedy of the commons" whereby the resource gets quickly depleted as each State rushes to acquire as much as possible of the resource. In this case, harmonized action between the two states avoided counter-production; by passing identical regulations each state is assured its efforts will not be undone.

In both the invasive species and the blue crab cases, a coordinating organization helped form and sustain interstate relationships. In the first case it was the Mid-Atlantic Regional Panel on Aquatic Nuisance Species and, in the second, the Bi-State Blue Crab Committee. Although these States have developed working relationships on a variety of issues, each State has their own goals and priorities for the policy area, their own institutional structure, their own procedures, and their own political culture—all of which may have to be adjusted to mesh with the other. Because this is difficult, it is common for harmonizing to occur through special coordinating committees or organizations.

Avoiding Omission

The pitfall of **Omission** occurs when activities important to more than one organization, or to the larger society, fail to be carried out. Generally, omitted activities "fall through the cracks" either because they don't specifically belong under any one organizations' mandate, or because they are a shared responsibility that each organization assumes the other is doing. Compared to the other pitfalls, the benefits of avoiding omission are less about efficiency gains and more about achieving holistic, comprehensive, and thus more effective, policy. Omitting important aspects of a policy might lead to needy clients who do not get services, environmental problems that do not get solved, or key stakeholder groups left out of decision-making. ⁹⁸

It is only through coordination that organizations are able to identify problems "falling through the cracks" and devise a plan to address them. In the article discussing the Mid-Atlantic Regional Panel on Aquatic Nuisance Species (case #1 in Table C.1), a biologist from the U.S. Fish and Wildlife Service's Chesapeake Bay Field Office described how invasive species policies suffer from omission (although she does not use this term):

Despite the magnitude of the issue, combating-and even monitoring-foreign invaders is typically not an explicit responsibility for most agencies. "It is sort of an orphan issue, and it competes with a lot of other issues," Thompson said. ⁹⁹

This new Mid-Atlantic Panel will address omission by assigning specific responsibilities for invasive species management to officials in each State. This way, the problem will no longer go unaddressed or get passed off from agency to agency.

⁹⁸ It is less clear how avoiding omission leads to greater efficiency. Yet, I keep this section here so I can address in one place all four pitfalls identified by Huxham and MacDonald (1992).

⁹⁹ Bay Journal, May 2005, "Regional agencies join forces against exotic invaders"

Another example relates to the Fairfax County Environmental Coordinating Committee (ECC), composed of department heads and one other designee from each environmental agency of the Fairfax County government. A watershed planner from Fairfax County praised this committee for coordinating environmental programs across a vast County bureaucracy, enhancing communication among department heads, and prioritizing a long list of desired environmental programming. The interviewee also describes how ECC avoids omission: "We also use the ECC as a mechanism to respond or address issues that really don't fall clearly within any one agency's responsibility." ¹⁰⁰ For instance, the ECC receives several recommendations annually from a citizens' committee called the Environmental Quality Advisory Council (EQAC). Because EQAC's recommendations are often not specific to a single agency of County government, the ECC has a process by which the recommendations are distributed to all relevant County government agencies for responses, which are then compiled by ECC staff into a comprehensive and holistic County response for each. Without ECC and this process of crosscounty coordination, some EQAC recommendations would likely fall through the cracks since they do fit comfortably within the purview of a single agency.

Standardization benefits of Harmonizing $\frac{101}{2}$

Here I discuss a final benefit of harmonizing that does not fit into the Huxham and MacDonald (1992) framework: Standardization of policies and programs. Standardization is associated with greater clarity, effectiveness, and fairness. For instance, standardized policies are less confusing

¹⁰⁰ Interviewee #60

¹⁰¹ Note that standardization most often occurs via central directives rather than collaboration. For political jurisdictions, the most common route is for higher levels of government to pass regulations that affect lower levels. For instance, water quality standards for TMDL development are automatically the same between Fairfax and Loudoun County, because they are developed by Virginia. When standardization is accomplished via a central directive, it does not require individual organizations or jurisdictions to work together (and is therefore not collaboration).

for those affected by them. They know what is expected, and that it won't change when dealing with another organization or travelling to another jurisdiction. For regulations, standardization should also improve compliance.

One example where harmonizing led to standardization was the ICPRB effort to standardize law enforcement on the Jennings Reservoir. Jurisdiction for the reservoir was shared by Maryland, West Virginia, and the Army Corps of Engineers (ACOE). At the time of the ICPRB intervention, each state and the ACOE maintained their own set of fishing and boating laws. This was not only confusing to reservoir users, but caused conflict and animosity among the regulators. ICPRB helped the States and ACOE negotiate a compact to standardize regulations:

One of the examples where we became heavily involved was on the Jennings Randolph Reservoir. It's a Corps of Engineers reservoir that was created back in the early 80s [by flooding the north branch of the Potomac River], which served as the border between Maryland and West Virginia. When it did flood that area, that little dashed line that you see on the maps disappeared. It's on the bottom of the lake someplace. You can't see it now. And it became an issue that you've got Maryland and West Virginia, as well as the federal government, with law enforcement people enforcing fishing laws, boating laws, drunk boating laws. And so we were instrumental in pulling the parties together to come up with a compact to advise, assist and adjudicate how things were going to be done law enforcement wise on the reservoir. Whose laws would be enforced if [Person X] were caught drunk boating on Jennings Randolph reservoir? So there is a compact in place that we helped to pull together to bring the parties together.

ICPRB's intervention was a harmonizing process since the ultimate result was to coordinate decisions/actions of organizations working within the same "policy landscape". The key harmonizing benefit was standardized law enforcement practices, which increased fairness to reservoir uses, eliminated confusion, and avoided further conflict among the regulating entities. Because of the high level of conflict, harmonizing was done via a highly orchestrated conflict

¹⁰² Interviewee #29a

resolution process led by the ICPRB, a neutral party that all participants trusted. Thus, this example fits under both the harmonizing and conflict reduction benefits.

Standardization may also improve policy results by making the work of organizations compatible. For joint projects, this means they don't waste time in translation or in arguing whose procedure should be used. Even the work they do individually becomes more valuable to the other. One example (case #8 in Table C.1) was the standardization of procedures for catching and testing striped bass for mycobacteriosis, a bacterial infection that affected a large portion of the striped bass population in the early 2000's. Striped bass, as mentioned, is the Bay's most popular recreational fishery. After extensive research, scientists had still not come to agreement on the infection's causes, in part because they were using an array of different survey and laboratory techniques. Eventually, scientists from several Federal and State government agencies (the US Geological Survey (USGS), the U.S. Fish and Wildlife Service, Maryland Department of Natural Resources, and Virginia Institute of Marine Science), plus the University of Maryland, agreed to conduct standardized surveys of striped bass health:

The standardized surveys will to help determine whether [differences found in symptoms and causes of the disease] are real, or result from different survey and laboratory techniques and interpretations. "If we are all on the same page, the results will be more easily compared and thus be of higher quality," said Chris Ottinger, an immunologist with the U.S. Geological Survey's National Fish Health Laboratory in West Virginia. ¹⁰³

Standardization was critically important to compare study results, compile findings, and replicate studies. And standardization was unlikely without coordination among the major research bodies, whose work comprises the bulk of Bay-related fisheries research.

Standardization is difficult, however, because of the cost of changing organizational procedures. Procedures that are collectively better might not be ideally suited to achieving an

¹⁰³ Bay Journal, November 2002, "States, Feds to coordinate study of striped bass infections in Bay"

organizations' individual mission. Changing procedures has tangible costs: perhaps new manuals have to be written and new equipment bought. Previously collected information may no longer be useful. At the same time, the reward is uncertain. Other jurisdictions or organizations may refuse to follow through, or procedures may have to be changed again in the future. These uncertainties result in a "chicken game" where all organizations or jurisdictions hope the others will change first.

Wrap up and preview of next chapters

In this chapter, I described the concrete, policy-related benefits that emerge from the harmonizing process. The most central benefit is the creation of more holistic, comprehensive policy by coordinating the decisions and actions of actors across the relevant "problem landscape", whether this landscape is defined by geography, organizations, or ecology.

A further conceptual innovation was connecting each type of harmonizing to the solution of a particular "boundary" problem. Geographical harmonizing solves the "border" problem, organizational harmonizing solves the "stovepiping" problem, and ecological harmonizing solves the problem of "species- or media-specific programming". The three problems were described conceptually and illustrated with examples from my data. Because these boundary problems occur in multiple policy areas, harmonizing may be a useful concept and practice across many fields.

In addition, harmonizing may create efficiency gains by avoiding the "pitfalls of individualism", particularly duplication, divergence, and counter-production. In some cases, harmonizing may standardize policies and programs across organizations, leading to greater clarity, effectiveness, and fairness.

Chapter 7 focuses on the *context* in which harmonizing occurs by analyzing the secondary codes that most often co-occur with cases of harmonizing. Finally, in Chapter 8 I present the results from a thematic analysis of the other four benefits.

Chapter 7: Contextual analysis of the Harmonizing benefit

In this chapter, I analyze the context in which harmonizing occurs. I identify collaborative forums that facilitate successful harmonizing and explain why these forums are important. Other contextual variables described include policy areas in which harmonizing occurs and the groups that tend to harmonize their actions and decisions.

The most interesting result from my analysis relates to the "Coordinating Organization" forum code. This code, when applied, indicates that some type of coordinating organization oversaw or managed the collaborative process. I find, first off, that facilitation by a coordinating organization is more common for geographical harmonizing (GEO) than for organizational harmonizing (ORG). This difference is linked to the fact that GEO harmonizing generally involves INTER-jurisdictional coordination (coordination between different municipalities, counties, or states) while ORG harmonizing is more likely to involve INTRA-jurisdictional coordination (coordination among agencies within the same municipality, county, or state). I postulate that harmonizing across jurisdictions is more challenging and therefore requires the assistance of a coordinating organization. Intra-jurisdictional harmonizing, on the other hand, can typically be accomplished through voluntary, independent, non-facilitated interactions.

Because my data indicate that coordinating organizations are important to facilitate collaboration under difficult conditions, I use empirical examples to explore the role of coordinating organizations in more detail, especially how they overcome challenges of and obstacles to collaboration.

I conclude the chapter with a brief exploration of how regulations facilitate, stimulate, and shape collaboration. The forum code "Regulations/law", which indicates that collaboration

occurred alongside or through a regulation or law, is also associated with INTER-jurisdictional coordination. Although the relationship is less prominent in the data, regulations and law (like coordinating organizations) may facilitate collaboration under difficult conditions.

Review of secondary codes

Secondary codes were described in Chapter 4 (Methods and Data). They identify key contextual aspects of each "instance" of collaboration. Whenever a primary code such as harmonizing is applied, secondary codes are applied to the same text segment. This way, contextual information is physically linked to the description of each collaborative event.

Three categories of secondary codes were applied to each harmonizing case: (1) codes that describe the forum of collaboration, (2) codes that describe the groups that are collaborating, and (3) codes that describe the policy area. Although code categories (Forum, Groups, and Policy Area) were determined ahead of time, secondary codes themselves were developed inductively. New secondary codes were added as needed and periodically reviewed and refined.

Forum codes that co-occur with harmonizing

Table 7.1 lists the forum codes that co-occurred with cases of harmonizing, and how they vary by harmonizing type. The ALL column indicates the total number of times each forum code co-occurred with a harmonizing case, while the GEO and ORG columns break these down by

¹⁰⁴ These three secondary codes (Forum, Groups, and Policy Area) were applied to all cases marked with one of the five primary benefits codes except for Resource Exchange, which has its own set of secondary codes: Resource Provider and Resource Type.

geographical and organizational harmonizing, respectively. Because there were only two examples of ecological harmonizing, these are left out. 105

Forums coded two or fewer times are subsumed under the heading "Other forum or mechanism for collaboration". These included: "Facilitated by a nonprofit program" (1 case) and "Facilitated by a memorandum of understanding/agreement" (1 case).

Table 7.1: Forum codes applied to harmonizing examples (N=99)

	# co-occurring by		
	Harmonizing type		
	ALL	GEO	ORG
FORUM CODES	(N=99)	(N=48)	(N=49)
Facilitated by a coordinating organization			
(COO)	41	28	11
Voluntary, independent cooperation (VIC)	38	8	30
Facilitated by a regulation or law	17	10	7
Facilitated by financial incentives	11	10	1
Facilitated by a plan	9	5	3
Single person coordinates	3	0	3
Other forum or mechanism for collaboration	2	1	1

The forum code that co-occurs most commonly with harmonizing cases is "Facilitation by a coordinating organization" (COO). Coordinating organizations facilitate collaboration among other organizations. Most times, this facilitation role is explicit and their role is understood ahead of time by the organizations they work with; in fact, coordination is often a central part of their mission. For example, regional organizations like the Bay Program, the Interstate Commission

¹⁰⁵ Because the two Ecological harmonizing examples were left off of this table, you may notice that the GEO and ORG numbers do not always add up to the number in the ALL column. Ecological harmonizing examples comprise the difference between the ALL column and the GEO + ORG columns.

on the Potomac River Basin (ICPRB), and the Northern Virginia Regional Commission (NVRC) are explicitly designed to be coordinating organizations. However, organizations may serve a coordinating role when circumstances demand it, even if this is not central to their mission.

The forum code "Voluntary, Independent Coordination" (abbreviated VIC) indicates that parties work together without the formal structure of a coordinating organization, plan, or regulation. Collaboration is voluntary and occurs at the will of the participants, often without facilitation. VIC is often informal and ad hoc. It works best when organizational representatives already have a working relationship: perhaps they are on a committee together, see each other at events, or are co-located in the same office building. Several examples are described in Table C.1 in Appendix C.

Note that 37 out of the 38 cases coded with VIC (97%) came from interviews rather than the Bay Journal. This discrepancy can be explained by the nature of data sources. The Bay Journal reports on major events and focuses on apparent motivators for behavior, like funding, laws, court cases, plans, and formal agreements. As a "news" source, it is less likely to capture situations where coordination occurs informally, spontaneously, or as part of daily, routine programmatic tasks. With interviews, on the other hand, I can ask about small, insignificant, or routine acts of coordination between the interviewee and her colleagues.

Cases of harmonizing are also commonly "facilitated by regulations or laws" (REG).

This code is applied when a regulation or law stimulates, supports, or shapes the collaborative interaction. Some regulations or laws, for instance, *require* collaboration to occur. The Total Maximum Daily Load (TMDL) regulations require upstream jurisdictions to collaborate with downstream jurisdictions on TMDL development if they are contributing to water quality impairment. Other regulations or laws allow for collaboration to occur or stipulate how it occurs.

For instance, Virginia has water quality regulations that allow point source polluters within the same watershed to engage in nutrient trading, and stipulates the legal process for such trades. (Nutrient trading is a "cap-and-trade" program that allows point source polluters to purchase pollution credits from other polluters in their watershed, as long as watershed-wide limits are not exceeded). Regulations or laws may shape the way collaboration occurs, or set up a process for collaboration. For instance, the state of Pennsylvania passed Smart Growth legislation in 2000 that, among other things, allowed its municipalities to transfer development rights across jurisdictional lines so they could direct development to designated areas and protect open space. ¹⁰⁶ Finally, the REG forum code might be applied when regulations provide an impetus for collaboration. The Bay Program's attempts to prevent or forestall the Chesapeake Bay TMDL provide an apt example. Starting with the Chesapeake 2000 agreement, the Bay States began a more aggressive collaborative approach towards solving the nutrient and sediment impairments in the Bay, in large part to fix the problem before the 2011 court-imposed deadline that would initiate a Baywide TMDL.

The forum code "Facilitated by financial incentives" applies when financial incentives encourage collaborative projects or provide the necessary boost for collaborative projects to move forward. Financial incentives take many forms: money added to the budget of agencies, cash or tax breaks provided to individuals or businesses, or grants distributed through a competitive process. Typical cases include grants for cross-border watershed projects or land conservation. Sometimes collaboration is a requirement for continued funding of a project; for instance, Federal funding for flood control in the Four Mile Run watershed required Arlington County, Alexandria, Fairfax County, and Falls Church to set up a Memorandum of Agreement (MOA) in which they collectively agreed to implement flood control measures.

¹⁰⁶ Bay Journal, July/August 2000, "Ridge signs bills aimed at curbing sprawl in Pennsylvania"

Harmonizing may also be "Facilitated by a plan", i.e. a plan requires or promotes interorganizational coordination towards some common or collective goal. The plan typically
provides a structure and process for coordination. Plans are generally more effective when
written by the agencies encouraged to or required to collaborate, such as the NOVA localities'
drought response plans coordinated by NVRC (case #7 in Table C.1). Plans by themselves are
often not sufficient to encourage coordination, so they are typically combined with other
facilitation measures such as financial incentives or regulations. For instance, the Maryland statewide green infrastructure plan called Greenprint identifies areas in the State for future
development and growth, versus areas that should be conserved (Maryland Greenprint 2012). To
encourage local governments to follow the plan, the State offer subsidies for infrastructure in the
desired "growth areas", while denying subsidies and offering land conservation grants in
"conservation areas".

The final code, "single person coordinates", indicates that a particular person was instrumental in orchestrating or facilitating collaboration.

Forum codes are not mutually exclusive. More than one forum was coded in twenty-one (21) of the 99 harmonizing cases. This is illustrated in Table C.1 (Appendix C), where five (5) of the sixteen (16) cases listed have more than one forum code associated with them. Following are all pairs that occurred more than once, with the number of times they were paired together in parentheses: Coordinating organization paired with regulation/law (5 times), Coordinating organization paired with a plan (5 times), Coordinating organization paired with financial incentives (3 times), and a Plan paired with financial incentives (3 times). ¹⁰⁷

¹⁰⁷ It is not surprising that the "Coordinating Organization" forum would pair with another facilitating factor, like regulations, plans, or financial incentives. Some coordinating organizations are formed expressly for the purpose of writing or carrying out a plan, or of carrying out existing regulations that require inter-jurisdictional coordination. Further, once coordinating structures are in place, they serve as an administrative platform for new plans and

Forums for geographical versus organizational harmonizing

When comparing geographical and organizational harmonizing in Table 7.1, the clearest difference is that geographical harmonizing occurs more often through a "Coordinating organization" (COO), whereas organizational harmonizing occurs more often through "Voluntary, Independent Coordination" (VIC).

This may reflect the difference in the types of problems addressed by Geographical versus Organizational harmonizing. Geographical harmonizing addresses problems that flow physically over borders. This generally means one jurisdiction is harming another through its actions, a situation likely to generate animosity; and high conflict problems are difficult to solve through informal, voluntary means. Further, the jurisdiction affected negatively stands to benefit more from coordination than the jurisdictions causing the problem. In cases of unequal benefits, some mechanism (like financial incentives or a regulation) might be necessary to facilitate an agreement that both sides find compelling.

Organizational harmonizing, on the other hand, addresses stovepiping problems usually caused by mission dissimilarity, institutional/procedural differences, or a simple lack of information. There is rarely harm being caused. Assuming both organizations are interested in solving the problem, there are individualized benefits available for both.

There is another possibility that has less to do with the essential nature of geographical versus organizational harmonizing. This is the idea, confirmed in the next section, that GEO harmonizing is more likely to involve INTER-jurisdictional coordination, whereas ORG

programs. Further, the overlap between Plans and Financial incentives makes sense intuitively. Plans often require individual organizations to contribute their own resources toward a shared problem, which is a collective action challenge. Financial incentives directed towards individual organizations provide the individualized benefit necessary to motivate them to follow through on their promises.

harmonizing is more likely to involve INTRA-jurisdictional coordination <u>and</u> that INTER-jurisdictional coordination is expected to be more challenging because each jurisdiction is serving a different constituency, has different institutional structures and procedures, and has different political cultures. Plus they lack a common government structure to encourage harmonizing of their actions/decisions for the collective interest. This reasoning will be described in more detail in later sections.

Groups codes that co-occur with harmonizing

The type of organizations harmonizing their actions and decisions is another contextual variable coded for analysis purposes. Like forum codes, groups categories were not set ahead of time, but emerged inductively from the data. Table 7.2 lists the main groups codes that co-occurred with cases of harmonizing, and how they vary by harmonizing type (again, only geographical and organizational are shown because there were so few ecological harmonizing examples). ¹⁰⁸ Group codes applied two or fewer times are subsumed under the heading "Other collaborating groups". ¹⁰⁹

Most group codes represent types of organizations, such as nonprofits and local government agencies. However, the last three categories, bolded in the table, represent particular characteristics of the harmonizing groups. "Upstream/Downstream" indicates that groups are located upstream and downstream of each other, i.e. that the border problem being addressed has an upstream/downstream dynamic. The "Land use managers and water quality managers" code

¹⁰⁸ This is the reason why the numbers do not add up for "State agencies with each other (INTRA-state)" and "Other collaborating groups". Ecological harmonizing examples comprise the difference between the ALL column and the GEO + ORG columns.

¹⁰⁹ These included: "Federal agencies with each other" (2 cases), "State government agency and nonprofit" (2 cases), "Managers of different species" (2 cases), "Local government agency and nonprofit" (1 case), "Local government agency and private sector company" (1 case), "Polluters with each other" (1 case), "Private sector company and nonprofit" (1 case), "Citizens' committees with each other" (1 case), "Natural gas utilities and water utilities" (1 case), and "Park sites" (1 case).

indicates that harmonizing occurs between organizations that manage land and water. Similarly, the "Transportation and Environment code" indicates that harmonizing occurs between organizations that work on transportation and environmental issues. These codes provide additional information about harmonizing groups, but are not meant to replace the regular (non-bolded) groups codes. ¹¹⁰

Table 7.2 Groups codes applied to harmonizing examples (N=99)

	# co-occurring by		
	Harmonizing type		
	ALL	GEO	ORG
GROUPS CODES	(N=99)	(N=48)	(N=49)
Local governments with each other (INTER-jurisdictional)	26	24	2
States with each other (INTER-state)	16	14	2
Local government agencies with each other (INTRA-			
jurisdictional)	24	1	23
State agencies with each other (INTRA-state)	6	0	5
Local government and state government agencies	7	3	4
Federal government and state government agencies	4	3	1
Water utilities with each other	4	3	1
Federal government and local government agencies	3	2	1
Regional organizations with each other	3	0	3
Other collaborating groups	13	4	7
Upstream/Downstream	12	12	0
Land use managers and water quality managers	5	0	5
Transportation and environment	3	0	3

The groups codes most commonly applied to harmonizing cases involved local government agencies; there were 26 cases of INTER-jurisdictional local government coordination and 24 cases of INTRA-jurisdictional coordination. The third most common groups code was "States with each other" (INTER-state coordination). Dominance of these groups codes was likely

¹¹⁰ These special groups codes are applied **in addition to** the regular groups codes (i.e. the non-bolded ones in the table).

related to data sources. Of 76 total NOVA interviews, 29 (38%) were with local government officials, by far the largest category of interviewees. This explains dominance of INTER- and INTRA-jurisdictional coordination at the local level. Bay Journal data may explain the large number of instances of inter-state collaboration, since many articles involve the interstate Chesapeake Bay Program partnership and related programs and committees. The relatively large number of cases involving "Upstream and Downstream" groups makes sense considering my focus on surface water quality.

Groups codes for geographical versus organizational harmonizing

The main finding from Table 7.2 is the apparent association between INTER-jurisdictional coordination and Geographical harmonizing on one hand, and between INTRA-jurisdictional coordination and Organizational harmonizing on the other. The relevant cells have been bolded in the Table to emphasize this finding.

This finding confirms my thoughts described above and makes intuitive sense. GEO harmonizing solves border problems, where jurisdictions lack political control over the full "spatial landscape" needed to properly address a problem. Such cross-border problems must be solved through coordination with neighboring jurisdictions. On the other hand, cross-border coordination is rarely an essential component of ORG harmonizing. Rather, ORG harmonizing addresses the Stovepiping problem, which occurs often in an INTRA-jurisdictional context.

The follow up question is whether INTER- versus INTRA-jurisdictional coordination might be an "intervening variable" that explains the connection (shown in Table 7.1) between GEO and the use of Coordinating Organizations and between ORG and Voluntary, Independent coordination (VIC). The argument made above is that, because GEO is more likely than ORG to

involve INTER-jurisdictional coordination (a more difficult condition for collaboration), an extra boost of energy and help is needed in the form of facilitation by a coordinating organization. If this is true, then we should see a direct connection between the groups and forums codes themselves, i.e. between INTER-jurisdictional coordination and the use of coordinating organizations, and between INTRA-jurisdictional coordination and VIC. I will follow up in a later section by querying the co-occurrence between groups and forum codes.

Policy area codes that co-occur with harmonizing

A final contextual variable describes the policy areas in which harmonizing occurs. Like forum and groups codes, policy area categories emerged from the data. Table 7.3 below lists the main policy area codes that co-occurred with instances of harmonizing, and how they vary by harmonizing type. Again, only GEO and ORG harmonizing are shown. Policy Area codes applied two or fewer times are subsumed under the heading "Other policy areas".

¹¹¹ This is the reason why numbers do not add up for "Fisheries". Ecological harmonizing examples comprise the difference between the ALL column and the GEO + ORG columns.

¹¹² These included: Flood management (2 occurrences); and all of the following with one occurrence each: oceans policy, solid waste, Scenic River designation, air quality, environmental education, invasive species, and tree canopy/urban forest.

Table 7.3: Policy Area codes applied to harmonizing examples (N=99).

