When Hurricane Katrina made landfall on the Mississippi Gulf Coast in August 2005, it immediately overwhelmed the abilities of local and state emergency management officials to respond to the ensuing disaster. Although the U.S. Coast Guard and some military units were on scene shortly after the passage of the storm, there seemed to be inextricable delays before the military forces began to arrive in numbers to both provide humanitarian relief and secure the affected areas. This article analyzes the response of the National Guard, active-duty military, and Coast Guard forces through the lens of coordination. We find evidence of the successful use of both traditional hierarchical and network-based coordination; we also find support for Donald Kettl’s idea of “contingent coordination.”

In the confused hours after the storm passed, it became clear that the existing communications and first-responder infrastructure had completely broken down. Emergency responders were unable to communicate with each other, and decision makers had little information about the status of the affected areas or the needs of citizens who were still in the cities and towns. As news crews were able to gain access to the area, two things quickly became clear. First, the storm’s power had been overwhelming, and thousands of citizens were trapped by floodwaters or in the debris left by the storm. Second, local and state governments were completely and immediately overwhelmed by the size and scope of the challenges created by the storm and the subsequent flooding, and the existing local emergency response infrastructure was decimated. Citizens around the nation and the world watching the drama unfold on their television screens asked themselves the same question over and again: “Where is the United States government?”

The purpose of this essay is to analyze and discuss the coordination mechanisms employed by the armed forces—the U.S. Army and Air National Guard, the U.S. Army, Navy, Air Force, and Marines (both active duty and reserve), and the U.S. Coast Guard—in the response to Hurricane Katrina. The military forces did eventually arrive in force, and the military and the Coast Guard performed many missions and rescued thousands of people. Although the Coast Guard, Navy, and Air National Guard joined about 4,000 Army National Guard troops on scene almost immediately, why did it take five days before active-duty military services arrived in force? Most importantly, what can be done to prevent such delays and problems in the future? The ability to muster a national response to catastrophic events, whether natural or man-made, has taken on greater significance in the aftermath of both Hurricane Katrina and the terrorist attacks of September 11, 2001, and thus response plans and systems have been the targets of much scrutiny.

We will examine the actions of the Coast Guard and the other military services through the lens of interorganizational coordination. As Kettl has pointed out, “[a]t its core, homeland security is about coordination—developing some new tools, to be sure, but weaving together, far more effectively, the nation’s experts and resources. It is a matter of doing new things, doing many old things much better, and doing some old things differently” (2003, 254). The stakes could scarcely be higher. The response to Hurricane Katrina was the first full-scale test of the post-9/11 disaster response regime embodied in the National Response Plan, and many Americans, both in and out of government, concluded that the system failed spectacularly. In the words of Coast Guard Admiral Thad...
In a sense, interorganizational coordination is achieved much as is coordination within a single organization, but rather than individual people occupying positions, each position is an organizational unit.

A second approach seeks to understand coordination as the interaction of interdependent actors outside traditional hierarchical structures (Agranoff 2006; Kettl 2003; O'Toole 1997; O'Toole and Meier 1999; Wise 2006). This network-based approach places much less emphasis on formal, hierarchical, top-down authority mechanisms and instead recognizes that interdependence is not based simply on authority and position (O'Toole 1997) but rather on a need to bring together organizational units as a means to pool resources, authority, knowledge, and technology (Wise 2006). Networks rely on negotiation and mutual adjustment (Wise 2006) rather than formal authority structures and rules. Thomas further suggests that networks are made up of individual players that “have similar normative values, believe in the same causal relationships, and have a common methodology for validating knowledge” (1997, 222).

Both of these theoretical traditions have their own particular strengths and weaknesses. The classical hierarchical model is strong in terms of accountability and role definition, and it excels at the performance of routine, repetitive tasks. On the other hand, such arrangements are highly inflexible, and adaptation and change are antithetical to these structures. Furthermore, in multiorganizational settings, because authority rests in individual organizational settings, top-level managers often have little or no authority over actors in other organizations (Wise 2006), thus limiting their ability to compel compliance with the existing authority. The network model is a highly flexible and adaptable structure that can bring varying resources to bear on different problems as they arise. This very strength, though, is also the network’s most significant weakness: Because its actions fall outside formal lines of authority, accountability is greatly reduced and diffused among multiple players. Performance can only be truly measured as the combination of individual organizational performance within the context of the performance of the actions of multiple agencies (Wise 2006).

In writing about the challenges facing the then-new Department of Homeland Security, Donald Kettl...
(2003) suggests that “contingent coordination” could provide a path through the multifaceted problems of homeland security coordination. In short, the idea is that managers and policy makers “must be adept at … securing collaborative work among disparate levels of government, agencies, and public servants for critical problems, which may occur rarely and never repeat” (2003, 275). Contingent coordination is a hybrid approach to coordination in which separate and distinct actors at different levels of government, each with its own formal hierarchical structure, work collaboratively when the situation demands cooperation. The system is thus highly flexible and able to “adapt to the shifting and unpredictable administrative problems that homeland security poses” (275). It thus suggests that coordination can occur in both the traditional hierarchical and network forms as the situation warrants.