	# co-occurring by		
	Harmonizing type		
	ALL	GEO	ORG
POLICY AREA CODES	(N=99)	(N=48)	(N=49)
Stormwater	17	3	14
Land conservation	9	4	5
Land development and planning	9	0	9
Recreation	9	8	1
Watershed planning / management	9	7	2
Fisheries	7	3	2
Wastewater (includes septic)	7	1	6
Water quality, general	7	7	0
Water supply	7	5	2
Smart growth	4	2	2
Agriculture	3	1	2
Energy	3	0	3
Environment, general (no specific policy area)	5	1	4
Other	9	5	4

The most common policy areas that co-occurred with my harmonizing examples were Stormwater management, Land development/planning, Land conservation, Recreation, and Watershed planning/management. These have received considerable attention through examples presented in the previous two chapters. 113

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Further, although the policy backgrounds of my interviewees were mainly land use management, stormwater management, planning, and/or water quality regulation, I purposefully selected interviewees working in related policy areas, such as water supply, agriculture, recreation, and economic development, to learn about collaboration

¹¹³ Note the wide range of policy areas represented, some of which have little to do with water quality. This breadth of policy areas is a function of my sources and conscious decisions on my part. The Bay Journal covers all aspects of the Chesapeake Bay restoration. Since the Bay Agreements themselves are not limited to water quality – they include objectives related to recreation opportunities, environmental education, invasive species, and open space, among other things— neither is the Bay Journal reporting. I use all Bay Journal articles rather than pick and choose by policy area to broaden the contexts in which collaboration is examined. My main research purpose is to conceptualize and describe collaboration and its benefits. I felt that limiting my material a priori was counterproductive, especially if these limits are based on difficult decisions about what is and what is not water quality policy. If my conception of collaboration is to be useful, it should apply at least to all policy areas overlapping with water quality.

Policy area codes for geographical versus organizational harmonizing

Geographical harmonizing occurred most commonly in policy areas related to Water quality (7 times), Watershed planning (7 times), and Recreation (8 times). Most recreation-related GEO cases involve trails or parks that cross jurisdictional boundaries. Water quality and watershed planning cases are varied, but all can be traced to the border problems that plague water quality management: the cross-border movement of stormwater and in-stream pollutants.

Organizational harmonizing, on the other hand, is heavily concentrated in the policy areas of Stormwater (14 cases) and Land development/planning (9 cases) and, to a lesser extent, Wastewater (6 cases). My interview data plays a heavy hand here. Stormwater and land development are both functions of local government and much harmonizing occurs between local government departments. All jurisdictions in my NOVA study area have MS4 permits for stormwater, which require stormwater managers to work with other departments within their jurisdiction. They also have rapid land conversion. As land is converted to impervious surface, stormwater becomes an issue; many successful harmonizing cases are about incorporating stormwater into land development processes.

Relationships among secondary codes

Using the query function in Atlas ti, secondary codes may be crossed with each other to explore a variety of relationships. For instance, by crossing the policy area code with the forum and groups codes, one can answer the questions: In a given policy area, which collaborative forum(s) tend to be most common and which type(s) of groups tend to collaborate most often? Or by

crossing the groups codes with forum codes, one can answer the question: For a given set of groups that collaborate, which forum(s) are most often used?

Queries that crossed policy areas with forums or groups produced no surprising or significant results. Certain forums are associated with certain policy areas in predictable ways. For instance, coordinating organizations are likely to be used in Fisheries, Recreation, and Water Supply, while harmonizing in Land Conservation is mostly conducted through some combination of Voluntary, Independent Coordination (VIC), Financial Incentives, and Plans.

The most relevant secondary codes query is between forums and groups. Based on the other results presented, I am particularly interested in whether INTER- and INTRA-jurisdictional harmonizing tend to employ different forums.

Relationship between Groups and Forum codes

Table 7.4 shows the results of crossing the groups codes with forum codes. Cells indicate the number of times the corresponding group and forum codes were simultaneously applied to a case of harmonizing. To make the Table more readable, groups or forum codes applied fewer than four times are excluded.

Table 7.4 Forum and group code combinations for cases of harmonizing

Groups Codes	Coordinating organization	Voluntary, independent coordination	Regulation / law	Financial incentives	Plan
Local governments (INTER-jurisdictional)	15	7	7	4	1
States (INTER-state)	12	1	2	2	1
Local government agencies (INTRA-jurisdictional)	5	16	2	0	0
State agencies (INTRA-state)	1	4	0	0	1
Local government and state government agencies	1	2	2	2	4
Federal government and state government agencies	2	1	0	1	1
Water utilities with each other	3	0	2	0	0
Upstream/Downstream	6	3	4	0	0
Land use managers and water quality managers	1	4	0	0	0

The results indeed indicate that, among harmonizing cases, INTER-jurisdictional coordination is most often associated with the use of a coordinating organization, while INTRA-jurisdictional coordination is most associated with Voluntary, Independent Coordination (VIC). Adding together coordination at the local and state levels, cases of INTER-jurisdictional harmonizing were facilitated by coordinating organizations a total of 27 times, compared to 6 times for INTRA-jurisdictional coordination. In contrast, cases of INTER-jurisdictional coordination occurred through VIC 8 times, compared to 20 times for INTRA-jurisdictional coordination.

This corroborates my idea that INTER- versus INTRA-jurisdictional coordination is an intervening variable that explains the initial relationship found between GEO harmonizing and coordinating organizations and between ORG harmonizing and VIC. Further, I postulate that the

reason why coordinating organizations are more commonly used to facilitate INTERjurisdictional coordination is because coordination between jurisdictions is a more challenging condition than coordination within jurisdictions. I elaborate on reasons for this below.

INTER- versus INTRA- jurisdictional coordination and the need for coordinating organizations

For several reasons, coordination between agencies in different jurisdictions might be more challenging than coordination among agencies within the same jurisdiction. To illustrate, I will focus on local government agencies, the most common category of examples in my data. First, with INTRA-jurisdictional coordination, the coordinating agencies are working for the same constituency and, ultimately, the betterment of the same city, town, or county. They may be in competition for resources, or prefer one procedure over another, yet their end goal involves greater efficiency and service improvement for the same residents. Further, they work under a common set of political officials who push them to coordinate in the collective interest. Conflicts among departments and/or inefficiencies due to stovepiping may not be tolerated for long by the shared political leadership. On the other hand, INTER-organizational coordination involves two politically independent jurisdictions which, if they are neighbors, are competitors for residents and business. Not only do they serve different constituencies, they have little incentive to help their competitor.

Second, agencies within the same political jurisdiction are accustomed to working within the same or similar institutional structure and utilizing the same or similar procedures. They also work within the same political culture, whether that culture is generated by the elected officials in office or the constituents they serve. On the other hand, coordinating across political

jurisdictions entails bridging differences in procedures, institutional structures, and political culture. One interviewee who works at the regional level in NOVA described this challenge:

Rachel: Could you talk about the challenges of working across jurisdictions? You've mentioned a couple of projects where you've had multiple jurisdictions involved.

Interviewee: One of the main challenges I guess is that everybody has a different process and the jurisdictions have their zoning ordinances [which] are completely different and their regulations are different and their political climate is different. We just have to be flexible and a project that may go smoothly in one jurisdiction may not in another because they each have their own individual set of rules. ¹¹⁴

Third, most local governments are small, so employees are likely to be professionally and even personally familiar. They might work together in the same office, attend the same meetings, and know each other personally from shared activities outside of work. This inter-personal familiarity and trust is important for the effectiveness of voluntary, independent coordination (VIC). With separate jurisdictions, on the other hand, partners are generally less personally and professionally familiar. If the jurisdictions are competitors, they may be prone to mistrust and tentativeness in their relationships.

These factors explain why VIC might fail in the case of INTER-jurisdictional coordination (or other conditions that make collaboration challenging). They indicate a need for secondary motivators or facilitators. Although coordinating organizations are most common, harmonizing may be facilitated under difficult conditions through other means, such as regulations/law and financial incentives. In fact, the analysis in Table 7.4 indicates that the forum codes "Facilitation via regulation/law" and "Facilitation by financial incentives" may also be more common for INTER-organizational than for INTRA-organizational coordination.

The remainder of this chapter focuses on the role of forums, particularly coordinating organizations, in facilitating collaboration under difficult conditions. Empirical data describes

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¹¹⁴ Interviewee #66

how coordinating organizations overcome obstacles and challenges of collaboration. In the final section, the facilitative role of regulations and law is discussed briefly.

Coordinating organizations and collaboration

Table 7.5 lists coordinating organizations most commonly associated with harmonizing in my data. Only organizations mentioned two or more times are in the table; the rest are subsumed under the "Other" category. The second column indicates the number of times each organization co-occurred with one of my 99 harmonizing cases. All are specific organizations except for "Intra-Jurisdictional Committees", which represents three different County-level committees or task forces, each involved in one harmonizing case.

These included the following ten organizations, all mentioned once: The Metropolitan Washington Council of Governments (COG), the Susquehanna River Basin Commission (SRBC), the Bi-State Blue Crab Committee, the Mid-Atlantic Regional Panel on Aquatic Nuisance Species, the Potomac Drinking Water Source Protection Partnership, the Upper Occoquan Sewage Authority, the Eastern Shore Conservancy (nonprofit land trust), the Greenhouse Gas Task Force (inter-state), the Committee on Ocean Policy, and the U.S. Army Corps of Engineers.

Table 7.5: Coordinating organizations (specific or by type) that co-occurred with harmonizing.

Coordinating organization	# of co- occurrences with harmonizing
Northern Virginia Regional Commission (NVRC)	8
US EPA Chesapeake Bay Program	7
Interstate Commission on the Potomac River Basin (ICPRB)	6
INTRA-jurisdictional local government committees (involve multiple departments)	3
National Park Service (NPS)	3
Atlantic States Marine Fisheries Commission (ASMFC)	2
Northern Virginia Regional Park Authority (NVRPA)	2
Other coordinating organization (one mention)	10

Most organizations were created for the purpose of managing some boundary problem that could not be solved, or solved well, without coordination. The Chesapeake Bay Program and the ICPRB were created expressly for managing border problems related to water quality (and water supply in the case of ICPRB) in their respective watersheds. The Northern Virginia Regional Commission (NVRC) was created under Virginia State law to manage a variety of NOVA regional issues including cross-border environmental issues like land conservation, water quality, and water supply. The Northern Virginia Regional Park Authority (NVRPA) was created to pool money from member jurisdictions and build parks throughout the NOVA region that residents can use for free or reduced prices. The Atlantic State Marine Fisheries Commission (ASMFC), an interstate body, brings together fisheries managers in the Atlantic States to write joint

fisheries management plans and harmonize fisheries regulations; it is also used as a forum to settle inter-state fisheries conflicts.

"Intra-jurisdictional local government committees" facilitate coordination among representatives from multiple departments of local government on a temporary or permanent basis. Temporary committees form around a particular project and have specific tasks or issues to resolve; one harmonizing example is the interdepartmental team assembled to plan the redevelopment of the Route 28 commercial corridor in Loudoun County, which involved the Planning Department, Economic Development Agency, Housing Department, Public Works, and the relevant School Districts. Permanent committees include examples like the Environmental Coordinating Committee (ECC) in Fairfax County. This high level administrative committee, comprised of department heads and one other designee from each County department, coordinates and prioritizes environmental programs across the vast County bureaucracy.

The National Parks Service (NPS) is the only organization created for its own programmatic purposes of managing the National Parks and National Trails systems, rather than as a coordinating organization. However, there are times that NPS serves as a coordinating organization, including for the Chesapeake Bay Gateways network (described in Chapter 6) and several examples related to creation or maintenance of cross-jurisdictional trails. In these cases, programs pursued by NPS for their own purposes require them to coordinate other organizations' actions and decisions.

Coordinating organizations come in many varieties. Some are long-standing and permanent while others end when their project or task is completed. Some coordinating groups

¹¹⁶ There are two similar examples under "Other". First is the Eastern Shore Land Conservancy, a nonprofit land trust which helped to coordinate a regional planning effort among Eastern Shore counties. The second is the U.S. Army Corps of Engineers, a Federal agency which coordinated a watershed project between the City of Alexandria and Fairfax County.

have a narrow mission. For instance, the Bi-State Blue Crab Committee (subsumed under "Other") has the specific purpose of coordinating blue crab catch restrictions between Maryland and Virginia and is unlikely to expand into new areas. On the other hand, long-standing coordinating organizations like NVRC or ICPRB take on new inter-jurisdictional problems over time. Some coordinating organizations, like NVRC and NVRPA, have specific members whom they serve and who pay dues. Others, like ASMFC, are forums for inter-jurisdictional planning, conflict resolution, and programming, but provide little in the way of "services" beyond information and technical resources.

Exploring the beneficial role of coordinating organizations

My data indicate that coordinating organizations are important facilitators of INTER-jurisdictional coordination. By extension, they may be important facilitators for collaboration under a variety of difficult conditions, when organizations are unlikely to naturally seek and pursue common goals, such as institutional or cultural differences, contradictory interests, a competitive atmosphere, coordination tasks that are excessively time-consuming, or a history of animosity or failed relationships.

Using examples from the data, a thematic analysis presented in the following sections describes how coordinating organizations facilitate harmonizing and other forms of collaboration under difficult conditions. Themes were identified and elaborated using data from two sources: the "Coordinating Organization" forum code and a tertiary code called "Facilitator Role" that identified examples of facilitator organizations whether or not collaboration was occurring. 117

All passages under the secondary "Coordinating Organization" forum code and the tertiary "Facilitator Role" code were part of my analysis of coordinating organizations, whether harmonizing occurred or not. This includes 163 passages under the "Coordinating Organization" forum code and 188 passages under the "Facilitator Role"

Coordinating organizations provide a landscape-level perspective

Organizations concerned with surviving and achieving their own goals have little time to peruse the landscape for coordination opportunities. Coordinating organizations, on the other hand, have a broader view; they recognize boundary problems (both border problems and stovepiping) and can facilitate coordination needed to address them. They may be created by the jurisdictions / organizations themselves specifically to provide this "landscape-level" perspective, or this perspective may be inherent to their own mission.

NVRC is the latter type. Its mission is to facilitate regional coordination among its 14 member jurisdictions (four counties, five cities, and five towns in Northern Virginia). In the quote below, a NVRC employee explained how she identifies cross-border issues and opportunities for localities. Although NVRC has no authority to force coordination (it is a non-regulatory agency), it offers assistance should the localities decide to pursue coordination.

Interviewee: ... what we develop essentially just serves as a guidance and the localities move forward toward implementation of some of the recommendations, or of all the recommendations, it's kind of their choice.

Rachel: Okay, I see, so for something like green infrastructure, you would create kind of regional suggestions and the localities would incorporate that or not incorporate that into their plans.

Interviewee: Exactly, it provides the opportunity where they can still see within their own jurisdiction what is possible, but also identify those areas that cross jurisdictional boundaries to be able to say, "Oh, that's kind of an important area and maybe we want to consider working together to look at this area a little bit more closely." ¹¹⁸

The identification of cross-border issues is a service to member jurisdictions. It can also provide "social" benefits, in the form of better policy, if jurisdictions adjust their decisions and actions to make sense at the regional level.

NVRC and the other Planning District Commissions (PDCs) in Virginia provide benefits not just to their member jurisdictions but also to State agencies, which frequently consult or subcontract with PDCs. In addition to local government connections, PDCs offer a comprehensive, landscape-level perspective that helps the State determine how projects in one policy area, like water quality, fit with related policies for transportation and land development. In other words, they provide a "landscape-level" perspective on the region that the State lacks. A Virginia DEQ employee from the Northern Virginia regional office described working with PDCs on TMDL projects, praising their comprehensive knowledge of the region:

The reason that we can bring them on board as being a contractor for the TMDL projects is that they have a really good relationships with the counties that are in their little region and they have a lot of connections who know a lot about what's already going on in the county, kind of comprehensively, not just in the environmental watershed arena, but with transportation and just everything else that might be going on in the region so that they have a good base of knowledge. ¹¹⁹

Coordinating organizations address competitive pressures

Because organizations have their hands full with their own responsibilities, missions, and legal obligations, they tend to be bad at landscape-level approaches. This problem is intensified when they are in competition, as the following exchange with an NVRC employee illustrates. The interviewee is discussing a water supply emergency response system for NOVA localities, which was being developed through an NVRC working group (case #7 in Table C.1):

¹¹⁹ Interviewee #68

Rachel: All the jurisdictions working together in this working group would set up some rules?

Interviewee: Yes....A Master Plan that all of the local governments would adopt as in their ordinances that would say, "When we hit this condition there is this message, when we hit this condition there is another message"....

Rachel: I'm going to make you justify NVRC again. Couldn't local governments do this work on their own?

Interviewee: No. And the reason for that is for the most part a single jurisdiction is concerned for itself. There is too much competitiveness between the jurisdictions to really do some of these things. For instance when it comes to growth in the economy no local government is going to be willing to say, "I don't need that growth, let it happen next door". There is always too much of a bit of competitiveness between local governments and that gets in the way and that is where we come in with the aspect of living and dying by consensus. ¹²⁰

The "self-centered" focus of organizations means collaboration is difficult unless benefits to the individual organizations are certain and immediate. Otherwise, there must be some other impetus, such as a facilitating organization that works diligently to forge consensus.

A Bay Journal article on the Chesapeake Bay Gateways Program echoed this idea. The Gateways Program, administered by the National Park Service (NPS), strings together features of various parks, trails, and other sites into a coherent "Chesapeake Bay experience" for visitors, sort of like a National Chesapeake Bay Park scattered over hundreds of different sites. The assistant director of the Maryland Office of Tourism Marci Ross, quoted in the passage below, says that competition between the States was one problem that NPS successfully overcame. She makes it quite clear that, because of inter-jurisdictional competition, the States could not have coordinated on tourism programs without facilitation assistance from NPS:

Ross said the park service brings more to the Gateways Network than grant money. States often compete for tourism, she said, and do not have the ability to reach across

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¹²⁰ Interviewee #42

borders and coordinate a region-wide tourism program focused on the Bay without the park service. "If we could have, we would have," she said. 121

Implicit in both quotes about "competition" is a larger truth. Voluntary, independent coordination (VIC) is hard to achieve because each party has responsibilities to improve the quality of life for its own residents and taxpayers. Jurisdictions are also constrained by legal obligations, such as their own schedule for MS4 compliance and their own local ordinances. What is behind some of this talk about "competitiveness" is a concern that collaboration will interfere with a jurisdictions' ability to both meet its own legal requirements and to fully serve and protect its own citizens. 122 A coordinating organization can alleviate some of those fears by ensuring that benefits are shared and relatively equal, and that partner jurisdictions don't shirk their promises.

Furthermore, political and fiduciary responsibilities of government officials make it difficult for jurisdictions to spend their taxpayers' money on collaborative projects that provide benefits to another jurisdiction. Local governments generally cannot pay for stream restoration projects outside of their borders, even if these streams carry pollutants into their borders. A watershed planner from Fairfax County discussed how neighboring jurisdictions participated in advisory groups convened to discuss shared watersheds. Information on stream conditions in these other jurisdictions was collected. Yet, he said: "what we didn't do is we didn't try to address the problems" because Fairfax taxpayers won't agree to pay for project in a neighboring County. 123 However, the same interviewee goes on to discuss how the Army Corps of Engineers

Bay Journal, Nov 2006, "Bay Gateways Network's future in jeopardy as funds are eliminated"Similar arguments could be made for organizations in general, but it is much easier to describe using political jurisdictions.

123 Interviewee #54

(ACOE), by providing financial incentives and serving in a facilitator role, was able to achieve this elusive inter-jurisdictional coordination in another shared watershed:

Interviewee: One of our watersheds, [Kenman] Run, the Corps of Engineers came in and initiated a collaborative effort to also look at other things that they could bring to the table. Sort of like going over and beyond what we were able to do, and in that vein they brought in the city of Alexandria, which parts of that watershed flows through. So we have an ongoing effort to sit and talk about other watershed restoration projects that the Corps could fund.

Rachel: I see. So they can provide funding and they can also provide participation from Alexandria.

Interviewee: Right. Right. So they coordinate between the jurisdiction - Alexandria and Fairfax - they're designing the plans and we meet once every two months and discuss the status. It's been slow but it's heading in the right direction (emphasis added). 124

Even when benefits are mutual, paying for a benefit in a neighboring, competitor jurisdiction is anathema. This issue was apparent from an example of a pollution trading program for municipal wastewater treatment plants in the NOVA region. Under this program, plants can meet new Chesapeake Bay regulations by buying or selling pollution credits. Without this coordination, all plants would upgrade at once and drive up construction costs. Although this is a winning situation for smaller plants (the interviewee uses Berryville and Front Royal as examples) who can put off upgrades by paying larger, newer plants (like Fairfax County) for the right to pollute, there is an unexpected problem. These small plants, which represented smaller, poorer municipalities, didn't want to write a check to a rich County like Fairfax. They literally could not get themselves to write "Fairfax County" on a check:

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¹²⁴ Interviewee #54

You'd hear from Berryville or Front Royal in the valley, "That's fine but I am not writing your check to Fairfax County." The rural smaller areas sending the money to the richer counties directly was just politically a nonstarter, not going to happen. 125

The fix was easy: set up an anonymous nutrient credit exchange organization to collect and distribute the funds. As described by the interviewee: "They didn't mind writing a check to a nutrient credit exchange and then the credit exchange writes a check to Prince William or Fairfax County but Berryville itself was not going to write out a check to Fairfax." ¹²⁶ This example illustrates the power that competitiveness and similar animosities have to derail collaboration and shows how in some cases even a simple coordinating arrangement can resolve the issue.

Coordinating organization assist in solving complex, many participant problems

Cross-border problems can be complex. Many organizations cause or impact the problem through their actions, are impacted by the problem, or are involved in solving it. Achieving the appropriate "organizational landscape" requires participation from all of them, and they each have their own interests, schedules, cultures, and preferred procedures. Under these conditions, voluntary, independent coordination is difficult to initiate and sustain.

For these many-participant cross-border problems it is best to engage a coordinating organization that has the administrative capacity and the willingness to manage these relationships over the long term. The Lower Four Mile Run restoration project, described by an NVRC employee in the quoted exchange below, is a good example of a situation that requires the assistance of a coordinating organization. This project involves only two jurisdictions

¹²⁵ Interviewee #35

¹²⁶ Interviewee #35

(Arlington County and Alexandria), but has several Federal and State partners and a slew of

private contractors. NVRC coordinates the effort:

Interviewee: So there are different consultants working on different aspects of stream restoration. This includes not only restoration, but bridge design, landscaping, etc. And there are issues about where the funding will come from for all of these projects. And

there are two jurisdictions involved. And there are Federal agencies, who are the sponsors

- for instance, the EPA is paying for stream restoration but the funding comes through Virginia [Department of Environmental Quality]. The Transportation Enhancement grant

[the one we got for the pedestrian bridge] is also Federal funding but it comes through the [Virginia Department of Transportation]. And the Army Corps of Engineers is involved.

And when we design all these projects it has to go through any necessary state, local, or

Federal permitting processes.

So there are all these coordinations that have to happen. And the [Arlington County] and [City of Alexandria] people don't necessarily meet on a regular basis to discuss issues like this.... Sometimes there are competing interests. There might be issues that need to be resolved or facilitated so that people can reach some common goals. And this is where

the coordination comes in.

Rachel: So is it your job to see the big picture?

Interviewee: Yes, exactly. 127

The description makes it clear that this project requires extensive coordination that informal,

voluntary, and sporadic coordination could not achieve.

Coordinating organizations provide a neutral, non-hostile venue for coordination

Coordinating organizations may provide facilitation assistance and a neutral space for meetings.

They smooth over difficulties arising from differences in organizational culture, historical

animosities, or personality conflicts. Where there is anxiety over the distribution of benefits, they

may even out benefits or promise benefits in future collaborations. In short, they can create an

atmosphere conductive to collaboration.

¹²⁷ Interviewee #10

Several interviewees talked about the importance of a "neutral" forum for collaboration and facilitation by a "third-party" or "neutral" party. This indicates the importance of a collaborative space and process that are (or are perceived to be) fair and unbiased. An example is the "Builders for the Bay" program. This program brings together developers, environmentalists, stormwater managers, and others to participate in roundtables to examine and revise local ordinances, with the purposes of improving stormwater management and making it easier for developers to incorporate green design features. The venue and process of Builders for the Bay was perceived as fair and unbiased, in part, because the program was jointly coordinated by environmental nonprofits and the National Association of Home Builders. Participants also reported that third party facilitation of the roundtables created a "neutral environment" and reined in local "interests and agendas."

Good facilitation also creates a comfortable environment where organizational representatives feel they will not be blamed for the problems under discussion. I heard this perspective from an employee of the Virginia Department of Transportation (VDOT) who participated in Fairfax County's watershed planning processes. In discussions of stormwater and water quality, VDOT is a common culprit because they build and manage a large proportion of the region's impervious surface. As demonstrated by the quote below, this interviewee found facilitation to be very helpful in creating a "non-hostile" environment:

The biggest thing I saw very challenging from my perspective was I would come to meetings and the idea would be to have a non-hostile environment where people could openly talk and not get into any type of confrontation. I think that's probably the hardest thing to achieve sometimes, and I liked the way that, at least Fairfax County was doing it, is they hired a consultant to facilitate the discussion. ¹²⁹

¹²⁸ Bay Journal, May 2005, "Builders group has designs on developing consensus for the Bay"

¹²⁹ Interviewee #36

Note that changing the coordinating environment does not create "trust" in the same way that knowing someone personally does. An "atmosphere conductive to collaboration" relates to whether participants feel comfortable. Is the environment or the venue friendly and nonthreatening? Is the process facilitated fairly? Do the participants feel they can share information without fear that it will be used against them? If the answer to these questions is yes, this is a positive and productive "collaborative space". The *feeling* created by this type of positive collaborative space is something that a good coordinating organization can help provide.

Coordinating organizations take over the administrative tasks of collaboration

Collaboration takes a lot of time. Participating organizations are reluctant to expend resources on a collaborative process that provides landscape-level benefits, unless individualized (organizational) benefits are clear, immediate, and guaranteed. Since this is generally not the case, coordinating organizations ease the burden of collaboration by taking on collective administrative tasks. They will organize and facilitate meetings, do research, write up meeting minutes, draft documents, and generally work to keep the collaborative process moving forward.

NVRC's coordination of the Lower Four Mile Run restoration provides a useful example. One employee of the NVRC described their role in managing the Agency Coordinating Group (ACG), a steering committee consisting mainly of local government department representatives from Alexandria and Arlington, plus one representative from the Army Corps and a citizen representative from each jurisdiction. NVRC coordinates this group and keeps the project moving forward by providing the necessary administrative assistance:

There are 10-15 different people representing 10-15 different [local government] departments participating in the ACG. So someone from a Parks Department may not know what the water quality or the flooding requirements are. When planning or developing a park, they need to know what might be the constraints from other programs,

and that has to be conveyed and discussed, and a resolution needs to be reached. This kind of coordination is needed both within jurisdictions and between jurisdictions. And people need to get together to determine priorities and the order of priorities. All of these people have their day-to-day jobs, so they come to the meetings and have only a little bit of time to work on this. So they don't remember everything from meeting to meeting. So we [the NVRC] feed them with the right information at the right time, we answer their questions, pull up documents, etc. For instance, if the consultant has a report that needs to be reviewed by all the parties, we put it on our website and send a reminder to everyone to read it and make comments. Then we collect and comments and organize them, and get them back to the consultant. It is a lot of work. ¹³⁰

Coordinating organizations play an equally important role in providing opportunities for information exchange. They are "keepers and managers" of information about particular projects, "feeding" this information to participants when it is needed. Further, information exchange occurs informally among participants in workgroups and committees convened through coordinating organizations. Several interviewees identified this information exchange role as the "value added" of the Metropolitan Washington Council of Governments (COG). In the following quotes, three different interviewees discuss the information exchange role of COG and how it affects their work. Source information is given at the end of each:

I think that by and large COG's major role is information exchange. It's a really useful place to get together with your peers. COG does a good job of bringing in the technical experts or the regulatory agencies so you can have some face to face dialogue with those folks about what's coming down. I think that's a really beneficial role that they play. (Source: an environmental manager from Arlington County) ¹³¹

It's a chance to compare notes on emerging issues like green building and more environmentally friendly building standards, the newer issue...If peers from other jurisdictions can talk and compare notes about what they've learned about the issue; successes that they've had or that their jurisdiction have had in implementing those things on public facilities and also interactions they've had with private sector developers on the issues, if we can compare notes, then we become more knowledgeable about it and we're able to advance those issues better. (Source: Leader of an internal environmental review team in Loudoun County) ¹³²

¹³¹ Interviewee #13

¹³⁰ Interviewee #10

¹³² Interviewee #28

We work with them some. Mostly we use those as information gathering sessions. We listen to whatever the other folks are doing (Source: Public works employee for the City of Falls Church). ¹³³

Coordinating organizations provide critical information at just the right time, to agencies that lack the time and capacity to research everything themselves. In this vein, other interviewees expressed gratitude toward COG for compiling and distributing updates on the Chesapeake Bay TMDL as it was being written by US-EPA. Local governments lack the capacity to send an organizational representative to the multitude of meetings that US-EPA organized, and could instead rely on COG to collect and share relevant information, as well as represent the "local government perspective" to EPA and the State agencies.

Coordinating organizations can provide (some) accountability

When a cross-border problem is addressed via collaboration, there are generally no sanctions for organizations that refuse to participate or back down on promises. A coordinating organization can, at the least, set deadlines for action, forge agreements to be signed by participants, and apply pressure when participants shirk their responsibilities.

One common approach is drafting and signing a Memorandum of Agreement (MOA) among the jurisdictions that spells out their responsibilities and how they will meet them. In some cases, the MOA gives an existing (or created) coordinating organization authority to review actions or decisions of the partners.

The original Four Mile Run coordination, which dates back to the 1970s, illustrates how this might work. After the Army Corps of Engineers installed a levy and flood walls in the lower part of Four Mile Run in the 1970s, they required the local jurisdictions to jointly manage future

¹³³ Interviewee #21

development to prevent additional flooding. The four jurisdictions signed a MOA in which they all agreed to give NVRC authority to review major development proposals. NVRC developed a computer model for the Four Mile Run watershed and, for the past 30 years, has been reviewing developments to ensure that increases in impervious surface will not increase the peak (100-year) flow downstream. When they spot potential flooding problems, they recommend alternative detention practices. ¹³⁴

The four jurisdictions comprising the watershed ¹³⁵ recognized that they could not meet ACOE requirements through voluntary, independent coordination. First, individual jurisdictions lack a watershed-scale perspective. They would not know whether a development within their borders causes flooding problems for their neighbors. This issue was addressed with the watershed model. Yet, based on ideas discussed above (i.e. jurisdictions are unlikely to spend their own resources on something with landscape-level benefits), it is unlikely the watershed model would have been created without NVRC. Second, and more relevant to this section, the jurisdictions cannot control each other's behavior. Each is an independent political entity with its own ordinances and permitting processes; plus they are in competition. Under these conditions, it is impossible for, say, Alexandria to review Arlington's development plans and demand changes.

The solution was to develop a process they all could agree upon (using a model to determine water detention requirements) and then give a neutral organization they trust (the NVRC) the authority to implement the process. All of this was enshrined in the MOA, and sealed with good will and signatures. It is not an iron-clad legal document, but it is much more than VIC could provide.

¹³⁴ Information comes from interviewee #10

¹³⁵ This is the whole Four Mile Run watershed. The project discussed extensively above, for the Lower Four Mile Run, involves only two jurisdictions.

Other facilitators of collaboration

In my data, facilitation by coordinating organizations was most commonly used to achieve difficult cases of collaboration. However, other forums may be used such as regulations/law, financial incentives, and plans. The analysis of harmonizing examples in Table 7.4 indicates that the forum code "facilitation via regulation/law" and the forum code "facilitation by financial incentives" are more common for INTER-organizational than for INTRA-organizational coordination. Adding together coordination at the local and state levels, cases of INTER-jurisdictional harmonizing were facilitated by a regulation/law a total of 9 times, compared to 2 times for INTRA-jurisdictional coordination. Similarly, cases of INTER-jurisdictional harmonizing were facilitated by financial incentives a total of 6 times, compared to 0 times for INTRA-jurisdictional coordination. This indicates that regulations and financial incentives serve a similar facilitating function under conditions where VIC is difficult to achieve.

In the following section, I make a few key points about regulations as a facilitating factor for collaboration. Although preliminary, this exploration is important because many scholars incorrectly assume a strict dichotomy exists between collaboration and regulation. In contrast, I find that regulations occur in concert with collaboration, often shaping and complementing the collaborative interaction.

Regulation as a facilitator of collaboration

My data indicate that regulation complements collaboration by facilitating or stimulating collaboration to occur. Some regulations "force" the formation of collaborative relationships by requiring jurisdictions to implement a joint project or plan. The Total Maximum Daily Load

(TMDL) regulations are the most obvious example. TMDL plans are written to address specific water quality impairments and must identify and quantify all contributions to impairments, regardless of how far upstream they occur. TMDL implementation plans, not required by US-EPA but standard practice in many States (including Virginia), then implicate upstream jurisdictions in the clean-up. If the implementation plan has enforcement mechanisms (which unfortunately is not always the case), upstream jurisdictions will be required to alleviate impairments they cause outside their own borders. The practical result is that neighboring jurisdictions coordinate to meet each other's TMDL requirements.

There are more subtle ways that regulatory requirements stimulate collaboration. For instance, a looming regulatory burden may provide impetus for collaboration, as organizations try to forestall imminent regulation or prevent it altogether. The best example from my data is the Bay Program's attempts to address Bay impairments through voluntary measures before the 2011 deadline that triggered a Bay-wide TMDL. They were ultimately unsuccessful, yet the looming "regulatory hammer" kept them pushing forward even under difficult financial conditions, as described in the following passage from a 1999 Bay Journal article:

The Bay Program is in a race to meet a new goal: Clean the Chesapeake by the end of the next decade. Unlike past goals, the new one has a potentially harsh backup. If the Bay Program doesn't succeed, the EPA could force far more prescriptive - and potentially costly - nutrient reductions, especially from regulated sources such as wastewater treatment plants, city stormwater systems and animal feedlots. Those approaches could replace the traditional Bay Program approach to nutrient control which has relied largely on voluntary measures and cost-sharing grants, with modest regulatory controls.... These changes are being driven by four letters: TMDL. That stands for "Total Maximum Daily Load," a program that forces detailed plans to be spelled out and implemented to clean up waterways. The EPA has indicated that it will require a TMDL for the Bay if it is not cleaned up by 2011. To head that off, the Bay states are likely to agree in their "Chesapeake 2000" agreement to finish the job by 2010. "It's going to provide us with the backbone that we need to make the cooperative effort work," said Bill Matuszeski, director of the EPA's Bay Program Office. "And I think that we're going to

find it relatively straightforward to set a goal in the context of the new Bay Agreement to eliminate our nutrient problems by 2010." (emphasis added) 136

The consternation over a Chesapeake Bay TMDL did, in fact, lead the Bay States to sign an ambitious Chesapeake 2000 agreement aiming to make the necessary nutrient and sediment reductions by 2010. Although they ultimately missed their target, the decade was marked by major steps forward in aggressiveness towards the problem.

The data included other examples of voluntary programs implemented in an effort to forestall or avoid more stringent regulations. They are often developed and championed by soon-to-be regulated entities and may be of questionable effectiveness. For instance, poultry farmers and environmental officials in Delaware signed a Memorandum of Understanding that instituted voluntary measures for reducing manure runoff, avoiding (or forestalling) the regulatory approach used in neighboring Maryland. ¹³⁷ It is unclear whether these voluntary efforts would be successful.

The motivating effect of a "looming regulatory hammer" is an intriguing concept that deserves further attention. Several interviewees confirmed, from their experience, that the threat of looming regulations creates significant impetus for collaborative efforts and is, in fact, often the driving force. Two quoted conversations below illustrate this idea. The first comes from a leader/teacher at the Virginia Natural Resources Leadership Institute (VNRL), and emerged from a conversation about the newly initiated Chesapeake Bay TMDL.

Rachel: Do you think it's possible to facilitate a collaborative process when you have this, like you said, a gun to the head in terms of regulation?

Interviewee: Yeah. That happens all the time, actually. Yeah. I think that happens all the time. People rarely do things unless there's something that's really strongly driving them and a lot of times what's driving them is the risk of something more draconian

¹³⁶ Bay Journal, September 1999, "Bay program must clean Chesapeake by 2010— or else"

¹³⁷ Bay Journal, March 2001, "Delaware signs voluntary agreement with chicken processors"

happening. So I don't think that's unusual. I think people have known [the Chesapeake Bay TMDL] was going to happen for a long time. ¹³⁸

The second conversation was with a citizen activist working in Loudoun County. It emerged from a more general conversation about how to control rapid land development, and the role of voluntary programs verse regulation and legal action:

Rachel: So you're saying voluntary processes are not going--

Interviewee: They are effective up to a certain point, but after that they basically stop working. Then if you really feel that greater action is needed, it has to be forced on people. It's unfortunate, but true.

Rachel: [Do you think that voluntary processes won't] work unless there's an imminent threat of something--

Interviewee: A big stick of some kind. An outside force of some kind that's basically requiring them to do it.... [Yes], that's been my experience. You can accomplish a lot through a collaborative process, but you also have to have some outside factors that are moving that along, otherwise people aren't going to give up things that involve their own personal self-interest. ¹³⁹

These quotes illustrate some of the interesting and unexpected ways that regulations may stimulate collaboration and points to pathways and questions for future research. An exploration of the other forums, such as financial incentives and plans, and their stimulating effect on collaboration is also warranted.

Wrap up and preview of the next chapter

This chapter was an examination of the context in which harmonizing occurs, based on secondary codes applied to my data. The most interesting result was the prevalence of coordinating organizations as facilitators for INTER-organizational coordination, while INTRA-

¹³⁸ Interviewee #94

¹³⁹ Interviewee #8

organizational coordination tends to be achieved without a facilitating forum. This finding points to the importance of coordinating organizations as facilitators of collaboration under difficult or challenging conditions. To explore this idea, I conducted a thematic exploration of the coordinating organization role, finding that coordinating organizations are able to overcome many obstacles that typically hinder or prevent collaboration.

Beyond the findings presented, a key contribution of this analysis is demonstrating the utility of my hierarchical coding scheme that employs primary, secondary, and tertiary codes. Primary codes capture the concepts of most importance to answering my research questions, while secondary codes capture contextual information. Coding these together so contextual information is physically linked to primary passages sets up a reliable and consistent system for analysis. Tertiary codes may be added on as needed to capture related concepts or new ideas emergent from the data. A similar process may be applied by other researchers, who could insert their preferred codes into the same hierarchical structure.

In next chapter, I present a thematic analysis for the other four benefits of collaboration identified by my literature survey: resource access/exchange, social capital, innovation generation, and reduced/resolved conflict. Relevant themes were pulled from the data to illustrate the nature of each benefit and the processes/mechanisms of collaboration that generate them.

Chapter 8: Thematic Analyses for Resource Exchange, Innovation, Social Capital, and Conflict Reduction Benefits

The most interesting results, and my unique contribution to the collaboration literature, came from analysis of the coordinated action benefit. In chapters 5, 6, and 7 I identified, described, and illustrated a coordinated action process I call harmonizing, explained how collaboration is uniquely poised to produce harmonizing benefits, and explored the context in which harmonizing occurs. I found that coordinating organizations are important facilitators of harmonizing under difficult conditions.

In this chapter, I summarize results from thematic analyses conducted for the other four benefits identified in Chapter 3. For each benefit, I identify and describe key themes related to conceptual development of the benefit, how the benefit is manifested empirically, and/or the unique processes of collaboration that bring it about. There are two reasons for conducting a thematic analysis rather than the structured analysis conducted for harmonizing. Three of the benefits (social capital, innovation, and conflict reduction) yielded a relatively small number of empirical cases as shown in Table 5.1 (Chapter 5), limiting my ability for broad-based conceptual development. The resource exchange benefit emerged in a large number of cases; however, with a wealth of existing theoretical and conceptual development available in the literature, there is less of a conceptual contribution to be made. My contribution is maximized by focusing on one benefit (harmonizing) where my data provided many cases to work with, existing conceptual development was lacking in the literature, and my analysis yielded interesting and innovative results.

Overview of thematic analysis results

Thematic analysis involves sorting and categorizing examples of the benefit using both excel spreadsheets and diagrams. Key themes are drawn out and supported by narratives from the data, mainly vignettes and quotes. Each analysis is based primarily on passages contained within the corresponding primary code; however, some data from tertiary codes is used for clarification and elaboration purposes.

Table 8.1 summarizes the results of my thematic analysis for the four benefits. Themes are divided into two types, each described in its own column. First are themes contributing to conceptual development of the benefit itself: they describe the benefit and how it is manifested empirically. Second are themes that identify and describe the processes of collaboration by which the benefit is achieved.

 $^{^{140}}$ Note that there are no such themes under "innovation generation" or "conflict resolution / reduction" because these benefits are self-explanatory. Also, my data yielded more interesting results on process.

Table 8.1 Summary of results from the thematic analysis

	Key themes	
	Conceptual development of the benefit itself	Processes by which the benefit is produced
Resource exchange/ access	Resource exchange/access overcomes resource constraints and allows organizations to (1) accomplish collective tasks that would be impossible alone and (2) improve the quality or efficiency of collective action.	Different organization types bring distinct types of value to partnership (organizational "niches")
Social capital: relationship building	Social capital built through collaboration leads to institutional infrastructure (spin-off groups, working relationships) applied to solve future problems.	• Inter-personal relationships
Innovation generation		 Involving diverse groups in decision-making. Removing perceived roadblocks by involving "naysayers" in decision-making.
Conflict resolution / reduction		 "True listening" Basic civility Inter-personal relationships

In the remainder of the chapter, I provide narrative descriptions of the key themes for each benefit summarized in Table 8.1, supported by a sampling of passages from my empirical data.

Resource access and exchange

The following proposition was derived from my theoretical exploration of the "resource access and exchange" benefit in Chapter 3:

Collaboration leverages financial, technical, human, and informational resources, expanding the resource base available to solve collective problems and overcoming resource constraints of individual organizations.

This proposition was explored in my empirical data by applying a basic primary code called "Resource exchange: Overcoming constraints" to passages where collaboration clearly overcame resource constraints and led to some improvement in policy decision-making, implementation, or outcomes. Two hundred and forty-three (243) such cases were identified in the data, the largest number of any benefit explored. The data indicate that resource exchange, by overcoming resource constraints, assists organizations in achieving two related benefits: 1) accomplishing collective tasks that would be impossible alone and 2) making collective action more effective or efficient. These are illustrated below with empirical examples.

Theme 1: Accomplishing collective tasks that would be impossible alone

By pooling resources, organizations can achieve policy-related goals that would be impossible, or highly unlikely, to accomplish alone. One example brought up by several interviewees is a program, run through the NVRC, which pools money from various municipalities and water utilities in the NOVA region for radio and television spots on stormwater education. All municipalities with MS4 permits¹⁴¹ are required to conduct stormwater education, and it would be expensive and duplicative for each to pay for media outreach. Instead, they pay into a large pot of money that the NVRC, with input from the municipalities and utilities, uses for joint

¹⁴¹ MS4 stands for Municipal Separate Storm Sewer Systems. MS4 permits are issued from US-EPA or its State affiliate agencies under the Clean Water Act and require urbanized municipalities and Counties to regulate their stormwater runoff. There are several specific requirements in an MS4 permit, including public stormwater education.

messaging; contributions are based on population. Two interviewees praised this program for its sensible use of collective regional resources. "[I]t does not make sense for all of us to do these things separately" said one employee from the City of Fairfax. 142 Another interviewee from Arlington County pointed out that the program allows municipalities to "pool our funds and do more with a pooled budget versus each of us trying to do our own outreach individually". ¹⁴³ An NVRC employee added that the pooling of funds is collectively more efficient: "we are able to get more efficient in that way. That's one of the very large value added things [of NVRC:] working on a regional basis. You are able to get a better scale of economy". 144

More relevant to "overcoming constraints" is the fact that some smaller municipalities simply would not be able to afford high quality stormwater education (i.e. radio and TV spots) without the pooled funds, as illustrated by the following exchange with an interviewee from the City of Falls Church:

Rachel: I would think that's something that you, as a pretty small city, probably wouldn't be doing on your own.

Interviewee: No question. Our cost for [the stormwater education media program] is minimal...somewhere around \$2000 a year for our small jurisdiction. Where Fairfax County probably puts up \$100,000. So you know, for our \$2000 that time on the radio is just like everybody else's. So that's a pretty good deal for us. 145

Land conservation is another area where resource pooling is common and necessary. Frequently, it is private land trusts that identify lands for conservation and work with landowners to orchestrate purchase of the property or the property's development rights. Yet these organizations, often small nonprofits, have few financial resources to purchase land. Instead, they coordinate a variety of potential funding partners, ranging from private nonprofits or

¹⁴² Interviewee #7

¹⁴³ Interviewee #3

¹⁴⁴ Interviewee #42

¹⁴⁵ Interviewee #21

foundations, larger land trusts like the Virginia Outdoors Foundation or Virginia Land
Conservation Foundation, and state and Federal agencies. This process is uncertain, as illustrated
by the following quote from a member of the Prince William Conservation Alliance regarding
the creation of the Merrimac Farm Wildlife Management Area:

the way the will was written, the property had to be sold at fair market value, so we had to go find partners to produce the funding to basically spend \$3 million to buy the acreage. It took 7 years, and [a leader of our organization] talked to probably 20 different potential funding organizations... it turned out in the end it was the state agencies that were willing to partner with the adjacent Marine Corps base Quantico. And between the state agencies and the federal agencies we found the money to purchase the land and create a wildlife management area. [Further], [t]he state agency required a lot of patience, because it took a long time for the deal to fall into place, and we had to deal with the Virginia Land Conservation Foundation, which provided some of the grants, and the Department of Game and Inland Fisheries, which provided some of the money, and since then, for four years, we've been in partnership with the Game and Inland Fisheries, which ended up as the land owner. ¹⁴⁶

Simple resource provision (organization A provides a resource to organization B) may have a similar effect as resource pooling when just the right resource is provided at a critical time. Long-term collaborative relationships are important for this type of resource provision. With such relationships, organizations are implicitly expanding the potential resource base upon which they draw: when an emergency arises, partners step in to provide the necessary resource(s). For instance, a representative of water and wastewater utility in Northern Virginia described how a chlorine spill into the aeration basins of his wastewater facility killed all the microorganisms needed for treatment. With assistance provided by a neighboring wastewater plant, his plant was up and running in a matter of days. The interviewee describes how relationship building before the incident developed the available resource base needed to address the emergency:

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¹⁴⁶ Interviewee #71

There is a lot of cooperation at the plant level between the jurisdictions around here, between the Virginia Water Environment Association, VWEA, and the Virginia Association of Municipal Wastewater Authorities, VAMWA, and some of the committees that work in the [Metropolitan Washington Council of Governments]. We sort of all know each other and see each other on at least a monthly basis. So there is a lot of cooperation at that level. To give you an example we had a disaster in May 2008. We had a very intense storm that floated an empty chemical tank full of chloride that was attached to three full tanks [and] when it floated it ripped the piping off of all of them and we dumped all three tanks into... the aeration basins where the microbiology does its work. We basically killed everything in about 15 minutes. Other than being flooded that's about as bad as it gets in our business. I called up [Person X] at the [Y] County plant that is about eight miles to the north of us, said "[Can] you spare some trucks? I'll have an operator at the front gate in ten minutes to direct your truck." We were... back in compliance and treatment in two days. It would have taken weeks without that kind of cooperation from a neighboring plant.

Organizations may also collaborate in order to acquire the authorities needed to pursue desired projects. "Authority" to do a certain task is not a typical resource like cash, labor, or technical assistance; yet without authority, a task is clearly impossible. For instance, local governments in Virginia are limited in their ability to spend public money for improvements on private property because of a constitutional prohibition against using public tax dollars to benefit individual tax payers. This prohibition limits local governments' ability to implement subsidy programs for urban BMPs or pay for stormwater demonstration projects on private land. Local governments get around this issue by providing grant funding to a third party, like a nonprofit or a SWCD, to implement such projects. The following quote is from a representative of the Northern Virginia SWCD, which often plays this intermediary function for Fairfax County:

[The County] can do a lot on libraries and schools and right of ways and things, but...there's a lot of things that can happen on church properties, and individual properties, and all that. And that's where we come in. Because we can help make those things happen. A church can go after a grant to do a really wonderful stormwater demonstration project that is parking lot, and roof, and all around. And then they need some technical expertise to help them do it, and that would be us. The County can't really do it. It can't put its money [on private property].

¹⁴⁷ Interviewee #35

¹⁴⁸ Interviewee #62

For local governments, working on private land is also difficult because of access issues. Even if they manage to install an innovative new stormwater project on private land, access to the project afterwards for monitoring and maintenance is not guaranteed unless the landowner grants an easement. Because of this difficulty as well as the constitutional limitations, local governments tend to use public properties, such as schools, libraries, and government properties for stormwater improvements and demonstration projects. However, there is only so much public land for these purposes and it may not coincide with the areas in most need of stormwater improvements. To expand the reach of their stormwater programs, local governments rely on partnerships with third party organizations and private landowners.

Note that these examples illustrate how an expanded resource base was established through relationship-building over time. In times of crisis or emergency, or when it becomes clear that a task is impossible without help, organizations are able to call upon their partners.

Thus, although the resource mechanism in many examples is a simple provision (organization A gives to organization B), it occurs in the context of a larger (potential) inter-organizational resource base accumulated over time.

Theme 2: Improving collective action

This theme posits that resource exchange *improves* collective action by expanding the resource base. Unlike the first theme, which is about **achieving** collective action, this theme focuses on making collective action more efficient or effective.

Good, trusting relationships are one resource that, when available, consistently improves collective action. Relationships and connections are valuable commodities that certain

organizations "bring to the table" in a collaborative partnership and can be utilized by the partnership to increase the chances of policy success.

For instance, successful implementation of State and Federal agricultural best management practices (BMP) programs is heavily dependent on close personal relationships between farmers and the local Soil and Water Conservation Districts (SWCDs). Along with Federal NRCS District Conservationists, SWCDs are on-the-ground implementers of the State and Federal BMP programs described in Chapter 2. He while financial support comes from the central USDA office and the State Agricultural Departments, and US-EPA has some regulatory leverage, the Federal and State offices lack interpersonal connections with farmers and are rarely trusted. SWCD employees and District Conservationists, on the other hand, live in the same communities, attend the same churches, and send their children to the same schools. As one SWCD employee put it, "We're the front line. We know the local community. We know the farmers. We know the properties....We are the faces that the farmers will recognize." 150

Trust generated through such inter-personal relationships opens farmers up to appeals to experiment with innovative practices. Another benefit relates to enforcement. In the case of County or municipal government laws, for instance, the SWCD and the County/municipal government can "play a good cop/bad cop" routine which is generally just as effective as strict enforcement in addressing violations and avoids aggravating already adversarial relationships between farmers and government. An exchange with a one SWCD employee explains this routine:

Interviewee: If somebody calls the county and complains about an activity [happening on a] farm, the first thing they'll do is pick up the phone and call us and ask us "Do you know what's [happening] on that property? Do they have a conservation plan? What can

¹⁵⁰ Interviewee #69

¹⁴⁹ USDA NRCS District Conservationists also work closely with farmers. Although they are Federal employees, they work in local districts and are often embedded within SWCD offices.

you tell us about it?" If it's an agricultural issue, a lot of times they'll want to back off immediately and trust us to work with the farmer.

I think a lot of times we can get things done and we're a little bit more approachable since we're non regulatory. I think the county might see that as a value, that we're less threatening. They can be the bad guy and we can actually go with them to look at something. They can be the bad guy and we can be the good guy. And the result would be the same. We would still get BMPs on the ground or address whatever their concern is.

Rachel: Without getting people as upset...

Interviewee: Yeah. Yeah. Exactly. We're here to help. 151

Land conservation is another policy area where trusting, inter-personal relationships are a crucial commodity. The funding to purchase land or development rights comes from a variety of sources, including large nonprofits and Federal and State bureaucracies. However, the delicate and sensitive task of working with landowners is often taken on by small, locally-based nonprofit land trusts that have the close, trusting relationships with landowners necessary to see the process through. Large, impersonal agencies or organizations often cannot garner the level of trust necessary to maintain these critical relationships under complicated and stressful conditions related to family dynamics, money problems, or disagreements regarding the final use of the land. One land trust representative described what goes into this relationship development:

People know that they can come to us, they can discuss their family finances, their long time wishes, they can sit down and talk to us about things that are difficult to put into tangible means. Like how their grandchildren feel about the decisions they are making, their emotions about what the property meant to them with their parents. Those are very sensitive things that when people are dealing with land, it's very, very personal. They have to have the confidence in you that you can appreciate their feelings.

Emotions run very high when people part with or impact or in some way restrict the future use of their property. You have to be very sensitive to that and that is one of the things that land trusts [do well]. They get to know the family, they can sit on a log in the woods and listen to them tell stories. That is a hard thing for other entities to do. And yet it is a very important part of the process. ¹⁵²

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¹⁵¹ Interviewee #69

¹⁵² Interviewee #64

Another resource that improves collective action is the right type of knowledge and expertise. Since no one organization has expertise in all areas needed to address the problems or issues they face, partnerships are critical. For instance, the Virginia Outdoors Foundation (VOF), a quasi-State agency that conserves large parcels of land in the state, depends on the State Department of Historic Resources whenever they conserve a property with historic homes or other sites. As described by one VOF employee, "I have no expertise on what the gutters should look like [on a historic house]." ¹⁵³ The partnership involves either co-holding the easement or splitting the easement so that the Historic Resources Department takes the house and VOF takes the land around it.

My interviewees recognize the need for gathering the right expertise during decision-making or planning processes. Without participation from experts in all fields relevant to the decision at stake, or the plan being created, mistakes are made, issues are overlooked, and opportunities are forgone. One Fairfax County employee, for instance, told me about the process of developing energy-efficient building standards for a large redevelopment project for Tyson's Corner. Because his main area of expertise is land use planning, not energy, he gathered people from around County government who run and operate buildings and brought them into the planning process. The result, he feels, will be a proposal that is "much stronger from a technical standpoint" than he and his usual team could develop:

One of the challenges we have is how do you redevelop a very successful area economically into something that is more efficient from an energy standpoint? So I posed that question to our energy experts. I'm not an energy person. I'm a land use person, an environmental person, a little bit energy but not a whole lot. I'd be dangerous if I tried to take this on myself, but hey I've got people who run buildings and operate buildings. They know how buildings work. They know what's possible. They know what's not possible. Why don't I get this group together and figure out what sorts of things we

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¹⁵³ Interviewee #20

should be asking our developers in Tyson's to do to redevelop their sites? What's a reasonable list of things to be asking for? We're just starting that effort. We just had our first meeting yesterday on that.

I think that's going to bear some fruit because we have people who have the day-to-day expertise that we lack working on this. We're educating them on the land use process and sort of letting them know well how this process works, where the opportunities lie procedurally to pursue some of the ideas. I think in that collaboration we're all going to learn about a lot of what we do, but also I think develop some implementable recommendations that...will be much stronger from a technical standpoint than anything any of us could have done independently. ¹⁵⁴

Theme 3: Organizational "niches" defined by resources

In most cases, successful resource exchange was achieved via a process I call "discovering organizational niches", i.e. discovering that different types of organizations bring unique and distinct types of value to a partnership. In ecological terms, this could be conceptualized as organizations occupying unique "niches", whereby each organization has a unique role to play in the achievement of collective goals. Through collaboration, organizations learned about each other's particular strengths. In response, they turn to particular partners to help them achieve certain goals, or divide labor so each organization works towards its strengths and avoids its weaknesses.

The broad concept of "organizational niches" came up in almost every interview and often without prompting. Interviewees intuitively knew that different organizations serve unique purposes; often they plan their collaborative partnerships to engage the right organizations, with the right resources, at the right time. This broad idea was expressed by one interviewee using the analogy of a pot luck dinner:

Like any collaborative project, I think people come to the table and they all have different things they can offer. It is like a pot luck dinner, maybe I like to make cakes and maybe you really like to make that bean salad that is so good. I think it is that type of thing. The NGO's offer a really specific niche whether that is a technical niche or the ability to

¹⁵⁴ Interviewee #60

contact [people] on a grass roots level for information delivery. Or whether it is a [government] agency that focuses on [forestry or bugs or economic development or transportation]. I think everybody brings their piece to the table to get it out there. 155

An organizations' niche is, in large part, defined by the types of resources it is uniquely qualified to provide. For instance, my interviewees consistently told me that nonprofit citizen groups are uniquely suited to provide a certain suite of critical resources, namely: non-technical and semi-technical labor, advocacy support, and political support. Other organizations, recognizing the value of these resources, seek out partnerships with nonprofit citizen groups that take advantage of them.

In response to hearing this idea expressed many times in my interviews, I created a tertiary code called "Organizational Niches" which is filled with general quotes like the one above and specific examples of the "niches" occupied or "roles" played by particular types of organizations. After data analysis was complete, there were 254 quotations in this code. These would have to be reviewed and recoded before doing significant empirical analysis on organizational niches, a project for future research. For instance, passages involving different types of organizations could be grouped together to examine their "niches" in detail, and to explore how these different niches complement each other. Ideally, one would examine the larger "ecosystem" of organizations and how the niches fit together to produce positive policy outcomes. A query that looks at the correlation between the secondary codes "Resource Provider" and "Resource Type" would complement the analysis by providing numerical data on which resource provider groups are most often associated with certain resource types.

In addition to empirical analysis, the concept of "organizational niches" may be applied to advance theoretical development of the resource exchange benefit. Resource exchange has

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¹⁵⁵ Interviewee #46 (2008)

traditionally been looked at through lenses of economic exchange theories or theories of power and dependency. Examining resource exchange through a theoretical lens that emphasizes organizational ecology, particularly the "niche" concept, may yield new insights.

Social Capital: Building relationships and institutional infrastructure

The literature on social capital, explored in Chapter 3, indicates that relationships and institutional infrastructure built through collaboration extend the work of the initial collaborative partnership (Innes and Booher 1999; Provan and Milward 2001) and allow partners to tackle policy problems separate from and unrelated to the original problem (Imperial 2005). This analysis led to the following proposition:

Collaboration generates social capital among diverse organizations, building relationships and institutional infrastructure that can be used to address future problems.

The proposition was explored in my empirical data by applying a basic primary code called "Building social capital / relationships" to cases where social capital built through collaboration clearly led to formation of new relationships or institutions useful to future policy-making. Sixty-two (62) such cases were identified. A thematic analysis of these cases revealed that social capital built through collaboration leads to two types of institutional infrastructure— spin-off groups and working relationships. Further, the process most central to building institutional infrastructure is the development of inter-personal relationships. These themes are illustrated below with empirical data.

Theme 1: Development of institutional infrastructure – spin off groups and working relationships

Innes and Booher (1999) describe how "spin off" partnerships often form after the primary collaboration process is completed, drawing upon relationships, shared meanings/goals, and social capital built during the initial process. They may continue to carry out the purposes of the original partnership or apply their new-found collaborative skills to other problems.

Examples from my data include spin-off partnerships emerging from the Virginia Natural Resources Leadership Institute (VNRLI). The VNRLI runs leadership certificate and training programs emphasizing the importance of productive dialogue and consensus-building to solving Virginia's natural resources challenges (VNRLI 2012a). Although it is a training experience for participants rather than a collaborative process "in the wild", participants model collaborative problems solving and conflict resolution as part of their training (VNRLI 2012b). A leader/teacher in the VNRLI program described two spin-off partnerships between organizations with diverse, conflicting interests which would not have been possible without the relationships built during VNRLI programming:

We've been told [that] the people who've gone to our program [are] reaching across boundaries to people that they wouldn't have done otherwise. I can give you two very quick examples. One - in April we were in the coal mine country in Virginia, in Southwest Virginia and someone from the Nature Conservancy had gone through our program and right after that he began a forum for science for the Clinch River. He now has an ongoing representative group that includes people from the coal industry and the people from the regulatory agency. Both of those, too, by the way, with a lot of suspicion and conflict between themselves and so that's something that would not have happened had this program not happened.

The second example was a coalition of environmental and agricultural organizations called Waste Forum and Waste Solutions focused on problems of agricultural runoff. According to the

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¹⁵⁶ Interviewee #94

interviewee, this group— which also developed out of relationships formed among VNRLI participants— includes a wide variety of agricultural interests and some powerful environmental groups.

Enduring working relationships developed through collaboration were a more common occurrence than formal spin-off groups. Some relationships were utilized at a later point to improve policy decision-making or implementation, while others have potential to do so. One example derives from my interview with two employees of the Interstate Commission on the Potomac River Basin (ICPRB). ICPRB had mediated a "shared visioning" process among groups using the Savage Reservoir for diverse (and often conflicting) recreational activities such as trout fishing, canoeing, kayaking, and whitewater rafting. Relationships developed during this process were critically important when the gates used to release water into the Savage Reservoir needed to be replaced. To do so, the reservoir had to be drawn down twice, once for planning purposes and a second time for the gates' replacement. The network of user groups previously pulled together for shared visioning became an essential "outreach mechanism" for ICPRB to inform users what was happening, squelch rumors, and gather input when needed:

Interviewee 29a: We were able to utilize the group that had been pulled together and was working together... as the outreach mechanism that was utilized to...keep everybody informed about what had to be done with these gates on the reservoir outlets. And it was a godsend, very honestly, that we had that group pulled together because it really made communication smooth and easy. It made it easier to let people know what was going on. We knew who to talk with and they knew who to talk with if they had questions, if rumors developed or anything along those lines. So it did make that process go a whole lot easier for us as a facilitator [as well as] for the State of Maryland, for the folks at the Upper Potomac River Commission, [and] for the Corps of Engineers who were involved in the thing. Everybody was able to understand and communicate better and it went, in my mind, very smoothly. Thanks to the fact that we had this group pulled together. Thanks for the fact that we were already communicating,...I think it made things a whole lot smoother. ¹⁵⁷

157 Interviewee #29a

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The ICPRB example illustrates the idea, prevalent in the literature, that working relationships developed through collaboration can be used to tackle policy problems separate from and unrelated to the original problem (Imperial 2005; Connick and Innes 2003). It is not predictable how these working relationships will be useful in the future.

When working relationships occur over a long period of time, an enduring institutional infrastructure for collaboration is created which facilitates future collaborations. ¹⁵⁸ For instance, several interviewees told me that the State of Virginia was expected to use Planning District Commissions as the organizational forum for development of Virginia's Chesapeake Bay TMDL plan. Planning District Commissions like the Northern Virginia Regional Commission (NVRC) are regional organizations chartered under State law to conduct inter-jurisdictional planning and programming. Most have been actively coordinating policy in their regions for decades. As described by one State employee, they have developed working relationships and institutional infrastructure for collaboration that the State regional offices do not have:

each PDC is made up of certain jurisdictions so you've got that regional effort there and they're already used to working together. So instead of creating a new entity that can work with multiple jurisdictions...Take NVRC for instance- they are already working with Loudon, Prince William, Fairfax, Arlington, and the cities thereof. So they already have a relationship built with those local governments, so they don't have to create a new relationship....I think the model is a good model because they do have the relationships built. And I think it's worth us putting some money to the PDCs to have them do it because, frankly, here in our regional office we don't have the infrastructure. 159

Theme 2: Enduring institutional infrastructure is built through inter-personal relationships

¹⁵⁸ Building institutional infrastructure is not unique to collaboration. For instance, when regulatory enforcement is conducted over a long period of time, routines and relationships are solidified that facilitate and improve future regulatory enforcement. However, I felt it was important to mention because collaboration can be particularly difficult when there is little institutional infrastructure available to work from.

¹⁵⁹ Interviewee #9

My data indicate that social capital, and the enduring institutional infrastructure that goes along with it, is built through inter-personal relationships. Several interviewees emphasized how good inter-personal relationships allow them to work effectively with partners. The line between personal and professional relationships is often quite thin, as expressed by a State employee who has worked closely with local Soil and Water Conservation Districts (SWCDs) for almost three decades:

I've been here 27 years, so the relationships I've built with these [SWCDs] is beyond what we can expect the State to have with them....After a period of time, it moves from a purely professional relationship to somewhat a personal and professional relationship. And that's just a matter of time, and it's a matter of trust. You don't let people down over a period of years, they grow accustomed to knowing that, or comfortable with that you'll give them good advice, that kind of thing. That comes with the person. I mean, that's part of who you are as a person. ¹⁶¹

A common and illustrative relationship, discussed above, is between SWCDs and farmers. SWCD employees work extensively with farmers on installation and maintenance of best management practices (BMPs) and have, over time, developed close and trusting relationships. The Federal and State offices that fund and enforce BMP programs, on the other hand, lack the interpersonal connections needed to implement them. In the following quote, a District Conservationist in Northern Virginia compares his ability to work with farmers in the region to that of US-EPA:

The one thing that we do bring to the table is good relations and good contacts within the community. I know who the farmers are that are creating the problem, and I can talk to them. I may not convince them that they need to change, but there are a lot of agencies that don't know where to start. If you take EPA and bring them into Loudoun County, what are they going to do? They don't know anybody. They don't have any local people

¹⁶⁰ The focus of my research is on inter-organizational rather than inter-personal relationships. However, inter-organizational coordination does not occur without people forming relationships with each other; thus it is important to explore this phenomenon in my data.

¹⁶¹ Interviewee #9

here, and if they put somebody here, it'll be a learning curve of many years before they could develop the contacts that the Conservation District has. 162

The same sentiment was expressed from the "other side" by a Virginia Farm Bureau representative and former farmer. Like the District Conservationist, he compared the positive, productive relationship farmers have with the SWCDs to the lack of trust they feel towards US-EPA. Again, much of the difference is inter-personal:

Rachel: Could you tell me a little more about...the relationship with the County Soil and Water Conservation Districts, it sounds like that's a pretty positive and constructive relationship.

Interviewee: It is....Generally it is because they're local, because we know those folks. We know where they live, we see them at church or community functions. We know those people. On a local level I think it is easier to develop those relationships versus somebody that comes in from the state or the federal government you have no relationship with, you don't know what kind of person they are, that kind of stuff... There is no trust with EPA because we don't know what it is they're looking for or what they're going to do. 163

In building enduring working relationships, common courtesies – such as going to meet someone in person on their own "turf" and making "small talk" with people whom you might have cause to work with in the future – are critical. Experienced and successful policy entrepreneurs both inside and outside government assured me that these common courtesies are not a minor factor. For instance, a high level administrator at the Virginia Department of Conservation and Recreation stressed the importance of the "human element" and assured me that "what you learned in kindergarten is what you need to learn when you're a professional" ¹⁶⁴. A regional office employee of DCR told me that he always makes an effort to meet potential collaborators

¹⁶³ Interviewee #38

¹⁶² Interviewee #6

¹⁶⁴ Interviewee #73

"on their turf, so they're comfortable". ¹⁶⁵ An environmental activist in Fairfax County was surprised by the reluctance of some members of the environmental community to make "small talk" with an elected official, considering they might need her help in the future. She told the following story:

I went to a meeting with the supervisor [of a Northern Virginia town], who is a lovely woman. I was there with five or six other people in the environmental community. They sat in their chairs and made no attempt to talk to staff or to be friendly. I thought, here's a perfect opportunity, but I couldn't say anything. There's the Chief of Staff right there, and I went up and talked to her. I introduced her to a few people, but they didn't know what to do and so they sat down. I thought, you could have asked her how her kids were doing, or anything. Because when you call back, half the time you aren't going to get to talk to [the Supervisor] but you could talk to [the Chief of Staff]. These simple little personal things that I think.... that have nothing to do with the issue and everything to do with the potential to work with people and get it done. If I were to say one thing-- and I don't know that this is necessarily unique to the environmental community, I would imagine it's true for a lot of communities – [it's] that people don't recognize the value of human relationships. ¹⁶⁶

Developing good inter-personal relationships is important not just for the effectiveness of one's current work; it also establishes a base for future collaborations. If your collaborators have had a positive experience, they will be willing to work with you again; if not, they will avoid you in the future. One interviewee talked about how her organization is always careful to give credit to their partners whenever there is a success because "if their feelings get hurt, they are not going to be back." ¹⁶⁷ Another interviewee (an environmental consultant) suggested that good interpersonal relationships with the environmental permitting agencies, developed by working with them over a long period of time, makes it easier for her to get assistance with permit processes now and in the future. ¹⁶⁸

 $^{^{165}}$ Interviewee #2 – First interview. I did two separate interviews with this interviewee. He also provided some written responses to questions.

¹⁶⁶ Interviewee #48 (2010 Interview)

¹⁶⁷ Interviewee #62

¹⁶⁸ Interviewee #53

Innovation Generation

The following proposition was derived from my theoretical exploration of the "innovation" benefit in Chapter 3:

Collaboration generates policy innovations as diverse organizations share and jointly process their varied experiences, ideas, and information, often through intense dialogue and negotiation.

This proposition was explored in my empirical data by applying a primary code called "Innovation Generation" to cases where an innovative idea or practice clearly emerged from a collaborative relationship. Twenty eight (28) cases were identified in the data. ¹⁶⁹ My empirical analysis and thematic discussion below focus on processes/mechanisms by which collaboration leads to innovation. ¹⁷⁰

Theme 1: Innovation is generated by involving diverse groups in decision making

A consistent finding across collaboration literatures is that collaboration among organizations with diverse perspectives, knowledge, and experience leads to innovation. Diverse groups bring

¹⁶⁹ Considering the prevalence of the innovation benefit in the literature, this was surprisingly few examples. Data limitations offer at least a partial explanation. For a passage to qualify, it must be clear from the text that collaboration led to or significantly contributed to the development of the innovation. Bay Journal data rarely makes this connection explicit, even when innovations are discussed. Even interviewees are not always sure how an innovation arose: Whose idea was it? Was it a new idea or an old idea that just gained traction that day? Possibly the way to best capture innovation generation via collaboration is to be present as they occur (direct observation), which was not an efficient way for me to collect the numerous "snapshots" of collaboration required for my analysis.

¹⁷⁰ Unlike social capital or coordinated action, innovation benefits themselves are pretty self-explanatory. It is usually possible to "know innovation when you see it". Thus, I focus here on the processes of innovation generation rather than defining or describing the benefit itself.

diverse ideas to the table for debate and discussion. Diversity also means there are always participants willing to challenge others' assumptions (Innes and Booher 1999). As described by an environmental planner in the Northern Virginia region, getting people with different types of expertise together can lead to "aha moments":

I think we've had those "aha" moments in our Watershed Committee meeting ... certainly we all benefit from the different areas of expertise. When a civil engineer sits down a natural resource manager and sits down with a HOA president, diversity definitely leads to those types of situations where we all recognize the value, or where we all come to look at things in a different light. ¹⁷¹

My data indicate that collaboration among groups representing a mix of policy sectors leads to "aha" moments, opening the door to creative joint programming. One interesting example occurred in Four Mile Run, a multi-jurisdictional restoration project coordinated by the Northern Virginia Regional Commission (NVRC) that aims to rehabilitate a heavily altered urban stream and its riparian zone. This project is primarily focused on flood control, stormwater, and water quality; however, the NVRC and jurisdictional partners have been attuned to other concerns such as recreation and aesthetics. This open-mindedness took a truly innovative turn when one participant suggested the group apply for a National Endowment for the Arts grant to include public art in some areas of the restored watershed. They were awarded the grant and now the project is the only stream restoration I have heard of that aims to improve the attractiveness of public space by adding artistic visual elements.

An organization called Arlingtonians for a Clean Environment (ACE) reaped a significant innovation dividend by mixing policy sectors. ACE is an independent 501(c)(3) environmental nonprofit closely associated with and partially funded by the Arlington County government. One of their unique cross-sector partnerships is with the nonprofit organization

¹⁷¹ Interviewee #70

¹⁷² Interviewee #10

Rebuilt Warehouse, which employs recently released prisoners to do environmental sustainability work for a living wage. Until discussions started with ACE, their main service was removing items from homes under renovation that could be reusable or resalable, and reselling them at a warehouse. With limited demand for this work, the director of Rebuilt Warehouse was looking for more options. ACE, meanwhile, has a popular program called the Green Living Challenge in which Arlington neighborhoods compete to be the most "green" through home and property BMPs such as installing rain barrels and rain gardens, switching to energy efficient appliances, and caulking windows to conserve energy. When the Director of Rebuilt Warehouse, a regular presenter at ACE's annual Green Living Expo, approached ACE, they came up with an innovative partnership idea: Rebuilt Warehouse could be "contracted" by these neighborhoods to install Green Living BMPs. This would satisfy the neighborhoods' desire to be environmentally friendly and provide appropriate labor and job training for Rebuilts' formally incarcerated laborers. 173

Another cross-sectoral partnership was developed between ACE and a nonprofit organization called Arlingtonians Meeting Emergency Needs (AMEN) which provides emergency funding for people who can't afford their utility bills. AMEN realized that a lot of these emergency funds (i.e. tax dollars) are going to units that are not energy efficient. A Board member of AMEN approached ACE about this energy efficiency problem and the two groups had been meeting for about four months, talking about common ground and opportunities to collaborate. Around this time, Federal block grant housing money became available through the Arlington County housing department, and energy efficiency was one of the grant goals. The two organizations applied for, and won, a grant for a pilot project which would train volunteers to help low income people weatherize their apartments and reduce their energy bills. This project

¹⁷³ Interviewee #87

had just started at the time of my interview, and the member of ACE I spoke with was excited about the opportunity to approach energy efficiency problems from a unique point of view, as well as the educational opportunities of getting new groups of people (low income people and property managers) interested in energy efficiency.

Other than the fact that cross-sectoral partnerships led to innovation, there are two points to pull out from this pair of stories. First is the connection between social capital/relationships and innovation generation. The partnership with Rebuilt Warehouse came about because Rebuilt had a booth at ACE's Green Living Expo. Casual conversations between "booth sitters" eventually led to brainstorming and this idea for innovative joint programming. In the second case, an AMEN board member with a special interest in energy efficiency approached ACE and began casual conversations about common interests over a period of four months, priming the organizations to be on the "lookout" for innovative joint programming opportunities.

A second point is the connection to harmonizing. In both cases, problems of energy efficiency are brought outside of the exclusive realm of environmental policy and useful connections to job training (in the case of Rebuilt Warehouse) and low income housing (in the case of AMEN) are made. This more comprehensive view of the problem leads to innovative solutions that would not otherwise be possible, or even conceivable. In fact, ACE's efforts are forcing County departments to coordinate where they would not have otherwise, leading to innovations that benefit the County as a whole.

Theme 2: Removing perceived roadblocks by involving "naysayers" in decision-making

Collaboration can lead to innovation generation by *directly addressing* all of the reasons why, according to skeptics, innovation is "impossible" or "could never happen". This point arose multiple times in my data and is a unique contribution of my empirical analysis.

I interviewed the director of a non-profit watershed partnership who was instrumental in organizing a roundtable negotiation process among environmentalists and developers. This process aimed to change local government codes and ordinances to deal more effectively with stormwater. He described this idea of "removing perceived roadblocks" eloquently:

You know, everybody had been [talking about this problem whereby] people would go to [stormwater or low impact development] workshops in these counties and everybody would come back saying yes, that's a great idea, we should do some of that stuff, storm water or whatever. And I liken it to this process where they're driving home from the conference and they're energized when they get in the car and by the time they get out of the car and back to work, they've identified a list of ten things that would get in their way. Oh gee, the fire department would never let us do that on the cul-de-sacs and the health department would never, and VDOT would never let us do this.

So the idea with this consensus process was to make a list of all of those people that we would say would never let us do that in the three counties and then get them all in a room together.... And we got them together over the course of a year and said hey, we want to craft some model development principles that we can all sign onto and at the end of this exercise, this is a consensus process and we want you to be able to sign your name to it....

But we had those people there...the transportation department and the fire people and the health department and all those people who supposedly would never let things happen. And then we had a pretty actually — we had some really spirited dialogue, broke out into different kinds of — I think we had one working group on streets and parking lots and another on, I forget how we broke it out, but we had the Builders Association, all the key stakeholders. And in the end, we made some real progress. 174

In this case, a well-designed and executed collaborative process was able to accomplish what years of "business as usual" was unable to. A set of proposed ordinance changes for several municipalities in the region were brought before County and City legislatures with the consensus

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¹⁷⁴ Interviewee #65

agreement of a variety of interests, including developers, environmentalists, and local and state government departments that had previously been thought of as "obstacles" to change.

Note that no truly new ideas were generated by this collaborative process. There may have been small process innovations, but the main contribution was not to generate some new-fangled solution but to systematically knock down obstacles that participants perceived to be keeping them from adopting innovations. This process of knocking down obstacles is critical in public policy, where government actors are reluctant to adopt new ideas that might fail or get stymied by other agencies' standard operating procedures. Another interviewee identified this problem and described how her organization, the Northern Virginia SWCD, helped Fairfax County overcome its reluctance towards a road project with significant stormwater innovations. There are many parallels to the roundtable example described above:

Interviewee: I think it took years and years to gently encourage the County to try to put some really creative stormwater controls in on a road project. We were told it would never happen, that the state DOT would never go along with it. We kept hearing all the roadblocks, but we solved it.

Rachel: So how did you do that?

Interviewee: We found out what the problems were. VDOT said: "We don't want to have to maintain something that we don't know how to do it. We don't want anything new. And what if it fails? What's the plan B?" So we solved the first problem about maintenance by bringing in a research group that was willing to maintain it for five years while they developed good maintenance specifications. And it was a group, it was actually the Research Transportation Council that is funded by VDOT, so they trusted them. And the County was getting a lot of pressure... the County was going to pay for the road project in order to get these things incorporated into the design. The problem was, once it was done, we wanted to VDOT to accept it. So it was important to address any of VDOTs concerns so they would ultimately accept it.

Then we had to convince the County to do a design, and they said VDOT will never accept, so we brought in the head engineer from Richmond who said: "Yes, it is fine. You can take care of the maintenance problems." We waited almost five years to find sort of the perfect road. It was across from a parkland so people were feeling that if anything didn't work there was going to be land to go out and put something else on if they had

to.....So we kind of found out what the problems were, what they were upset about, and [fixed it]. 175

Note that a persistent, smart, and trusted coordinating organization is critical to the process of "knocking down perceived obstacles". There must be significant and sustained communication between the actors who do not trust each other to follow through on the innovation; a good coordinating organization maintains communication and verifies that all actors are willing to adjust their standard procedures to allow the innovation to move forward.

Reduced / resolved conflict

The following proposition was derived from my theoretical exploration of the benefit "reduced/resolved conflict":

Through interactive dialogue among organizations, collaboration breaks policy impasses and reduces the use of adversarial practices among parties in conflict.

This proposition was explored in the empirical data by applying a primary code called "Conflict reduction/resolution" to cases where conflict was clearly reduced or resolved, policy impasses were broken, or adversarial practices were avoided due to a collaborative relationship. Twenty-four (24) cases were found in the data. ¹⁷⁶ My analysis and the thematic discussion below focus

¹⁷⁵ Interviewee #62

¹⁷⁶ This relatively low number of cases was surprising considering the emphasis in the literature on the conflict resolution powers of interactive dialogue. There are at least two data-related reasons why I may not have found many examples. First, Bay Journal data is not well-suited to identifying conflict resolution benefits; as a news source, it emphasizes events such as the passage of new laws/regulations, development of plans, or issuance of reports. It is less likely to explore the dynamics and effects of interactive dialogue. Second, I did not specifically select cases of conflict resolution. Scholars focused on conflict resolution tend to interview multiple participants involved in a small number of collaborative processes where conflict resolution occurred or was expected to occur. In this way, they glean detailed data about how collaboration changes participants' interrelationships over time. My

on processes / mechanisms by which collaboration helps to reduce or resolve conflict, since these were the most compelling themes to emerge from the data.¹⁷⁷

Themes emergent from my empirical data reinforce the idea, prominent in the literature, that collaboration reduces conflict levels by repeated, positive, and civil interactions that reduce the likelihood of opportunistic behavior and foster respect and consideration (e.g. Gray 1989, Innes and Booher 1999). In particular, my data highlight the importance of the following aspects in reducing conflict: 1) the collaborative process as a venue for *truly listening* to the "other", 2) civility and civil interactions, and 3) developing inter-personal relationships. ¹⁷⁸

Theme 1: The importance of truly listening to the "other"

One emergent theme was that progress could be made if coordinating participants with different views <u>truly listened</u> to each other. Interviewees stressed the importance of understanding perspectives, needs, and constraints of others, and feeling that others understood one's own.

With a better understanding of the "other", participants are poised for joint problem-solving.

This sentiment was expressed by a representative of the Virginia Natural Resources

Leadership Institute (VNRL), which runs leadership training programs emphasizing productive

dialogue and consensus-building as a means to solve Virginia's natural resources challenges

(VNRLI 2012a). I asked which skills learned by program participants are most useful to guide

approach, on the other hand, was to select a variety of "snapshots" of collaborative relationships that may or may not have involved conflict resolution.

¹⁷⁷ The benefit of reduced conflict by itself is pretty self-explanatory. Thus, I focus here on the processes of conflict reduction rather than defining or describing the benefit itself.

¹⁷⁸ The themes discussed here are not new. Similar ideas and findings are common in literatures on conflict resolution, alternative dispute resolution, and negotiation and in works by public management scholars who draw upon these literatures (see, for instance: e.g. O'Leary and Bingham 2003, Gray 1989, Susskind and Cruikshank 1987, and Bingham and O'Leary 2006. What I add are empirical examples of these themes pulled from a rich data set. Further, because of my broad definition of collaboration, my data include a wider variety of collaborative arrangements that go beyond narrower definitions posed by conflict resolution scholars.

them in future collaborative work. Of the three skills he mentioned, one related to "truly listening":

I think the other skill is the ability to meet with other people and hear and understand what their goals are, what their interests are without engendering more conflict, without getting upset, being able to do that in a way that you're actually able to hear and listen and understand and sometimes build actually a trusting relationship with people. 179

A collaborative process that seemed to engender true listening among organizations with divergent interests was "Builders for the Bay". This program, developed by the Alliance for the Chesapeake Bay, brings together local government officials from various departments—along with developers, environmentalists, and other interests— for roundtable discussions on municipal or county stormwater ordinances. Although the program is led by an environmental organization, the National Association of Homebuilders and its local affiliates are actively involved. In the following quote from a May 2005 Bay Journal article, an employee of the Alliance discussed how Builders for the Bay achieves greater understanding among environmental and development interests:

Everyone shares their perceptions about Better Site Design principles, and we really talk through what's real and what's perceived," said Devlin. "It works because we talk in a neutral environment, without defending a particular site or place. They also appreciate having third-party facilitation because of interests and agendas at the local level (emphasis added). 180

The listening that occurred in these interactive dialogues led, in some cases, to consensus agreement on code and ordinance changes. The May 2005 Bay Journal article quoted above references a similar process that took place in the Rappahannock watershed in 2001, which

¹⁷⁹ Interviewee #94.

¹⁸⁰ Bay Journal, May 2005, "Builders group has designs on developing consensus for the Bay"

successfully incorporated low impact development (LID) ordinances into city and County codes. Harvey Gold, of the Fredericksburg Home Builders Association, describes how surprised the County officials were to see environmentalists and builders arriving together to support the same ordinance:

"We worked hard to develop a workable, meaningful ordinance. Then we marched together to the public hearing. One of the county people running the hearing commented that they had never seen an environmental group and builders organization so supportive of each other," Gold said. ¹⁸¹

Effects of "truly listening" also occur through everyday collaboration. One example from my interviews was the high level of respect created between two Loudoun County employees with very different missions and perspectives. The first interviewee supports commercial developers in her work for the Department of Economic Development, while the second reviews new developments for environmental compliance. The development-focused interviewee recommended I interview the environment-focused interviewee, praising him for his willingness to truly listen to and understand the perspective and constraints of developers in the County:

he's on a lot of these different groups that participate in representing the environmental view on behalf of the county... but he also is making a lot of crossovers to really spend time with economic development to try to understand our points of views. And talk to developers and that kind of stuff so he's pretty forward thinking...he participates with our groups, comes and listens because he really wants to understand commercial development and then try to figure out how to best make the environmental regulations work. ¹⁸²

Taking her advice, I interviewed the environment-focused interviewee and asked about his work "bridging" the needs of the environmental community with developers:

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¹⁸¹ Bay Journal, May 2005, "Builders group has designs on developing consensus for the Bay"

¹⁸² Interviewee #56

Rachel: Okay. The reason I contacted you is that [interviewee 1] told me that you were making a really considerable effort to bridge the needs of the environment with developers. She seems to think that you were really trying to understand the developers' point of view. I was wondering how do you do that?

Interviewee 2: I think that there is always a potential to have an adversarial relationship when you're talking about land developers. You're always working at your own risk if you really don't try to understand what developers are trying to do. First of all, if you don't get where they're coming from, you're not going to be able to talk constructively with them when land development applications come in. Second of all, there's always the opportunity there might be common ground. There might be a business interest in pursuing certain environmental issues. ¹⁸³

Interviewee 2 engages with developers not out of some squishy desire to get along or be well-liked, but because of the constructive, positive accomplishments that can be achieved by the simple act of trying to "understand what developers are trying to do". In fact, his efforts at "truly listening" generated an innovative solution to a business problem. This part of Northern Virginia has many resource intensive data centers whose overheated servers require massive amounts water for cooling. By working together, commercial businesses and the County environmental team agreed that businesses will be preferentially sited so they can use reclaimed water directly from the local sewage treatment plant rather than draw fresh groundwater or surface water from the Potomac River. This solution emerged because of this employee's sustained efforts to develop common ground between environmental and business interests in the County.

Theme 2: The importance of civility and civil dialogue

Scholars have found that repeated, positive, and civil interactions reduce the likelihood of opportunistic behavior, fostering respect and consideration and reducing conflict levels (e.g. Gray 1989, Innes and Booher 1999). Conversely, a lack of civility limits opportunities to achieve common goals. My data bear out these ideas. For instance, two different interviewees discussed

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¹⁸³ Interviewee #28

how the incivility of some environmental organizations stymies their chances of finding common ground with local government departments or development interests. One interviewee says of an environmental group in her County:

their leader [Person X] is very extreme in her views. And she's very active politically and not in the ways I find to be constructive. She... tells the [Government Department X] and tells the County Board of Supervisors that they are horrible all the time and that everything they do is bad. And while in many aspects I agree with her, that's not going to get us anywhere. That's not going to move us forward. So while I hate some of the things that the Executive Director of the [Government Department X] does, at the end of the day I shake his hand and I work with him because that is the only way we are ever going to accomplish anything. That's my view. "You're evil because you collaborated with them." "They're evil, you collaborate with them; therefore you are evil." I don't see that as getting us anywhere. 184

The interviewee's environmental organization takes a much more conciliatory approach not just with County government, but with developers: "you have to work with the developer. If you don't, that's where all of the land was going to. You're not getting anywhere if you don't work with them." This milder approach has been helpful for her organization. For instance, they received millions of dollars in funding from the County for projects, money that would likely have gone to the confrontational environmental organization if bridges had not been burnt:

in the end I think that's where this [dollar amount] came from you know? [Person Y] is up for election and can't go back to the [Confrontational Environmental Organization] base because he lost credibility with them four years ago. He looked around for a group of people that he could gain credibility through, a little bit of environmental credibility, and we are easy. We were easy on the eyes. ¹⁸⁶

It is hard to say whether the civil approach is better than the confrontational approach for achieving environmental advocacy goals; both have a place. Yet, the civil approach has advantages in terms of developing long-term working relationships on policy issues.

¹⁸⁵ Interviewee #97

¹⁸⁴ Interviewee #97

¹⁸⁶ Interviewee #97

Civil dialogue, like "truly listening", can help groups who previously thought of each other as enemies to pursue common goals. My empirical data indicate that once groups with diverse interests get together for a serious, civil dialogue, they find areas of agreement.

Sometimes they find that the "other side" can be a partner. In one Northern Virginia County, for instance, the urban forestry community expected a fight when sitting down to work with developers on writing a tree preservation ordinance but instead found willing partners:

at least in the urban forest community, the developers were always looked at as the bad guy. I've always felt they you need to sit down and talk with the people that you think are your enemies to figure out, do we have common ground? I think it was an eye-opening experience not so much for the developers as for the urban forestry people. That, "Wait a minute, these guys are perfectly willing. Oh, ok. It's all about time and money." Once that hurdle was cleared and they figured out, I could have told them a long time that the best way to get that ordinance passed was to have the developers involved in writing it. That's just basic political sense. ¹⁸⁷

In this case, urban forestry advocates had mistaken past resistance by developers as a stance against tree preservation. In reality, developers were interested in tree preservation and willing to cooperate, as long as they could have some control over how these goals were accomplished.

Another interviewee relayed a similar experience with a workshop on stormwater, in which participants normally "at each other's throats" found major areas of agreement:

We had a seminar where we had a third of the people from County government, a third were developers, and a third were citizen activists. And the subject was stormwater. And they were all together and we engineered it so that when there were little break out groups to solve problems, there was an equal mix in each group. Of course, these are people who are usually at each other's throats....what we found out was that everyone was pretty much in agreement about stuff. They really were. They didn't disagree that much at all. They agreed more innovative things had to happen to control stormwater, to prevent some of the problems. So the "what" was not the problem, it was the "how do you get there" that was the problem. ¹⁸⁸

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¹⁸⁷ Interviewee #90.

¹⁸⁸ Interviewee #62

Once again, in a civil environment it was surprisingly easy for diverse interests to agree on broad goals. Although this may not be a policy accomplishment in itself, it has policy consequences. By transforming the interaction from an argument over values into a *problem-solving* dialogue (i.e. a discussion of means), participants may become more relaxed, open, and accepting of new information – all of which are critical to innovative breakthroughs.

Theme 3: The importance of inter-personal relationships to conflict resolution

Inter-personal relationships are another mechanism through which conflict gets resolved. Some relationships developed via collaboration were discussed in the section on social capital; here I focus on examples where good inter-personal relationships are closely connected to resolving conflicts. Although inter-personal relationships do not erase real differences in values and goals, they smooth the path towards conflict reduction. As one interviewee said, "people play better in the sandbox if they like each other a little more." ¹⁸⁹

In one case, development of inter-personal relationships eased conflicts among board members of a recreational nonprofit organization. ¹⁹⁰ Board members represent different recreational preferences (described in the quote as "factions") that are often in conflict. For instance, passive recreators like bird watchers and hikers have different values than active recreators like horseback riders and bikers. The interviewee, a member of this group, describes this conflict and how it was resolved among the board:

Interviewee: some of our Board members had zero trust of each other when we first started meeting. And there were all kinds of things that we added into our Articles of Incorporation to ensure that no one faction would take overI think that has all but disappeared. We've worked together long enough, we know we can trust each other.

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¹⁸⁹ Interviewee #62

¹⁹⁰ Technically, this is not an example of collaboration according to my definition because the coordination is occurring within a single organization. However, because the quote is good and the idea is transferable to interorganizational coordination, I include it here as an illustration.

Rachel: Do you think it was just the process of sitting down to talk to each other and work together that made everybody more comfortable working together?

Interviewee: I do, I think it's been working side by side for as many as 5 years now together. There are people that just absolutely cannot stand the idea of horses on trails. They think they destroy them. They think they are horrible. ..The same goes for the mountain bikers.... And then of course people who are avid mountain bikers or avid horse people and advocate for trails because they want to go out on their bikes or on their horses then feel just as strongly about the conservation people that they don't really want public access they want to just protect the land and seal it off from everybody.... [However, Board member 1], who hates horses, now tolerates them because he knows that the horse people come drive all the way out east and show up at his workdays and work in his park that he cares about. (emphasis added)

Board members adjusted their prejudices about each other, and gained trust, by repeated positive exposures to each other and by simple acts of kindness such as showing up at each other's workdays. Development of inter-personal relationships seems to have softened them up to be more receptive and more understanding of each other's needs and perspectives, a key prerequisite to conflict reduction.

A second example describes consequences of a <u>failure</u> to sufficiently develop interpersonal relationships in advance of a difficult issue. In Loudoun County, there was a proposed Chesapeake Bay Ordinance that turned into a political football, dividing environmentalists, developers, property rights' advocates, Tea Partiers (who were active at the time) and others into warring factions. The ordinance, if it had passed, would have restricted development around sensitive water features such as streams and wetlands. Several interviewees described the political debacle with disappointment and regret, positing different theories to explain the failure. A common theory was that opposing interests failed to build the inter-personal relationships needed to prepare them for this upcoming conflict. When things became politicized, there were few social networks to provide a positive, supportive atmosphere for dialogue; also the lack of

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¹⁹¹ Interviewee #97

inter-personal respect led to hurtful political rhetoric and escalated animosities. In one interviewee's opinion, things would have been different if greater understanding had been built ahead of time:

Interviewee: if you can get people to talk before there's an issue so you need some kind of relationship there before it's politicized.....But it really seems to be and it all comes down to relationships and people knowing each other before the issue comes up. I think you're a lot better off. In that sense I think collaborating just to get to know what everybody's perspective is and what their wins are or what they need you are going to have a better understanding.

Rachel: The relationships that [were] formed on these committees like the Stakeholder Steering Committee or maybe even the Technical Advisory Committee, have those relationships been useful to tackle contentious problems like this one?

Interviewee: Yes, [but] not this particular one.

Rachel: So for this one it didn't really work.

Interviewee: It was going well for a while but it's really turned into a mess. I think it could definitely do that. Especially since you have builders and you have environmental groups sitting down. We really don't all sit down and hear each other's issues very often when they're not opposing each other in front of the Board about an application. I think the more you can do that the better. 192

The end of this quote ties together many themes discussed above. When diverse groups "sit down and hear each other's issues", they are doing more than forming inter-personal relationships. By "truly listening", they develop an understanding of each other's perspectives, limitations, and constraints. Feeling understood not only makes people feel better about working together, it also opens up opportunities for innovative breakthroughs and solutions (as described under "innovation generation") and develops working relationships that can be utilized for future problems (described under "social capital").

Wrap up and preview of conclusion

¹⁹² Interviewee #93

In this chapter, I provided the results of a thematic analysis for four of the five "benefits of collaboration" identified in Chapter 3. For each benefit, the thematic analysis was organized around two tasks: 1) describing the dynamics and nature of the benefit itself and 2) identifying and describing the processes/mechanisms of collaboration that bring about the benefit. The themes identified here contribute to a greater conceptual understanding of the benefits and point to areas for future research.

In the next and final chapter, I review my findings, summarize the contributions and the limitations of this research (including its relevance for public managers), and discuss future research opportunities.

Chapter 9: Conclusion

In this chapter, I will review my research questions, describe my findings and contributions, discuss the limitations of my research, and talk about plans for future research.

My approach in this dissertation is conceptual and I address broad research questions.

Although I use a rich empirical dataset, my contributions are towards theory-building and concept development. My main contribution is conceptual development of the Coordinated Action benefit. In my analysis of coordinated action, I identify and describe (both conceptually and empirically) a process called harmonizing by which organizational actions and decisions are coordinated over the appropriate problem landscape. The description of harmonizing, although conceptual, has practical implications for public managers and others managing complex problems over a fragmented landscape. Later in the chapter, I will describe how public managers can apply this concept in their work.

Review of research questions and methods

As presented in the Introduction chapter, my research questions were as follows:

- 1) What key concrete, policy-related benefits can be attributed to collaboration?
- 2) What are the process/mechanisms unique to collaboration that bring about these benefits?
- 3) How do key contextual variables (in particular: policy area, actors involved in collaboration, and collaborative forum) affect the type of benefit(s) that emerge from collaboration?

To address the first research question, I started with a survey of various literatures addressing collaboration from different theoretical angles. This survey, presented in Chapter 3, revealed eight benefits of collaboration. Five of these eight were tangible, policy-related benefits that fit my broad definition of collaboration: 1) resource access/exchange, 2) innovation generation, 3) coordinated action, 4) working relationships built through social capital, and 5) reduction/resolution of conflict. Five research propositions, one for each benefit, were developed indicating how each benefit might emerge through the collaborative process.

A rich empirical dataset was developed to explore the research propositions. Two cases were examined, the Chesapeake Bay watershed restoration and water quality management in Northern Virginia (NOVA), an embedded region of the Chesapeake watershed. Data on the Chesapeake Bay watershed restoration derived primarily from the *Bay Journal*, a news source covering water quality and related topics over the entirety of the Bay watershed. Data on the NOVA case derived primarily from in-depth interviews with people involved in water quality management and related fields. The final data set included 1081 *Bay Journal* articles and 86 hours of audio interviews.

Research propositions were turned into "primary codes" and applied to the data. When a text passage clearly indicated one of the five benefits emerging from the collaborative process, the corresponding "primary code" was applied. Each text passage marked with a primary code became an "instance" or "case" of collaboration that led to a distinct, policy-related benefit. A total of 456 instances of collaboration were identified. They included 243 instances of resource exchange/access, 99 instances of coordinated action, 62 instances of working relationships developed through social capital, 28 instances of innovation generation, and 24 instances of

conflict resolution or reduction. These "instances" of collaboration represent the data used for analysis.

The second research question was addressed through analysis of these "instances" of collaboration. The most structured and thorough analysis was done for the coordinated action benefit in Chapters 5,6, and 7, leading to conceptual discoveries about coordinated action itself and the processes of collaboration that bring it about. In particular, a process called harmonizing was identified that expresses the essence of coordinated action. A less structured thematic analysis, presented in Chapter 8, highlighted key processes related to the emergence of the other four benefits.

The third research question relates to the context in which collaboration occurs.

Secondary codes representing three contextual variables (the types of groups collaborating, the collaborative forum, and the policy area) were applied to each "instance" of collaboration identified by a primary code. This way, contextual information is physically linked to each case. A full analysis of secondary codes was conducted in Chapter 7 for the 99 harmonizing (i.e. coordinated action) cases. This analysis indicated that certain forums, particularly coordinating organizations, help achieve collaboration and produce collaborative benefits under difficult conditions. These results led me to conduct a thematic analysis of the "coordinating organizations" contextual variable across all 456 instances of collaboration.

Review of findings and contributions

My findings and contributions from the analyses described above are separated into three subsections. The first section describes my contributions to conceptual development of the five

benefits. The second section describes findings and contributions related to the context of collaboration. The third section describes other findings and contributions.

Conceptual development on the benefits of collaboration

Benefits of collaboration are currently under-conceptualized in the collaboration literatures. Instead, there has been considerable attention paid to the dynamics of collaboration (especially aspects of structure, governance, and management), the antecedents of collaboration, and the determinants of collaborative success. There are also a multitude of "performance studies" that evaluate collaboration, but these tend to use narrow outcome measures that do not capture the complexity of collaborative benefits. Although all these scholarly endeavors are valuable, they divert attention from the foundational task of conceptual development on the benefits themselves. Through theoretical and empirical analysis, my research fills gaps in our conceptual understanding of collaborative benefits and the processes/mechanisms by which they are produced.

Conceptual development for coordinated action was conducted most thoroughly. This benefit was chosen for detailed study because of the distinct absence of theory in the literature, combined with a sufficient number of empirical cases in my data. I identified a process common to my empirical examples of coordinated action, called harmonizing, by which organizations address a shared problem at a scale that more appropriately fits with the actual scale or scope of the problem. Harmonizing overcomes a spatial or organizational "mismatch" between the appropriate problem landscape and management units with authority to solve the problem. Ultimately, harmonizing decisions at the appropriate problem landscape leads to more holistic,

comprehensive policy, as actors working on some piece of the problem, affecting it, and/or affected by it are all engaged in the solution.

In Chapter 5, I described harmonizing conceptually and empirically. I developed an original typology based on the type of "problem landscape" over which organizational actions/decisions are coordinated: geographical, organizational, or ecological. Each harmonizing type was described conceptually with diagrams and visual depictions. Then each type was illustrated narratively, drawing upon empirical examples from my data.

The second conceptual innovation, described in Chapter 6, is the idea that harmonizing solves three "boundary problems": the "border problem", "stovepiping problem", and the "problem of species- or media- specific programming". I describe these problems and how they are solved, respectively, by geographical, organizational, and ecological harmonizing. Because "boundary problems" – particularly the border problem and stovepiping problem— afflict a range of policy areas from local housing policy to climate change to international relations, my conceptual description provides a theoretical jumping off point for other scholars. Scholars may adopt my typology of problems, and my visual depictions of harmonizing solutions, as a basis for describing problems and solutions in their own fields. Empirical description of how these problems are solved in the Chesapeake Bay provides guidance for public managers who face their own boundary problems.

Third, I made a conceptual connection between harmonizing and efficiency benefits by reviving and expanding upon a conceptual framework developed by Huxham and MacDonald (1992). This framework depicts how coordinated action solves or avoids "pitfalls of individualism". However, their framework lacks a conceptual description of coordinated action and an explicit connection between solving these pitfalls and achieving collaborative "benefits"

such as efficiency and better policy. Applying the framework to my concept of harmonizing, I find that harmonizing results in greater efficiency by avoiding duplication, divergence, and counter-production, and results in more holistic policy by avoiding counter-production and omission. Empirical examples are provided to illustrate how harmonizing avoids these pitfalls and achieves the resulting efficiency gains. In the process of applying harmonizing to this framework, I give the framework a conceptual backbone and greater conceptual depth, making it useful for future scholarship.

Although my contributions are greatest for coordinated action, I make some unique conceptual and empirical contributions for the other four benefits (these were summarized in Table 8.1). For instance, I demonstrate how resource exchange generates collective benefits at the community/societal levels – not just organizational-level benefits as implied by resource exchange theory— by expanding the overall resource base and improving organizations' collective ability to act. A unique contribution made to innovation generation theories is the importance of including perceived "naysayers" in the decision process, preventing innovations from being quickly squashed and forcing a serious conversation about perceived versus real obstacles.

The most important contribution from my Chapter 8 thematic analysis was the concept of organizational niches. I found that the resource access / exchange benefit was perceived by interviewees not as a simple exchange, but as a process of discovering the unique and distinct value that partner organizations bring to the table. In ecological terms, this could be conceptualized as organizations occupying unique "niches", or unique roles, in the achievement of collective goals. "Organizational niches" represents a new theoretical perspective on the benefit of resource access or exchange, which has traditionally been looked at through economic

exchange theories or theories of power and dependency. Perhaps resource exchange is less about organizations attempting to equalize power relationships, and more about organizations playing a role that they are particularly equipped or designed to play better than anyone else. This theoretical angle has implications for resource exchange and for organizational theory more generally. The idea of organizational niches also points to practical questions about the "niches" of different types of organizations and how these fit together into an organizational "ecosystem". Specific questions for future research will be presented later in this chapter.

Conceptual development on the benefits of collaboration is important in its own right.

Scholarly research on collaboration is notoriously fragmented, and unifying concepts are hard to come by (O'Leary and Vij 2012). In this research, I use empirical data and conceptual analysis to develop the concept of harmonizing, which is broad and generalizable across many policy areas.

Although not inclusive of all characteristics scholars attribute to collaboration, harmonizing could be a unifying concept for scholars of collaboration.

More practically, conceptual development is a critical step towards evaluation. Scholars have attempted to evaluate collaboration without understanding which benefits collaboration can be expected to produce and why. We need to know which benefits to include in an evaluative framework, and to better understand these benefits before they can be operationalized. By establishing baseline concepts about collaborative benefits, I am contributing to the future development of evaluative frameworks.

Findings and contributions related to the context of collaboration

I applied "secondary codes" to all instances of collaboration in my data, capturing three aspects of the collaborative process: the types of groups collaborating, the collaborative forum, and the

policy area in which collaboration occurs. In Chapter 7, secondary code data was used to examine the context in which harmonizing occurs. The most intriguing results relate to the role of collaborative forums – particularly coordinating organizations, regulations/law, and financial incentives— in facilitating harmonizing under difficult conditions. Such forums are utilized more often under conditions of INTER- versus INTRA-jurisdictional coordination, and INTER-jurisdictional coordination is presumed to be a more challenging condition for collaboration. Reasons for the greater difficulty of INTER-jurisdictional coordination include the fact that representatives are working for different constituencies and under the leadership of different political officials, do not share the same institutional structure or standard procedures, and have fewer opportunities to get to know each other professionally and personally.

My analysis indicates that coordinating organizations are important facilitators of collaboration under a variety of difficult conditions, when organizations are unlikely to naturally seek and pursue common goals. This idea was further explored through a thematic analysis of the role of coordinating organizations, which utilized a total of 351 passages filed under two codes: the secondary forum code "Facilitated by a Coordinating Organization" (with 163 passages) and the tertiary code "Facilitator role" (with 188 passages). Themes explored the different ways in which coordinating organizations facilitated collaboration under difficult conditions and/or helped organizations overcome obstacles to collaboration. The analysis identified six distinct (but related) facilitation roles played by coordinating organizations, summarized below:

1. <u>Coordinating organizations provide a landscape-level perspective</u> that the organizations they "coordinate" cannot achieve on their own, since narrow concerns for achievement of organizational-level goals limit their ability for comprehensive thinking.

- 2. <u>Coordinating organizations address competitive pressures</u> among the organizations they coordinate. Competing organizations would otherwise be reluctant to expend their own resources on collective goals that help competitors, even when benefits are shared.
- Coordinating organizations assist in solving many participant problems that are too
 complex for voluntary, independent coordination, especially among busy participants
 distracted by their own organizational-level goals.
- 4. <u>Coordinating organization provide a neutral, non-hostile venue for coordination</u> by creating a safe, productive collaborative space where participants feel they can share information. This only applies when the coordinating organization has earned trust of the organizations they work with and has access to skilled facilitators.
- 5. Coordinating organizations take on the administrative tasks of collaboration, allowing collaboration to move forward when it is too time-consuming for individual organizations to manage on their own.
- 6. Coordinating organizations provide some accountability when organizations cannot enforce commitments upon each other either because they lack the capacity or because they are in competition. Enforcement (or at least pressure) from a neutral, trusted coordinating organizations is usually acceptable.

Although coordinating organizations were the most common facilitating forum, my analysis indicated that "facilitation by regulations or law" also motivates collaboration under interjurisdictional coordination and, by extension, under other difficult conditions. Some regulations, like the TMDL, *require* collaboration to occur. Other regulations or laws permit collaboration to occur, stipulate how it occurs, or shape the process of collaboration. Yet the most intriguing manner in which regulations or law motivate collaboration is via the threat of looming regulations. That is, organizations see the "regulatory hammer" hovering above them, and try to solve their problem through collaboration before it comes down. The most prevalent example from my data was the Bay Program partners' attempt to address nutrient and sediment impairments through voluntary measures before the 2011 deadline that triggered a Bay-wide TMDL. Although they ultimately failed, the regulatory deadline made the partners scramble, according to a series of Bay Journal articles about the situation.

The role of regulations in stimulating collaborative partnerships, and in particular the role of a "looming regulatory hammer", is a fascinating topic for future research (particular questions will be presented later in the chapter). This topic has not received sufficient attention, in large part because some scholars are committed to defining collaboration **in opposition to** regulation. By excluding regulation, however, scholars may be missing a crucial facilitating force and shaper of collaborative outcomes. The initiation and/or success of collaboration could, in fact, be utterly dependent on credible threats of imminent or future regulation.

The need for facilitating forums points to a larger truth that has not been sufficiently emphasized in the literature: collaboration does not just happen because of good will. Good will is one ingredient in a complicated recipe for collaboration: often it must be supplemented with a "pinch" of individualized benefits and a "sprinkle" of pressure. If participants don't foresee

immediate and significant gains for themselves or their organization, and if there is no pressure from regulations, laws, or coordinating organizations, motivation to collaborate will probably be low. This is true even when collective, societal-level benefits are significant. Under these conditions, there are likely to be lost opportunities for achieving critical "landscape-level" goals.

When you add in difficult conditions— such as inter-organizational competition, accountability concerns, goal divergence, and time-consuming collaborative processes— the likelihood of good will carrying collaboration forward is even slimmer. Additional motivating factors are needed. Based on my empirical analysis, "forums" such as facilitation by a coordinating organization, regulations or laws that "back up" the collaborative endeavor, and financial incentives serve this purpose.

Other finding and contributions

My research is a unique blend of theoretical and empirical analysis. In Chapter 3, I review the literature, combining theoretical contributions from diverse areas of scholarship that touch on collaboration, and refining these results to generate a list of five key benefits. My main **theory-building** contribution is presented in Chapters 5 and 6, where I develop an original concept called harmonizing, an original typology, and insights regarding the types of policy problems solved by harmonizing. All my conceptual work, however, occurs through careful and methodical analysis of empirical data. The very concept of harmonizing, as well as the typology, emerged inductively through empirical analysis. Further, I use empirical examples to illustrate my concepts and bring collaborative benefits "to life". Future scholars who employ my conceptual innovations have myriad examples to draw upon. By combining rigorous theoretical

work with empirical analysis, I conceptualize the coordinated action benefit more thoroughly and make finer distinctions than previous scholars have done.

My empirical work ultimately resulted in a database of 456 "instances" where collaboration led to a distinct, concrete, policy-related benefit. The source data included 1081 Bay Journal articles and 86 hours of audio interview data, plus additional articles and interviews used for developing the coding scheme. This represents a unique and valuable database of collaborative arrangements, produced through original data collection and analysis, which can be employed for future scholarly projects.

Finally, my hierarchical coding scheme is a methodological contribution. Primary codes capture the concepts of most importance to answering my research questions, while secondary codes capture contextual information. Primary and secondary codes are based on theory and were set ahead of time, although sub-codes and categories were allowed to emerge from the data. The key innovation is this: whenever a primary code is applied to a passage, secondary codes are applied to the same passage. Thus, contextual information is physically linked to each primary passage, making it easy to count and analyze co-occurring codes. It also sets up a reliable and consistent system for coding and analysis. Tertiary codes, which allow for flexibility in coding and analysis, may either be determined in advance or emerge spontaneously from the data. If the research aims stay the same throughout the project, they supplement the primary codes. But tertiary codes could be of upmost importance if research questions change or a new research project is initiated. For instance, I have the empirical data to begin a new project on "organizational niches" because this tertiary code was created early on in my coding process.

Although other researchers have their own primary research interests and preferred contextual variables, the same hierarchical structure could be adopted even as the codes change.

This structure provides a consistent process for coding and data analysis that can be adapted over and over again for new projects.

So what? The practical implications of this research

As described in the introduction, it is critical to know whether collaboration creates and distributes quality public benefits at a reasonable cost to society. Collaboration is often mandated or strongly encouraged as a policy tool because of expected benefits, even without hard evidence of these benefits. Further, collaborative processes are thought to be costly, especially in terms of time; so it is important to know whether they are worth it.

This research is not itself an evaluation. However, it provides a conceptual basis for future evaluations by identifying and describing the types of benefits that should be expected from collaboration. In a more limited way, it also describes the conditions (contexts) under which certain benefits can be expected to emerge. This information is critical to inform scholars setting up their own evaluations, who need to know which benefits to explore and how to identify them when they occur. An evaluative framework would transform the expected benefits described in this dissertation into outcome criteria, and then into operationalized outcome measures. Evaluations could then be conducted by applying the operationalized measures to cases of collaboration and non-collaboration. If empirical evaluations were conducted, the key question would be: How well does each process (collaboration and non-collaboration) achieve the identified benefits?

My analysis also provides practical insights for public managers. Most prominently, I describe harmonizing, a process by which complex problems that span geographical, organizational, and/or ecological boundaries can be solved. Public managers can learn to

"harmonize". The most important step is identifying the appropriate landscape over which a problem should be solved. A public manager may ask herself the following questions, corresponding to the three types of harmonizing:

- 1. What is the geographical or spatial landscape over which the problem extends? Which jurisdictions or organizations are physically connected to, or physically affected by, the problem?
- 2. Which organizations work on some piece of the problem, affect the problem by their actions, or are affected by the problem? Relatedly, which policy areas does this problem affect, and which organizations in these policy areas are acting on— or should be acting on— the problem?
- 3. Are there elements of the ecological landscape that affect the health and survival of my target species or element? If so, which organizations manage these elements?

These questions are a way to "survey" the landscape of a policy problem and determine its *real* boundaries, rather than abide by artificial boundaries established by borders and organizational stovepipes. Once the landscape is identified, the public manager has a list of various organizations or jurisdictions. Her difficult task is to assemble this organizational landscape and achieve coordinated action on the shared problem. Coordinated action, of course, will never be complete. Organizations coordinate on some aspects of the problem but not others, and parts of the organizational landscape may never be activated. However, just developing an awareness of the organizational landscape and establishing basic communication and coordination will help

prevent counter-production, duplication, omission, and divergence occurring through careless disregard.

Similarly, public managers may consider whether they face "boundary problems" in their work, such as the border problem and the stovepiping problem. These problems are described in detail in Chapter 6. Most public managers intuitively know when they run up against a boundary problem; they don't need my visual depictions and narratives. Yet my clear, focused description of boundary problems is helpful in defining these problems and explaining them to others who may not recognize them. Recognizing and truly understanding a problem, including its sources, is an important step towards solving it.

Findings from my thematic analyses of the other four benefits also have practical implications. For instance, I find that inter-personal relationships are critical to both building future working relationships (through social capital) and resolving conflict. It behooves public managers, therefore, to cultivate personal relationships with potential partners. Even small gestures of civility go a long way. Interviewees stressed the importance of small talk, willingness to visit potential partners "on their own turf", truly listening to others even when you disagree (or believe you disagree), and willingness to engage in civil discourse. My data reveal that organizations often find common ground through civil discourse, even when they disagree fundamentally on goals and values.

According to my analysis (which confirms findings from the literature), public managers interested in innovative program expansions should look for diverse partners, since diversity is critical for innovation generation. My analysis adds another twist, which may run counter to public managers' instincts: involving "naysayers" in the collaborative process can facilitate

innovation. By including those who would normally throw up roadblocks to innovation, and directly addressing their concerns, several programs were successful at adopting innovations.

Finally, public managers who aim to create or sustain a collaborative process must recognize that good will is unlikely to carry collaboration forward on its own. Based on my empirical analysis, collaboration is successful in part because of facilitative "forums" such coordinating organizations, regulations or laws that "back up" the collaborative endeavor, and financial incentives. Public managers should take advantage of these forums, especially when trying to foster collaboration under difficult conditions such as inter-organizational competition, a lack of accountability measures, and goal divergence.

Limitations of the research

This is a theory-building project, rather than a theory-testing project. My contributions are towards concept development, particularly the concept of harmonizing. Although I have a rich empirical dataset, I use it primarily to illustrate my original concepts and develop themes related to them. I do not test correlative or causal relationships. The closest I get to traditional empirical research, i.e. relating one variable to another, is using an Atlas-ti query to look at the co-occurrence of groups and forum codes in Chapter 7. This analysis indicated that certain facilitating forums are more common for INTER-jurisdictional collaboration than INTRA-jurisdictional collaboration, which—along with supporting qualitative data from interviews—led me to infer the importance of forums in facilitating collaboration under difficult conditions. Even this, my clearest "finding", is based on a certain amount of inference and should be taken as an indicator rather than truth. Rather than definitive findings, my greatest contribution in this dissertation is the conceptual development that will guide future thought and research.

My concept development of four of the five identified benefits – resource exchange/access, innovative generation, conflict resolution/reduction, and social capital— is also limited. At a certain point, it became clear I had to choose between superficial concept development on all five benefits and thorough concept development on one. I chose to focus on one (coordinated action) and to emphasize my original concept of harmonizing because it was my most intriguing idea, there was a distinct lack of concept development in the literature, and my empirical data yielded a sufficient number of cases. However, this means I did not meet the intent of my original research questions: to fully explore the key benefits of collaboration.

The fact that I do not examine the costs of collaboration is another key limitation.

Although this is not evaluation research, the costs should be considered. Leaving them out was a conscious, strategic decision based on my review of the literature. Literature on benefits of collaboration is voluminous, but fragmented. The sheer amount of scholarly work done on collaborative benefits, which comes from a wide variety of literatures and utilizes various theoretical bases, meant it was possible to develop well-researched research propositions. The fragmented state of the literature on collaborative benefits indicates that it is an appropriate time to organize, streamline, and integrate existing scholarship into a defined list of benefits, and explore them empirically. On the other hand, scholarly work on costs of collaboration is limited. Scholars talk about how collaboration is time-consuming and expensive, and about the loss of autonomy or the fear of releasing proprietary information. But most of the public management literature addresses obstacles to achieving collaboration rather than costs. There is not yet a sufficient volume of literature on which to base a concept-development project.

Note that I still collected data on costs of collaboration. However, I fell into the trap that many scholars do, creating a tertiary code capturing both costs of collaboration and obstacles to

collaboration. The 463 passages to which this tertiary code was applied would have to be differentiated before an analysis of costs could be conducted; this is a project for future research (described below).

Some scholars might find my broad definition of collaboration to be limitation. I define collaboration as "any interaction between two or more organizations undertaken with the intention to cooperate." This definition does not include many of the characteristics other scholars commonly attribute to collaboration, such as consensus-building, diverse participation, networks, joint projects, or mutually beneficial outcomes. A valid concern is that, by using such a broad definition, I automatically attribute too many benefits to collaboration because almost everything IS collaboration. However, this concern is overridden by my need to develop broad, generalizable concepts. My primary goal in this research is to build theory about collaborative benefits using a combination of existing theory and empirical examples. Drawing upon a wide variety of collaborative arrangements, occurring in different contexts and under different conditions, helps me build more comprehensive concepts through my empirical data.

There are more specific methodological limitations of my research. Most obviously, I have no "comparison cases" of non-collaboration. While problematic for a traditional case study, this lack of non-collaboration cases is less concerning for me. The actual unit of analysis for my research is an "instance" of collaboration that successfully produced a concrete, policy-related benefit; these are identified in my data by primary codes. My two "cases", the Chesapeake Bay Watershed restoration and water quality management in the NOVA region, are a way to define or bound the data I collect (the people I interview and the documents I read) from which these "instances" are drawn. I do not use the cases themselves for comparison or analysis. Further, within each of these cases, there are instances of collaboration and of non-collaboration.

Scholars might be concerned with my narrow focus on watershed management when approaching a topic as broad as collaboration. However, what appears to be a narrow policy focus is, in reality, quite broad. *Bay Journal* articles, for example, cover policy areas beyond traditional water quality such as fisheries, recreation, land conservation, wetlands, water supply, agriculture, and land development. To keep my results as generalizable as possible, I coded all articles in each Bay Journal issue I read regardless of topic. I also selected interviewees working in a wide variety of fields. Insights gleaned from analysis of Bay Journal articles and interviews, then, should be generalizable to other policy areas.

I have some concerns about bias in my selection of cases and my data. For instance, the NOVA region is comparatively urban, wealthy, and highly educated. I selected the region because these characteristics guarantee opportunities for diverse collaborative arrangements. Wealthy urban/suburban areas with an educated populace tend to be institutionally rich, with many organizations, citizen activists and leaders, and complicated local government bureaucracies. Collaboration in more rural areas, however, would likely involve different types of actors, different problems, and different institutional structures than what I saw in NOVA. Some rural examples are gleaned from the Bay Journal, which covers the entire Bay Watershed. At some point, however, it would be informative to add "instances of collaboration" from a rural case and re-analyze the data. A second concern is the "newsy" bias of the Chesapeake Bay case data. As a news source, the *Bay Journal* emphasizes visible events, such as regulations, public agreements, and financial awards over day-to-day collaboration. However, this newsy bias is effectively cancelled out by my interview data, which provide significant detail on the day-to-day (often mundane) collaborative relationships important to people's work.

Plans for future research

This project has answered some questions and generated many new ones. In this section, I discuss ideas for future research both to follow up on my findings, and to take them in new directions. I propose hypotheses and research questions for each new topic.

There are several ways to pursue the concept of harmonizing. First, it would be useful to explore the concept in other policy contexts to see if my conception and typology hold up, and if there are new insights to be gained. Because boundary problems exist in other policy contexts, I assume harmonizing may also be applied as a solution. Further, now that I better understand the concept, it would be useful to explore the practical aspects of harmonizing. By conducting more interviews with managers in water quality (and other fields), I could ask how they practice harmonizing, the benefits they perceive to gain from it and why, and the difficulties and obstacles.

Of most interest is whether harmonizing in fact produces the benefits discussed in my analysis. The examples provided in my analysis support the idea that harmonizing produces more comprehensive, holistic policy and reduces duplication, omission, counter-production, and divergence. These findings should be explored more systematically through correlation or regression. The unit of analysis would be a particular policy problem. Specific hypotheses to be tested would include:

Harmonizing H1 (Comprehensive policy): More harmonizing among organizations in the appropriate problem landscape is associated with more comprehensive and holistic solutions to the problem.

Harmonizing H2, H3, H4, and H5 (Duplication, Omission, Counter-Production, and Divergence): More harmonizing among organizations in the appropriate problem landscape is associated with less duplication, less omission, less counter-production, and less divergence.

If I knew which organizations comprised the appropriate problem landscape, harmonizing could be operationalized as the proportion of these organizations that actually participate in solving the problem. If not, a work around would be some measure of the geographical span of participating organizations (for geographical harmonizing) or the number of policy areas represented by participating organizations (for organizational harmonizing). If a particular policy area was chosen for study, criteria could be developed to measure the comprehensiveness of a policy. For instance, watershed management policies are most comprehensive if they integrate policies for land development, agriculture, and transportation in addition to water quality, and if they apply across all jurisdictions that comprise the watershed. The level of duplication, omission, counterproduction, and divergence would be difficult to measure. I would first consult Huxham and McDonald, as well as others who have employed their 1992 framework, to see if measures have already been developed for these variables.

Finally, harmonizing could eventually be proposed as the basis for some unifying concept or definition of collaboration. Proposing this idea would occur down the road, if the concept holds up across policy contexts and is useful to scholars.

I also plan to explore the resource access/exchange benefit. My data yielded 243 cases of resource exchange/access that improved policy by overcoming resource constraints. Key themes

¹⁹³ I would likely not pursue ecological harmonizing because it is specific to environmental policy, and thus less generalizable.

were pulled out from these cases and presented in Chapter 8, but a full, structured analysis was not done. It would be useful to review the cases and follow up on major concepts. For instance, I could further explore the concept of "organizational niches" commonly described under the resource access/exchange benefit. The tertiary code "organizational niches", created during my data analysis in response to the prevalence of the concept, was applied to 254 passages. I would start by reviewing these to look for patterns and themes. However, I already have several broad research questions in mind:

- 1) What are the organizational "niches" of different types of organizations, such as Federal/State agencies, small citizen-based nonprofits, larger nonprofits, and different departments of local government? More specifically: What roles do they typically play in solving shared policy problems? Which particular resources do they typically provide to their partners?
- 2) How do different organizational niches complement each other? That is, which types of organizations tend to "need" each other to achieve their goals?
- 3) Is there a particular grouping of organizations (an "ecosystem") necessary for solving water quality and related policy problems?

Data already secured under the "organizational niches" code would be sufficient for a preliminary approach to these questions. A query looking at the correlation between the secondary codes "Resource Provider" and "Resource Type" would complement my analysis by providing numerical data on which resource provider groups are most often associated with certain resource types (question #1 above).

I also plan to pursue research on coordinating organizations and their role(s) in facilitating collaboration. Part of my research could be combined with the "organizational niches" project described above. Questions related to the organizational niche of coordinating organizations might include: What services do they provide to their members? What are their main functions in the policy process and in promoting collaboration? Although these questions were addressed by my thematic analysis of coordination organizations, which revealed six key ways that coordinating organizations facilitate collaboration, they should be pursued in a larger-scale, more systematic way. Based on the six findings from my thematic analysis, hypotheses to explore would include:

Coordinating Orgs H1 (Reducing competition): Among organizations that are typically competitive with each other, collaboration via a coordinating organization is associated with a reduction in competitive pressures.

Coordinating Orgs H2 (Solving many participant problems): Many participant problems tend to be solved via a coordinating organization rather than through voluntary, independent coordination (VIC).

Coordinating Orgs H3 (Ensuring accountability): Organizations collaborating through a coordinating organization are more likely to believe their partners will follow through on promises, compared to those collaborating through VIC.

Coordinating Orgs H4 (Harmonizing): Organizations collaborating through a coordinating organization are more likely to harmonize their decisions and actions over the full problem landscape, compared to those collaborating through VIC.

I will also pursue research on the relationship between regulation and collaboration. Through a series of tertiary codes, I have already identified hundreds of passages on this relationship. The most fascinating question is how a "looming regulatory hammer" affects collaborative relationships focused on voluntary participation and voluntary measures. Based on what I have heard from interviewees, the threat of regulation, rather than squashing collaboration, stimulates organizational partners to achieve policy goals by voluntary means. This could be tested empirically with the following hypothesis:

Collaborative and Regulation H1 (Looming regulatory hammer): When the threat of regulation is high, collaboration occurs more often and more intensely.

My data hint at other interesting research opportunities on the relationship between regulation and collaboration. Following are several research questions worth exploring; for all of them, I have data to use as a starting point:

- 1) What kinds of collaboration occur during, or as part of, the regulatory process?
- 2) What are the "organizational niches" of regulatory versus non-regulatory government agencies in achieving policy goals through collaboration?

3) What is the effect on a traditionally voluntary program like the Chesapeake Bay program, when moving towards a more regulatory approach like the Chesapeake Bay TMDL?

Finally, I will pursue research on the costs of collaboration. I have already collected data, under a tertiary code, on the costs of collaboration and obstacles to collaboration. The 463 passages under this code would have to be differentiated so I am analyzing just costs. The research questions I would ask the data are similar to those asked for benefits:

- 1) What key costs can be attributed to collaboration?
- 2) What are the process/mechanisms unique to collaboration that bring about these costs?
- 3) How do key contextual variables affect the type of costs that emerge from collaboration?

Based on a short review of the codes, the key costs seem to be time and money; no interviewee mentioned loss of autonomy or release of proprietary information, as described in the literature. If this holds, there is little need for conceptual development on the costs themselves; they are self-explanatory. However, it would be important to understand why collaboration in particular tends to bring about these costs. It is unclear whether new data would have to be collected, either on the Chesapeake Bay and NOVA cases or in some other context.

This brings me to a final point about this project. Although in this dissertation I focus on conceptual development and theory building, my analysis is based on a rich empirical dataset that has been heavily coded. In the final version of my Atlas-ti hermeneutic unit, I have a total of 55 tertiary codes covering everything from the relationship between regulation and collaboration, to passages about accountability, to ideas about the importance of building a stewardship ethic.

Because my coding process was thorough and detailed, many of these codes have a lot of data stored with them. This presents myriad opportunities for future projects, both extending the topics explored in this dissertation and moving beyond them.

Appendix A: Case descriptions

In this appendix, I provide additional information on the two cases, with emphasis on describing the collaborative organizations associated with each. Although these details are not necessary for understanding examples provided in my empirical analysis in Chapters 5 through 8, they provide useful contextual background.

Case # 1: Chesapeake Bay restoration

This case focuses on watershed management and restoration activities occurring in the Chesapeake Bay watershed under the auspices of the US-EPA Chesapeake Bay Program ¹⁹⁴ or through affiliated organizations. The Chesapeake Bay Program partnership was created in 1983 under the first of three major Bay agreements (described below). ¹⁹⁵ The central Bay Program partners are the US-EPA, the six states that comprise the watershed plus the District of Columbia, and the Chesapeake Bay Commission (described below). However, there are several other partners, including fifteen more Federal agency partners, several academic institutions, and NGOs (US-EPA Chesapeake Bay Program 2012a).

The Executive Council is the Bay Program's decision-making body and provides a venue for high-level coordination among the Federal and State partners. Executive Council members, who meet annually, include the governors of Maryland, Pennsylvania and Virginia, the EPA administrator, the mayor of D.C., the administrator of the U.S. Environmental Protection

Although called the US-EPA Bay Program, this is not a program of EPA Central or any particular EPA region. Rather, it is a separate partnership in which US-EPA is one of the key partners. Its funding comes directly from Congress.

¹⁹⁵ Others have dated the beginning of the Bay Program to 1976, when Congress gave the US-EPA \$25 million to conduct a 5-year study of the Chesapeake Bay. As part of this study, US-EPA was tasked with coordinating existing research on the Bay, establishing a data collection and analysis program, and making recommendations on Chesapeake Bay management. Although this was mainly a research program, it laid a foundation for the inter-state coordination solidified by the 1983 Bay Agreement.

Agency, and the chair of the Chesapeake Bay Commission. This Council is ultimately responsible for negotiating and signing the Bay Agreements and Directives that govern the overall Bay restoration. Of course, they have a lot of help and input. The Principals Staff Committee, comprised primarily of high level bureaucrats from the Bay States, develops policy and advises the Executive Council. The Management Board, a mixture of Federal /State agency representatives and NGOs, oversees strategic operations for the Bay Program. There are separate implementation teams that coordinate partners' work towards Bay Agreement goals, as well as three advisory committees representing scientists, citizens, and local governments, respectively. Finally, according to their website, the Bay program employs 88 staff members to conduct and oversee its own programs related to Bay restoration and to assist partners (US-EPA Chesapeake Bay Program 2012c).

The Bay Agreements and the Chesapeake Bay TMDL

The Bay Agreements, as well as occasional Directives from the Executive Council, guide and govern the overall Bay restoration. The first Bay Agreement was signed in 1983 by the original Bay Program partners. ¹⁹⁷ It was a simple, one-page document in which signatories agreed to address Bay impairments cooperatively and it created the Bay program. This agreement was motivated by the publication of a five-year study, conducted by US-EPA and published in 1983, which attributed the decline of the Bay to nutrient pollution.

The 1987 Bay Agreement committed Bay states to a longer set of restoration goals categorized by type (living resources, water quality, population growth and development, public

¹⁹⁶ See US-EPA Chesapeake Bay Program (2012b) for a formal organizational chart and lists of committee members.

¹⁹⁷ These signatories are the same seven people who sit on the Executive Committee, listed above: the governors of Maryland, Pennsylvania and Virginia, the EPA administrator, the mayor of D.C., the administrator of the U.S. Environmental Protection Agency, and the chair of the Chesapeake Bay Commission

education, public access, and governance). The goal that generated the most attention and energy was a 40% reduction in nitrogen and phosphorus by 2000. Although many of the goals of the 1987 agreement were met by the late 1990's, the Bay was still degraded. Partners geared up for the next big agreement, called Chesapeake 2000, which aimed to meet water quality standards by a critical 2010 deadline. If the Bay was still impaired in 2010, under a series of courts settlements EPA would be required to write a Total Maximum Daily Load (TMDL) plan for the Bay. The State partners feared that a TMDL would turn what had been voluntary, collaborative restoration into a regulatory program.

Chesapeake 2000 updated many goals and included, for the first time, specific goals related to land use and sprawl. It was at this point that the "headwater states" (New York, Delaware, and West Virginia) joined the Bay Program through individual memoranda of agreement. Although part of the watershed, these states have a much smaller portion of their total land area draining into the Bay.

By the late 2000s, it became clear that the goals of Chesapeake 2000 would not be met. EPA began preparations for its TMDL, the first phase of which was published in December 2010. 198 Although the Bay Program has been running the computer models to determine nutrient reduction goals and providing assistance to their State partners, the TMDL process is being managed by EPA Region 3. Writing state implementation plans for the TMDL is a long process with several phases, so it is unclear at this point how (and to what extent) the plans will be carried out. 199 It is also unclear what the role of the Bay Program is now that the "regulatory"

¹⁹⁸ For the full TMDL document and more information about the process, see US-EPA (2012c).

¹⁹⁹ The Northern Virginia folks I interviewed in Spring/Summer 2011 expected two more planning phases before Virginia's implementation plan was complete. They expressed a lot of uncertainty about how the whole TMDL process would play out.

hammer", wielded by EPA Region 3, has kicked in. Thus the management of the Bay Restoration is currently in transition.

This does not, however, affect the time period during which my data were collected. Interviews with people working on the Bay restoration were conducted in 2008, and Bay Journal articles from 1997-2007 were selected. I wanted to capture the period leading up to and including the drafting and signing of Chesapeake 2000, but avoid the years 2008-2010 when the pressures of looming regulation threatened the voluntary nature of the Bay Program. So although the current transition state of the Bay restoration is important, it was not relevant to my interviewees at the time, nor did it affect the events described in Bay Journal articles used for this case.

Rather, at the time of my data collection, the Bay Restoration was primarily guided by the Bay Agreements described above. In between Bay Agreements, "directives" were issued and signed by the Executive Council to clarify existing agreement goals or add new ones. Bay Agreements and directives commit the states to meeting certain goals through their own regulatory or incentive-based programs. The Bay Program itself does not "implement" the Bay Agreements. Rather, it serves as a venue for the States to make these commitments and provides technical and financial assistance. It develops and maintains the watershed model for the Chesapeake Bay and tracks progress towards Bay Agreement goals. In short, the Bay Program both pushes States to live up to their commitments and assists them in doing so.

Meeting the Bay restoration goals requires participation from partners other than the States. For instance, local governments make most decisions regarding land use, land conservation is done through private land trusts, and community watershed groups conduct small restoration projects. To involve these partners in policy making, the Bay Program has advisory groups representing both local governments (LGAC) and citizens (CAC). There is also small

grants programs, managed through the National Fish and Wildlife Foundation (NFWF), that provides funding for watershed projects by local governments and community groups. However, the Bay Program is a partnership of the States (and D.C.). Commitments to Bay Restoration are made by the States, and it is the States' responsibility to engage local governments and others as needed. Most relationships between local communities and the Bay program, then, are mediated either through the States, the Bay Program grant projects, or the nonprofit Alliance for the Chesapeake Bay (described below).

Bay-wide collaborative organizations

The US-EPA Bay Program is not the only game in town when it comes to collaboration on the Chesapeake Bay Restoration. A full description is not possible here, but a few large organizations will be highlighted. These organizational descriptions show how the Chesapeake Bay restoration is a "hub of collaborative activity", one of my key case selection criteria.

Chesapeake Bay Commission

The Chesapeake Bay Commission, a core Bay Program partner, is itself a collaborative organization. A tri-state legislative assembly representing Maryland, Virginia and Pennsylvania (the original Bay States), it was created in 1980 to coordinate Bay-related policy across Maryland and Virginia. Pennsylvania joined in 1985. The Commission has 21 members; from each of the three states there are five legislators, the cabinet member with direct responsibility for natural resources, and one appointed citizen.

The principles leading to the Commissions' formation were similar to the Bay program – the Bay was impaired and cleaning it required interstate cooperation—but emphasized that

clean-up efforts needed to be led by the States themselves (rather than US-EPA) and to involve members of State legislatures. These principles were enshrined in the legislation creating the Commission, which was adopted separately by all member states' General Assemblies. It included goals like assisting state legislatures in responding to Bay concerns and promoting, where appropriate, uniformity of state legislation.

In 1984, for instance, the Commission was successful in its coordinated effort to ban the use of phosphate detergents in all three Bay Program states. These detergents had been a major contributor to high phosphorus levels in the Bay. In 1996, a special committee of the Commission called the Bi-State Blue Crab Advisory Committee (BBAC) was established and eventually negotiated unprecedented regulations adopted jointly by Maryland and Virginia. This ability to directly influence and guide State legislatures is a power unique to the Commission.

Alliance for the Chesapeake Bay

The Alliance for the Chesapeake Bay is a nonprofit organization with a Bay-wide focus. It has offices in Maryland, Pennsylvania, and Virginia, plus some staff embedded within the Chesapeake Bay Program office in Annapolis, Maryland. The Alliance focuses on forming partnerships among the diversity of organizations working within the Chesapeake Watershed, not just government agencies but also non-profits, citizen groups, and academic institutions. It is a non-regulatory organization, focusing on consensus building, voluntary programs, and citizen engagement.

The Alliance and the Bay Program have a long history together. The Alliance was formed in 1971 as a citizens' group (then called the "Citizens Program for the Chesapeake Bay") that advocated for a comprehensive, ecosystem approach to Bay management. At the time there

was no formal bi-state, tri-state, or Bay-wide government agency. When the US-EPA was given \$25 million to study the Chesapeake Bay in 1976, one of their required activities was citizen outreach, and they decided to hire an outside organization. The Citizens Program for the Chesapeake Bay responded to the RFP and was awarded a \$250,000 grant in 1977 to basically be the "citizen engagement arm" of the early Chesapeake Bay program. This relationship has continued for over 40 years. The Bay Program relies on the Alliance for much of its stakeholder engagement programming. For instance, Alliance staff members coordinate and provide administrative assistance for the Citizen and Local Government Advisory Committees of the Bay Program (CAC and LGAC, respectively). The Alliance has diversified its funding sources with memberships, private donations, and grants from other government or foundation sources, which has increased its independence from the Bay program. Yet the two are still closely intertwined in their missions and programming.

The Alliance is a leader of inter-organizational collaborative programs. They provide communication and networking opportunities, training and capacity building for citizens' groups and nonprofits, and facilitation assistance for consensus-building. They have a reputation for providing accurate, unbiased information such as the award-winning Chesapeake Bay Journal (from which I derive much of my data). The following sampling of programs illustrates the role of the Alliance. In the spirit of their collaborative approach, most are carried out in cooperation with other organizations and agencies.

 Project Clean Stream, an annual stream and shoreline cleanup that engages local watershed organizations and volunteers.

²⁰⁰ This is before the 1983 agreement that created the Federal-State Bay Program partnership. At the time, the Bay Program was a program of the EPA designated to carry out this research study.

They no longer publish the Bay Journal. Now it is published by Chesapeake Media Service. However, they were the publishers during the time period in which my selected articles were written.

²⁰² See Alliance for the Chesapeake Bay (2012) for more information on their programming.

- The Chesapeake Watershed Forum, a formal three-day training and networking opportunity for watershed associations in the region.
- Forestry for the Bay, a voluntary membership program that provides assistance and small grants to landowners interested in conserving or restoring private forest land on their property.
- River trends, a water quality monitoring program that trains volunteer monitors to collect samples from certain locations, pools their data in a database, and produces reports.
- The Chesapeake Network, an online networking tool for organizations and people working on Chesapeake Bay issues.

Chesapeake Bay Trust

The Chesapeake Bay Trust is a grant-making nonprofit with three core objectives: environmental education, demonstrating restoration opportunities, and community engagement. As a Maryland nonprofit, all funds go to projects that benefit Maryland tributaries to the Bay. The Trust has ten different grant programs, most of which provide small amounts to "grassroots" organizations like schools and community groups. It also has two special initiatives: an annual rewards program to recognize individual contributions to Bay restoration, and a Chesapeake Conservation Corps that provides one-year training and service opportunities for young people. Generally, the approach of the Trust is less about policy-making and more about stimulating learning, citizen engagement, and "on-the-ground" Bay restoration.

Chesapeake Bay Foundation

The Chesapeake Bay Foundation was started in 1967 and has, for 40 years, been the premier advocate for more stringent environmental commitments in the Bay Agreements and other Federal, State, or local laws that affect the Bay. With over 200,000 members and 160 staff, the Foundation has significant resources that it can mobilize. The website lists their main activities under four headings: restore, advocate, educate, and litigate.

The Foundation is at the forefront of advocacy of all types: lobbying, grass-roots campaigns that mobilize their membership, and participation in Bay-related partnerships like the Bay Program. They have also initiated lawsuits against US-EPA and other State/Federal agencies for failures to fully implement environmental laws (Chesapeake Bay Foundation 2012). Their willingness and financial ability to litigate sets the Foundation apart from organizations with similar goals, like the Alliance, and has pushed the cleanup forward. For instance, the Chesapeake 2000 settlement forced the EPA to meet its TMDL deadlines.

The Chesapeake Bay Foundation is also known for its top notch environmental education programs for students in classrooms and in the field. Their website claims their education programs have served 1,500,000 children and adults. Finally, the Foundation does several restoration programs, including restoring native oyster populations, planting trees, and planting underwater grasses, or submerged aquatic vegetation (SAV).

Localized collaborative organizations

With the exception of the Chesapeake Bay Trust, whose grants are strictly for Maryland communities, the organizations described above have a Bay wide focus. However, the Chesapeake Bay watershed is massive and other collaborative organizations are active within

smaller parts of the watershed. In fact, the Bay Program encourages, and even funds, the work of organizations in its embedded watersheds.²⁰³

The focus area of some organizations is large in scope. For instance, the Interstate Commission on the Potomac River Basin (ICPRB) works within the 14,700 square mile watershed of the Potomac River, and the Susquehanna River Basin Commission (SRBC) works within the 27,500 square mile watershed of the Susquehanna River. Other collaborative organizations are localized, focusing on a smaller tributary that eventually empties into the Bay after combining with other tributaries. An example is the citizens group "Friends of Sligo Creek" whose mission is to: "restore to health the water quality, natural habitat, and ecological well-being of the Sligo Creek watershed by bringing neighbors together to build awareness, improve natural habitat, and protect our community's heritage" (Friends of Sligo Creek 2012). Although the goals of this organization are similar to the others, the scope is vastly different. Sligo creeks watershed is about 11 square miles, 0.017% of the Chesapeake Bay watershed. Generally, these small watershed groups focus on a few local problems, rather than trying to change state or national policy.

Watershed partnerships within the region vary greatly in terms of organizational structures and legal authority. Most, like the Friends of Sligo Creek, are 501(c)3 nonprofits with dues-paying members, volunteer staff, and informal operations. There is no required structure for operations or governance (aside from a Board of Directors, which is required for nonprofits), although many will utilize task forces or committees.

²⁰³ Watersheds are nested, so within the larger Bay watershed there are several smaller watersheds like the Potomac and the Susquehanna, and then within them there are still smaller watersheds, and so on.
²⁰⁴ This example was pulled from the US-EPA Surf Your Watershed site (US-EPA 2012d). There are hundreds of

²⁰⁴ This example was pulled from the US-EPA Surf Your Watershed site (US-EPA 2012d). There are hundreds of similar watershed groups all over the Chesapeake Bay.

Perhaps more importantly, most watershed associations lack legal authority to make policy or enforce water quality regulations. State or local governments may provide grants, or even contract with them, to implement education, restoration, or planning projects associated with meeting regulatory requirements. Their representatives might serve on advisory councils that influence policy decisions. They may get involved in "watchdogging" activities like patrolling a river and calling in violations. In the end, however, the Federal, State, or local governments are the ones with independent legal authority to write, pass, and enforce water quality regulations. Without regulatory authority, the most common programming for these embedded watershed associations includes environmental education, restoration projects, advocacy, data collection, and participation in advisory groups. Groups will select a different mix of approaches that best meet their goals.²⁰⁵

Case # 2: The Northern Virginia (NOVA) region

The Northern Virginia (NOVA) region encompasses several local governments, regional organizations, citizens' groups, and partnerships. There was no single overarching project associated with this case; rather the region includes many collaborative projects in various stages of planning and implementation.

Jurisdictions from which I interviewed at least one government representative include four counties (Arlington, Fairfax, Loudoun, and Prince William), four cities (Alexandria, Falls Church, Fairfax City, and Manassas), and one town (Leesburg). Illustrative statistics for all the

²⁰⁵ I will not attempt to categorize watershed organizations here. The important point is the existence of a wide variety of organizations working in smaller segments of the Chesapeake Bay watershed. They offer a diversity of opportunities for collaboration: from localized to regional, structured to unstructured, regulatory to non-regulatory, and formal to informal.

jurisdictions are provided in Table A.1 below. For comparison purposes, the same statistics are provided for Virginia as a whole.

Table A.1: Key statistics on Northern Virginia localities. 206

	Local government type	Population, in 100,000s (2010)	Persons per square mile, 2010)	Percent population change (2000 to 2010)	Median household income (2006- 2010)	Bachelor's degree, percent of persons age 25+ (2006-2010)
VIRGINIA	N/A	8,001,024	203	13%	\$61,406	34%
Arlington	County	207,627	7,994	10%	\$94,880	70%
Fairfax	County	1,081,726	2,767	12%	\$105,416	58%
Loudoun	County	312,311	606	84%	\$115,574	57%
Prince William	County	402,002	1,195	43%	\$91,098	38%
Alexandria	City	139,966	9,314	9%	\$80,847	60%
Falls Church	City	12,332	6,169	19%	\$114,409	71%
Fairfax City	City	22,565	3,617	5%	\$97,900	53%
Manassas	City	37,821	3,826	8%	\$75,173	28%
Leesburg	Town	42,616	3,440	51%	\$94,772	47%

Table A.1 indicates that the region has a relatively large population. Fairfax County residents, for instance, make up more than one-eighth of the total State population. Population densities are also higher than the State average, especially in the jurisdictions closest to D.C. such as Arlington, Alexandria, and Falls Church. Further, all the Counties score a "1" on the USDA Urban-Rural continuum scale, indicating they are mostly urban. The most suburban counties are Loudoun and Prince William, yet both are growing rapidly.

In fact, another key characteristic of the region is development pressure due to population growth. This is especially pronounced in Loudoun, Prince William, and Leesburg, which have

²⁰⁶ Source: US Census Bureau (2012). All numbers and percentages have been rounded to nearest whole number. ²⁰⁷ This scale goes from 1-9, where #1 indicates counties "in metro areas of 1 million population or more". It is

This scale goes from 1-9, where #1 indicates counties "in metro areas of 1 million population or more". It is based on 2003 data (USDA Economic Research Service 2012).

seen a percent population change over the past decade of 84%, 43%, and 51%, respectively. This drives rapid land conversion and an increase in impervious surface, which in turn leads to flooding and stormwater pollution if effective stormwater controls are not put into place. On the other hand, areas closer to D.C., like Arlington, Alexandria, Falls Church, and Fairfax, have already been "built out". In these areas, population and development pressures lead to redevelopment, as developers convert properties to achieve greater densities.

Significant development pressures means that private developers and the organizations that represent their interests are active in regional and local policy. However, environmental groups and neighborhood groups are also numerous and powerful in the region. Environmental, neighborhood, and development groups regularly come in conflict with each other over new development, which can put local government officials who issue permits in a difficult position.

This region is also relatively wealthy, with median household incomes ranging from \$75,173 in Manassas to \$115,574 in Loudoun (see Table 4.1). In fact, two of my four counties were on a June 2012 list of the top five wealthiest counties in the U.S.; Loudoun and Fairfax were numbers 3 and 4, respectively (Kane 2012). This wealth raises enough in taxes to fund a wide variety of environmental programs. Several NOVA jurisdictions, for instance, have enough staff to create a stormwater or watershed management department, rather than assigning employees from the Public Works department to these tasks. Fairfax County has such an extensive array of environmental programs that they hired an environmental coordinator. Further, many NOVA jurisdictions levy a stormwater tax, the revenue from which goes directly to flood control and stormwater projects. Sometimes this tax is based on the amount of impervious surface on one's property, but often it is simply a small additional fraction of a

percent on one's property tax. The revenue raised can be quite high in jurisdictions with high property values.

Another unique feature of the NOVA region is residents' high education level. The final column in Table 4.1 shows the percent of persons age 25 or higher who have a Bachelor's degree. Except Manassas and Prince William, NOVA jurisdictions are significantly higher than the State average. This is relevant for my research because educated people tend to participate in the policy process. The NOVA region, in fact, has many active environmental and neighborhood groups that exert influence on local government decisions through advocacy, participation in public meetings or workshops, and/or formal advisory groups or committees. Many NOVA local governments have adjusted their processes to allow for significant participation. Arlington County, for instance, has a dizzying number of citizen commissions and advisory groups (Arlington County 2012). I have been told by several interviewees about the "Arlington way", which means conducting the business of government with maximum openness to and participation from the community.

In NOVA jurisdictions, citizen participants tend to be more educated and capable than the "average Joe". They carry over particular technical skills from their education or workplace. For instance, the chairperson of the Leesburg Watershed Committee works for the Center for Watershed Protection, the leading national research organization on watershed management. The chairperson of the Environment and Energy Conservation Commission (E2C2) in Arlington County works on chemical and material risk management for the Department of Defense. These citizens are not only highly educated, as indicated by the statistic in Table 4.1; many of them have high-level, powerful jobs in nearby Washington, D.C. where they influence policies that affect local government. This can be a great asset to the local governments, who rely on these

citizen committees to identify problems and make recommendations. It can also be difficult when these savvy, capable, and well-connected people challenge local government decisions.

Regional collaborative organizations

There was no particular collaborative project that drew me to the NOVA region. However, there are several regional organizations that encourage and promote inter-jurisdictional coordination.

Northern Virginia Regional Commission (NVRC)

The Northern Virginia Regional Commission (NVRC) is one of 21 Planning District Commissions (PDCs) in the State of Virginia. Under the State Regional Cooperation Act, local governments in selected regions can create and charter a PDC to help them collectively meet their responsibilities under State and Federal law, represent their common interests to the State, and conduct inter-jurisdictional planning and programming. PDCs, therefore, are a political subdivision of the State but are created by the local jurisdictions themselves. Under Virginia State law (section 15.2-4207), the purpose of the PDCs is to:

"...encourage and facilitate local government cooperation and state-local cooperation in addressing on a regional basis problems of greater than local significance. The cooperation resulting from this chapter is intended to facilitate the recognition and analysis of regional opportunities and take account of regional influences in planning and implementing public policies and services." (Virginia Association of Planning District Commissions 2012).

The Northern Virginia Regional Commission, chartered in 1969, is one of the most active PDCs in Virginia. ²⁰⁸ Its current member governments are all the jurisdictions listed in Table A.1, plus the city of Manassas Park and Town of Dumfries in Prince William County, the Town of Purcellville in Loudoun County, and the Towns of Herdon and Vienna in Fairfax County.

²⁰⁸ See Northern Virginia Regional Commission (2004) for the official NVRC charter.

Members of the 25 person Commission, the main decision-making body, are appointed by the member governments on a population-based formula, with the caveat that each government gets at least one representative. Only elected officials may serve on the Commission.

Member governments make annual contributions to support NVRC in exchange for the facilitation and assistance services it provides. Other funding sources include appropriations from the Virginia legislature and a variety of grants and contracts. These funds have allowed NVRC to grow beyond the size of other PDCs in Virginia. According to their website, they have 24 staff members, several of whom are highly trained facilitators, planners, engineers, and research analysts.

NVRC fulfills several important roles in the region. It provides professional and technical services for member governments, facilitates inter-jurisdictional planning and projects, and serves as a venue for information exchange and communication. They also see themselves as "the voice of Northern Virginia", representing and relaying the concerns and interests of the region to State and Federal agencies (Northern Virginia Regional Commission 2012b). ²⁰⁹ For instance, every year the Commission writes a legislative platform and circulates it to Virginia State delegates and other key decision-makers.

NVRCs programs are wide-ranging, from coordination on military base realignment and closure (BRAC) to affordable housing to a regional strategy for energy conservation. Following are NVRC projects most relevant to my research on water quality. Several came up in the empirical chapters as "instances" of collaborative activity:

1) Watershed planning and projects in Four Mile Run and Cameron Run.

²⁰⁹ This is the language used on their website. I did, however, hear the same thing from interviewees who work at NVRC.

- Clean Water Partners, a jointly funded media program focused on stormwater education.
- 3) Tracking the Virginia Implementation Plan for the Chesapeake Bay TMDL.
 Providing information and updates to member governments and participating on behalf of the NOVA region.
- 4) A regional plan for Green Infrastructure, i.e. creating large open spaces connected by corridors.
- 5) Coordination among water utilities in the NOVA region in order to ensure adequate supply during droughts and protect water source quality.

The NVRC, in short, is the premier collaborative, regional organization for the NOVA region. For local governments, they are a "go to" place for information, technical expertise, and assistance in facilitating an inter-jurisdictional project. For the State government, they provide an easy way to incorporate NOVA concerns into policy without dealing individually with fourteen jurisdictions.

Metropolitan Washington Council of Governments (COG)

The Metropolitan Washington Council of Governments (called WashCOG, or just COG) is another organization working in the NOVA region. Their geographical focus is the entire metropolitan Washington DC area, however, so their membership includes the District of Columbia and its Maryland suburbs. COG was founded in 1957 to address regional issues affecting Washington DC and its suburbs. Crucially, over more than 50 years of work it has

established inter-jurisdictional relationships that can be mobilized quickly when emergencies arise, such as the days after September 11.²¹⁰

The COG Board of Directors is comprised of appointees from the 22 participating local governments, plus appointees from the Maryland and Virginia legislatures and from the U.S. Congress (all Federal and state legislative appointees must represent communities in the Metro Washington region). Like the NVRC Commission, Board members are elected officials. Also like NVRC, COG is financially supported through annual contributions from its participant local governments and through Federal and State grants.

COG is distinct from NVRC, however, because of its major responsibilities towards meeting Federal standards for both air quality and transportation. COG is responsible for attaining EPA air standards for the region through the inter-jurisdictional Metropolitan Washington Air Quality Committee (MWAQC). Further, the COG Transportation Planning Board (TPB) is the federally designated metropolitan planning organization for the region, which means it is tasked with writing regional transportation plans that must be approved by the Federal government before transportation funds are provided to the region.

These responsibilities take up a major portion of COGs staff time. COG has an enormous staff, the bulk of which works on transportation – I counted 120 staff members on their website, 60 of them under Transportation (Metropolitan Washington Council of Governments 2012b). COG does have some water quality programs that are important for my research purposes. These include the following:

 The Chesapeake Bay and Water Resources Policy Committee gives local governments a chance to discuss the progress of the Chesapeake Bay TMDL and

²¹⁰ The video made for COGs 50th anniversary, available on the COG website, provides more historical examples of cooperation fostered by COG in emergency situations, such as the DC riots after Martin Luther King was shot (Metropolitan Washington Council of Governments 2012a).

other Bay-related activities. COG staff members track the progress of the TMDL and keep jurisdictions updated; they also represent the metro DC perspective in meetings with State agencies and the US-EPA.

- 2) Coordination on water supply through the Water Supply Task Force, which has led to the drafting of inter-jurisdictions agreements on managing water supply and emergency management in times of drought or contamination.
- 3) The Anacostia Watershed Restoration Partnership, a multi-jurisdictional watershed partnership whose executive director work in the COG offices.

When asked about the "value-added" of COG in regard to water quality management, interviewees consistently told me two things: (1) They provide updates on the Chesapeake Bay TMDL, which helps individual jurisdictions who lack the time to attend all the TMDL meetings and sift through the relevant information, and (2) their committees provide opportunities for information exchange with counterparts in D.C., Virginia, and Maryland. However, COG is less active than NVRC in actual planning, project facilitation, and service provision in the water quality area. According to an NVRC employee I interviewed, COG purposely leaves a lot of the Virginia environmental programming to NVRC, which lets COG focus on the Maryland side where there is no equivalent NVRC organization. ²¹¹

Other regional collaborative organizations

Although NVRC and COG are the most important for regional water quality, there are other organizations that work at the regional level. The Northern Virginia Conservation Trust (NVCT) is a regional land conservation organization that works with both private landowners and local

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²¹¹ Interviewee #42.

governments to get land under permanent conservation easement. They encourage a regional perspective and are, for instance, actively involved in NVRCs Green Infrastructure plan. The Northern Virginia Parks Authority (NVPA) pools money from its member jurisdictions and builds parks throughout the region that residents can use for free or reduced prices.

Further, just like in the Chesapeake Bay there are a multitude of localized environmental organizations like land trusts, watershed associations, wildlife conservation organizations, and others. Again, these are nonprofits run by volunteers or with a few staff members. Although they generally do not manage inter-jurisdictional projects, they will participate in projects developed by the local governments or one of the regional organizations.

Appendix B: Interview Protocol (NOVA case)

This is a basic protocol used for the NOVA interviews. Other questions were added particular to each interviewee, based on pre-interview online research on the interviewees' work and organization. Further, since interviews were conversational we would often spend a long time on certain questions, especially #2 and #4 below. Many follow up questions were asked.

An earlier version of this protocol was used for preliminary interviews on the Chesapeake Bay restoration case.

Description of collaboration

- 1. In general, what is the role of collaboration in the work that you do?
 - Recall that I define collaboration as organizations working together to solve complex problems or achieve common goals.
- 2. Which other organizations does your agency (or do you) collaborate with regularly? On what sorts of projects do you work with them?
- 3. Are there certain types of organizations that are easier to collaborate with? Are there certain types that are challenging? Why?
- 4. Does your agency seek input from interest groups (environmental groups, recreation groups, farmers' organizations, private developers, etc)? Please describe.

Effects of collaboration - General

- 5. What do you think are the positive effects of collaboration? (Whatever comes to mind..... effects on watershed management, on policy results, on water quality, etc)
- 6. What do you think are the disadvantages or costs of collaboration?

Effects of collaboration – Specific

- 7. Following are mechanisms I have developed to describe how collaboration in Northern Virginia may improve watershed management. Please indicate if you agree or disagree with these, and why. Specific evidence and general thoughts are both welcome.
 - a. RESOURCES: Collaboration between government, non-profit organizations, and/or landowners provides financial or technical resources necessary to achieve goals. No one organization has the resources to do these activities alone.
 - b. INFORMATION EXCHANGE: The exchange or pooling of information reduces duplication of effort and allows organizations to learn from each other, improving outcomes.
 - c. COORDINATED PLANNING: Inter-organizational coordination allows for: strategic planning over the entire watershed, harmonizing policies between municipalities, and targeting resources where they are most needed.

- d. COMMON GROUND: Coordination and exchange helps actors with different goals build consensus.
- e. INNOVATION: Bringing in more points of view fosters innovation and creative ideas.

Final questions

- 8. What is your work title?
- 9. Is there anything else you think I should know regarding how you incorporate collaboration into your work?
- 10. Is there anything you think I should know about the advantages or disadvantages of collaboration?
- 11. Do you any suggestions for people in the area I should talk to?

Appendix C: Empirical Examples of Harmonizing

Sample harmonizing passages

A case of harmonizing is generally indicated by a single text passage (of varying length) coded from either the *Bay Journal* or the interview data. To meet the criteria for a primary harmonizing code, passages should indicate that (1) there is collaboration occurring according to my definition, (2) collaborating organizations are addressing a problem or issue more holistically than they would if acting in isolation, and (3) there is some benefit achieved through their harmonized decisions or actions. The example should be specific enough that secondary contextual categories (forum, collaborating groups, and policy area) can be coded. Finally, I should be able to identify the example as a case of geographical, organizational, or ecological harmonizing.

I provide four sample passages below, selected to represent the two data sources and the two main types of harmonizing that appear in the data (geographical and organizational).

 Launching the Mid-Atlantic Regional Panel on Aquatic Nuisance Species (Case #1, Bay Journal, Geographical):

Representatives from mid-Atlantic states, from New York to North Carolina, have formally joined forces in the ongoing battle against zebra mussels, snakeheads, purple loosestrife and other unwanted aquatic invasive species. In April, representatives from state and federal agencies, along with a host of other interested parties, officially launched the Mid-Atlantic Regional Panel on Aquatic Nuisance Species-a federally recognized body aimed at coordinating state efforts and luring new federal support to help fight common enemies. "Instead of doing things state by state, or not talking to each other, the panel will help with coordination..." said Julie Thompson, a biologist with the U.S. Fish and Wildlife Service's Chesapeake Bay Field Office. "We are actually working on a larger geographic area than what we were doing with the Chesapeake Bay Program." (Bay Journal, May 2005: "Regional agencies join forces against exotic invaders")

 Joint TMDL plan for Maryland, Virginia, and D.C., coordinated by ICRPB (Case #4, Interview, Geographical):

we have served as the coordinator for the development of a total maximum daily load plan for the Potomac and Anacostia Rivers for PCBs. That was requested by, demanded by, EPA because each of the three jurisdictions, Maryland, Virginia and the District of Columbia, each had a PCB impairment, and each was upstream of one other jurisdiction, and downstream of one other jurisdiction. The way the Anacostia and the Potomac flow, you get that upstream downstream issue and if you have an individual TMDL for Maryland, as an example, for PCBs, they can impact both Virginia and the District. And it's the same thing with Virginia, they can impact both Maryland and the District. So it became obvious that we should try to do one TMDL rather than having three TMDLs. So that's what was done. (Interviewee #29a)

3. Standardization of procedures for testing striped bass (Case #8, Bay Journal,

Organizational):

For the first time, scientists from Maryland, Virginia and the federal government will be using identical procedures in catching striped bass and testing them for mycobacteriosis, a disease that past studies suggest may infect anywhere from 40-70 percent of the Bay's most popular recreational fish. The standardized surveys will help determine whether [differences found in symptoms and causes of the disease] are real, or result from different survey and laboratory techniques and interpretations. "If we are all on the same page, the results will be more easily compared and thus be of higher quality," said Chris Ottinger, an immunologist with the U.S. Geological Survey's National Fish Health Laboratory in West Virginia. The surveys will take place on the York and Rappahannock rivers in Virginia, and the Potomac and Choptank rivers in Maryland. The work will involve scientists from the USGS, the U.S. Fish and Wildlife Service, the University of Maryland, the Maryland Department of Natural Resources and the Virginia Institute of Marine Science. (Bay Journal, Nov 2002: "States, feds to coordinate study of striped bass infections in Bay")

4. CBLAD works with other state agencies to ensure consistency with the Chesapeake Bay

Preservation Act (Case #11, Interview, Organizational)

In addition, we'll work with the Health Department. Like over the last couple of years they are revising their regulations to accommodate these new types of septic systems that are out there. And we're kind of working with them so they don't put anything in their regulations that would conflict with what's in the Bay Act regulations. So we'll interact.

[Then there is the State Department of Transportation (VDOT), which has] promulgated some regulations regarding streets and things like that and different development patterns and development requirements that [have a] a bay water quality impact, so we'll tend to work with them on a few things as well....as they revise their regulations and requirements, we'll provide input into that saying, "Hey, look, you're doing something here that's not completely consistent with the Bay Act," that kind of stuff. (Interviewee #19a)

Sampling of harmonizing cases

Below I present Table C.1, which briefly describes 16 cases of harmonizing from the data. It includes 7 cases of geographical harmonizing (GEO), 8 cases of organizational harmonizing (ORG), and 1 case of ecological harmonizing (ECO). Of the 8 cases of organizational harmonizing, 5 of them fit the "policy sector" formulation of organizational harmonizing described in Chapter 5 and are labeled as ORG-POL. The secondary codes applied to these cases are also shown, including the Forum for collaboration, Groups that are collaborating, and Policy area.

Where the source description indicates multiple data sources (cases #2, 3, and 9), the same "incident" of harmonizing was described in more than one text passage. Most often, this occurs with Bay Journal data, since the same harmonizing event (especially a significant or complicated one) is often discussed in multiple articles. For instance, the signature of Memoranda of Agreement between upstream Bay States and the Bay Program to meet the 2000 nutrient reduction goals (case #3) was discussed in several articles as the process progressed.

Table C.1: Selected harmonizing cases from the data. Harmonizing type is indicated by GEO (Geographical), ORG (Organizational), ORG-POL (Organizational that involves multiple policy sectors), and ECO (Ecological).

	Source description	Brief description of case	HAR Type	Forum	Forum2	Groups	Group2	Policy Area	Policy Area2
1	Bay Journal, May 2005: "Regional agencies join forces against exotic invaders"	Representatives from mid- Atlantic states, from New York to North Carolina, launched the Mid-Atlantic Regional Panel on Aquatic Nuisance Species-a joint effort aimed at coordinating state efforts on non-native species.	GEO	Coordinating Org		States		Invasive species	
2	Bay Journal, Multiple articles	MD and VA are cooperating, via the Bi-State Blue Crab Committee, to phase in harmonized, more stringent regulations for blue crab harvests.	GEO	Regulation / Law		States		Fisheries	
3	Bay Journal, Multiple articles	The three headwaters states of the Chesapeake Bay (NY, WV, and DE) signed Memoranda of Agreement to work towards the nutrient reduction goals of the Chesapeake 2000 agreement	GEO	Coordinating Org	Other: MOA	States	Upstream and Downstream	Water quality	
4	Two employees (joint interview), Interstate Commission on the Potomac River Basin (ICPRB) – (Interviewee #29a)	ICPRB coordinated a joint TMDL plan for MD, VA, and DC, all of whom were required to write a plan for the same impairment affecting the Anacostia and Potomac Rivers.	GEO	Coordinating Org	Regulation / Law	States	Upstream and Downstream	Watershed planning	

	Source description	Brief description of case	HAR Type	Forum	Forum2	Groups	Group2	Policy Area	Policy Area2
5	County stormwater manager (Interviewee #23)	County stormwater managers coordinate with embedded towns/cities and with the Virginia Department of Transportation (VDOT). These entitites have their own MS4 (stormwater) permits but their stormwater systems are physically intertwined with the Counties' system.	GEO	Regulation / Law		Counties / municipalities	Local & state govt	Stormwater	
6	Planner, Prince William County (Interviewee #34)	PW County coordinates with the City of Manassas on trails "so that we wouldn't have any trails ending at the city line or county line and dying."	GEO	Voluntary, independent		Counties / municipalities		Recreation	
7	Northern Virginia Regional Commission (NVRC) employee (Interviewee #42)	Through an NVRC working group, Northern Virginia localities are developing a coordinated emergency response system in case of drought.	GEO	Coordinating Org		Counties / municipalities		Water supply	
8	Bay Journal, Nov 2002: "States, feds to coordinate study of striped bass infections in Bay"	MD, VA, and Federal government agencies have agreed to use the same procedures for testing striped bass for bacterial infection. Scientists from each will work together to do the tests.	ORG	Voluntary, independent		States	Federal govt & State govt	Fisheries	

	Source description	Brief description of case	HAR Type	Forum	Forum2	Groups	Group2	Policy Area	Policy Area2
9	Bay Journal, Multiple articles	The Chesapeake Bay Gateways Network, coordinated by the National Park Service (NPS), connects disparate park sites into a unified Bay educational and recreational experience. Grants for Bay exhibits are provided by NPS.	ORG	Coordinating Org	Financial incentives	Other: Park sites		Recreation	Environmental Education
10	Soil and Water Conservation District (SWCD) Employee (Interviewee #43b)	Federal District Conservationists and local Soil and Water Conservation District (SWCD) employees cooperate to decide which agricultural cost-share programs to pursue for each farm.	ORG	Voluntary, independent		Federal & local govt		Agriculture	
11	Two employees (joint interview), Chesapeake Bay Local Assistance Department (CBLAD), VA DCR (Interviewee #19a)	CBLAD works with other state agencies (Virginia Dept of Transportation and Virginia Dept of Health) to ensure consistency between their regulations and Chesapeake Bay Preservation Act regulations.	ORG- POL	Voluntary, independent		State agencies (intra-state)		Water quality	

	Source description	Brief description of case	HAR Type	Forum	Forum2	Groups	Group2	Policy Area	Policy Area2
12	Stormwater manager, Fairfax County (Interviewee #4)	A stormwater manager coordinates with other County agencies (parks, schools, etc.) on implementing requirements of the County MS4 permit. Permit is county-wide, but most agencies do not recognize their involvement.	ORG - POL	Voluntary, independent	Regulation / Law (unenforced)	Local govt agencies (intra- jurisdictional)		Stormwater	
13	Watershed Planner, Fairfax County (Interviewee #54)	Watershed planners coordinate with County Planning/Zoning Department on land development by reviewing major development proposals and making recommendations.	ORG - POL	Voluntary, independent		Local govt agencies (intra- jurisdictional)	Land use and water quality	Land development	
14	Environmental Planner, Fairfax County (Interviewee #60)	Planners for Tyson's corner re-development project involved several County agencies in the planning process (schools, fire, water, power, transportation, etc.) to ensure issues were addressed pre-emptively,	ORG- POL	Voluntary, independent		Local govt agencies (intra- jurisdictional)		Land development	
15	Environmental Manager for Virginia Department of Transportation (VDOT) – (Interviewee #36)	VDOT matches up its six year plans with Fairfax County watershed plans. Prioritization of projects is based, in part, on whether VDOT projects match with watershed plan priorities.	ORG - POL	Voluntary, independent		State and local govt	Transportation and environment	Stormwater	

	Source description	Brief description of case	HAR Type	Forum	Forum2	Groups	Group2	Policy Area	Policy Area2
16	Bay Journal, Jan/Feb 1998, "Growing Respect for Grass: SAV Beds May Be Subject to Additional Protection"	The Bay Program Blue Crab Fisheries Management Plan, signed by Bay State governors, calls on fisheries management agencies and environmental agencies involved with habitat protection to coordinate on restoration provisions.	ECO	Facilitated by Plan	Coordinating Org	State agencies (intra-state)	Managers of different species	Fisheries	

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- This reference list does not include Bay Journal articles or interviews quoted or referenced during data analysis. These sources are cited in footnotes.
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Vita

Rachel K. Fleishman rkfleish@maxwell.syr.edu 202-384-4405

EDUCATION

Ph.D. Candidate in Public Administration – The Maxwell School of Citizenship and Public Affairs at Syracuse University. Degree expected December 2013. G.P.A. = 3.95 / 4.0.

• Qualifying exams completed in: 1) Environmental policy, 2) International development policy, and 3) Public administration theory and methods.

M.S. in Natural Resources – School of Environment and Natural Resources at The Ohio State University. Completed August 2004. G.P.A. = 4.0 / 4.0.

• Master's Thesis title: "Watershed groups in Ohio: The effects of organizational characteristics on political behavior, accomplishments, and perceived effectiveness."

B.A. in Chemistry – Vassar College. Completed May 1999. G.P.A. = 3.78 / 4.0.

PROFESSIONAL EXPERIENCE

Adjunct Professor, Indiana University School of Public and Environmental Affairs, August 2009 - December 2012.

- Taught two undergraduate courses: National and International Policy (SPEA V160) and Urban Problems and Solutions (SPEA V161).
- Prepared and presented lectures, developed and implemented case studies and in-class
 exercises, developed and graded exams and paper assignments, orchestrated a three week
 class simulation, and assisted students in group and one-on-one help sessions.
- Supervised 1-2 undergraduate and graduate assistants each semester.
- Provided academic and career advising for students outside of the classroom.

Adjunct Professor, Maxwell School, Syracuse University, July 2010.

• Taught a 3-week intensive masters' level course called "Public Administration and Democracy." (Activities similar to those above).

Editor-in-chief, co-editor, or associate editor for three academic publications, Sept 2005-Sept 2008

- Co-editor for special edition of *Research in Social Movements, Conflicts and Change*. Coordinated review process, co-authored introductory chapter, and edited articles. 2007-2008
- Associate editor for the 2007 edition of the *Journal of Development and Social Transformation*. Coordinated the review process and editing. 2006-2007
- Editor-in-chief for the 2006 edition of the *Maxwell Review* journal. Recruited, selected, and led an editorial team. Coordinated the review process, editing, and printing. 2005-2006.

Assistant to the President, Asociación ANAI, Costa Rica (an international non-governmental organization focused on sustainable development). November 2001- June 2002.

• Worked with NGO president on strategic organizational planning and wrote grants.

Intern Coordinator and Volunteer Coordinator, Asociación ANAI, Costa Rica. October 2000-June 2002.

- Managed a volunteer project on an organic farm and co-managed volunteers for a bird migration project.
- Developed and implemented an intern program.
- Recruited and selected volunteers and interns, coordinated their arrival, orientation, and training, evaluated their performance, and handled problems that arose.

Environmental educator through the AmeriCorps program. Worked half time for the Dutchess County Environmental Management Council (DCEMC) and half time with a non-profit, Hudson Basin River Watch. September 1999-June 2000.

- Organized and led watershed education programs for children and adults.
- Organized and led a Watershed Conference for 200 students.
- Produced educational materials for the public, including newsletters and brochures.
- Helped in the collection and analysis of water quality data under a DCEMC grant.
- Wrote a grant for the DCEMC wetlands committee.

COMPUTER SKILLS

Proficiency with the Microsoft Office Suite (Word, Excel, Powerpoint, Outlook) Proficiency with statistical software (SAS, SPSS, and Atlas ti) Proficiency with web browsing and research Proficiency with social media (facebook, twitter, linkedin, google+)

FOREIGN LANGUAGE SKILLS

Conversational Spanish Intermediate reading and writing in Spanish

OTHER SKILLS

Experience with paper and web-based survey development and implementation Knowledge of budgeting and finance, including ability to produce a flexible budget Grant writing

GRANTS

Academic Research

"Is the Watershed Group a Political Animal?: A Conceptual Model of Watershed Group Identity" 2003. Ohio Agricultural Research and Development Center (OARDC) Graduate Research Competition. Amount received: \$1017.

Professional (written on behalf of an organization)

"The Development of a Participatory, Community-Based Stream Biomonitoring Program in the Amistad/Talamanca World Heritage Site" 2002. Written for Asociación ANAI. Amount received from J.M. Kaplan Fund: \$30,000.

Nomination of the Talamanca Initiative for the Equator Initiative Award, 2002. Written for Asociación ANAI. Amount received from the United Nations Development Program: \$30,000.

"A Public Partnership for Protecting Wetlands in Dutchess County" 2000. Written for the Dutchess County Environmental Management Council. Amount received from US-EPA: \$51,508.

ACADEMIC HONORS AND AWARDS

Doctoral Program

- 2007-2008 Budweiser Conservation Scholarship sponsored by the US Fish and Wildlife Foundation and Anheuser-Busch
- Nominated to the Syracuse University chapter of Phi Kappa Phi (2008)
- Summer research grants from the Department of Public Administration, Maxwell School (Summers 2007 and 2008)
- Graduate assistantship, Program on the Analysis and Resolution of Conflicts, Maxwell School (Fall 2006-Spring 2007)
- Graduate assistantship, Campbell Institute of Public Affairs, Maxwell School (Fall 2004-Spring 2006)

Masters program

- Nominated to the Ohio State Chapter of Phi Kappa Phi (April 2004)
- Ohio Agricultural Research and Development Center (OARDC) Director's Associateship (Fall 2003-Spring 2004)
- Ohio State University Graduate School Fellowship (Fall 2002-Summer 2003)

Undergraduate program

- Phi Beta Kappa, May 1999
- General Honors and Departmental Honors in Chemistry, May 1999
- National Merit Scholarship, 1995-1999
- New York State Byrd Scholarship, 1995-1999

PUBLICATIONS

- Fleishman, Rachel, Rob Alexander, Stuart Bretschneider, and David Popp. 2009. "Does Regulation Stimulate Technical Productive Efficiency? The Effect of Air Quality Policies on the Efficiency of U.S. Power Plants," Energy Policy, November 2009, 37(11), 4575-4582
- Fleishman, Rachel. 2009. To participate or not to participate? Incentives and obstacles for collaboration. In O'Leary, Rosemary and Lisa Blomgren Bingham, eds. The Collaborative Public Manager: New Ideas for the 21st Century. Washington, DC: Georgetown University Press.
- Fleishman, Rachel, Rosemary O'Leary, and Catherine Gerard, eds. 2008. Pushing the Boundaries: New Frontiers in Conflict Resolution and Collaboration. A special edition of the journal Research in Social Movements, Conflicts and Change. Volume 29.
- Fleishman, Rachel. 2007. Co-management as a Solution to the "Tragedy of the Commons"? Lessons from Thai Fisheries. Journal of Development and Social Transformation. Volume 3, Jan 2007. Available online at: http://www.maxwell.syr.edu/moynihan/programs/dev/journal3.html
- Fleishman, Rachel. 2004. Watershed Groups in Ohio: The Effects of Organizational Characteristics on Political Behavior, Accomplishments, and Perceived Effectiveness. Master's Thesis. The Ohio State University. Columbus, OH.
- Fleishman, Rachel, Jenn Bodine, and William J. Mitsch. 2003. Seasonal and Diurnal Effects on Chemical Water Quality in a Constructed Riparian Wetland. The Olentangy River Wetland Research Park at the Ohio State University, Annual Report 2003. The Ohio State University, Columbus, OH

CONFERENCE PRESENTATIONS

- Fleishman, Rachel. 2008. "How does collaborative governance work? Examining the role and outcomes of collaboration in Chesapeake Bay watersheds" Presented at 'The Next Decade What Are the Big Policy Challenges? The 30th annual APPAM research conference' Los Angeles, CA. November 6-8 2008.
- Fleishman, Rachel, Rob Alexander, Stuart Bretschneider, and David Popp. 2007. "Does regulation stimulate efficiency? The effect of air quality policies on the efficiency of US power plants". Presented at 'What Else Shapes Public Policy Analysis and Management? The 29th annual APPAM research conference', Washington, DC. November 8-10.
- Fleishman, Rachel. 2006. "To participate or not to participate in environmental partnerships? Incentives and obstacles facing non-profits." presented at "Governance, Place, and Community in a Globalizing World", a doctoral student conference at the School of Policy, Planning, and Development, University of Southern California, Los Angeles. June 22-23, 2006.
- Fleishman, Rachel. 2004. "Watershed Groups and Government: Collaborators, Antagonists, or Both?" presented at the Western Political Science Association (WPSA) annual meeting. Portland, OR. March 11-13, 2004.