Coordination Systems in a Framework of Federalism

An important element of disaster response is that it takes place within a context of federalism. While there are many different conceptions of federalism, it is not unreasonable to suggest that in the emergency management field, the two most oft-recurring models are the top-down hierarchical model and the network model. In her discussion of the emergency management system in the United States, Schneider (1995) delineates the nature of the cooperative federal system that has been put in place to respond to disasters. In short, the system is one of escalating involvement among governments at higher levels as the scope of the disaster grows: Small disasters are handled at the local level; when the disaster overwhelms local capacity, the state steps in; when the state is overwhelmed, the national government is called in. 1 Prior to the formation of the Department of Homeland Security in 2003, these relationships were spelled out in a combination of law and traditional practice. 2 Much of this activity has now been codified in the National Response Plan (NRP) and the National Incident Management System (NIMS). While a full analysis of the NRP and NIMS is beyond the scope of this research, an understanding of the logic of these documents is highly pertinent to understanding coordination and the federal government’s response.

The NRP is a long (more than 400 pages), complicated document that defines and codifies roles and functions for actors at the local, state, and national levels of government and develops protocols for responding to disasters ranging from floods, to tornados, to terrorist bombings, to accidental chemical spills (DHS 2004b). The document represents “a unified, all-discipline, and all-hazards approach to domestic incident management” (DHS 2004b, i). The signatories to the document include the heads of 32 federal departments and agencies, all of whom pledge to work together to support the tenets and requirements of the NRP. In addition to the NRP, NIMS creates a common set of interorganizational processes that can be enacted in the event of a major incident. The document spells out roles and duties for actors at the national, state, and local levels and provides for a common set of structures, processes, terminology, and mechanisms to guide the coordination effort (DHS 2004a, ix). In effect, NIMS provides the structure that underlies activity within the framework of the NRP. While NIMS represents a traditional, hierarchical approach to coordination, the NRP relies on the abilities of participants to develop networks for successful emergency response.

States have also put into place coordination agreements to share National Guard resources in times of disaster. When states require support in addition to their own National Guard forces, Emergency Management Assistance Compacts (EMACs) are activated with other states and territories. The EMAC is a formal agreement between states and territories that describes the specific skills and support that can be provided in a disaster, resolving liability and reimbursement issues (NEMA 2007). In the case of Hurricane Katrina, the governor of Louisiana requested additional support through Emergency Management Assistance Compact agreements with the National Guard in all 50 states and four territories (GAO 2006a, 13). Under these compacts, units from other states are placed under the authority of the affected state’s governor.

The Context of Response and Recovery

Before we turn to the specifics of the response of the Department of Defense (DoD) and the Coast Guard, it is useful to understand the larger political context that was in place immediately following the hurricane. While other essays in this volume more fully detail the roles of local officials, state officials, the Federal Emergency Management Agency (FEMA), and the White House, a few general observations provide important context for the environment in which coordination occurred.

What happens when an incident like Hurricane Katrina occurs? In order for established coordinating
frameworks to function as intended, some semblance of local and state government must exist to provide a structure for throughput of federal relief. According to Allen (2007), this was the wicked problem posed by Katrina. It was neither a natural disaster nor a terrorist event, but instead a hybrid event: large in magnitude but without a clear antagonist. This, in turn, occasioned a cascading failure (Hereth 2007) of local government’s capacity to coordinate anything because of a wholesale loss of leadership, infrastructure, and competence to cope. The resulting loss of the continuity of state and local government placed great strain on the federal government’s ability to act within the constructs of federalism. It also challenged the ability of first responders to achieve effective coordination through traditional hierarchical means.

Officials with FEMA faced a different set of challenges. FEMA representatives in downtown New Orleans were in contact with FEMA headquarters in Washington by satellite telephone, and they were among the first to warn of the growing flooding problem. Rather than acting on this information, FEMA officials in Washington, who were receiving vague and apparently conflicting information from the U.S. Army Corps of Engineers, decided to wait for independent confirmation before alerting the White House. Even after the scope of the disaster had become clear to official Washington, political posturing on the part of the White House and the Louisiana governor’s office over political control of the troops further delayed the decision to commit federal troops to the area to assist in the recovery efforts (Cooper and Block 2006).

Coast Guard Admiral Thad Allen replaced FEMA chief Michael Brown as primary federal official several days after the storm. In an interview with the authors, Allen described vividly the myriad problems that frustrated attempts to coordinate the recovery efforts. For example, much was made of the apparent delay in removing and processing the bodies of victims. Both state and local officials complained bitterly that no effort had been made by federal officials to collect and process human remains throughout the city. Both state and local governments had no capacity to deal with the remains of the victims, and yet the law required a coroner (a local official) to preside over the process of removal and disposition of remains. None of the coroners in the area could be located; all had fled the storm. The coroner for Orleans Parish was finally located and transported back to the city, and a state medical examiner was appointed. It was only at this point that the mortuary teams already on site could begin their work (Allen 2007).

In sum, the storm not only devastated the infrastructure in the area, it also paralyzed decision makers at the local, state, and federal levels and thus removed any possibility for effective coordination. However, the system spelled out in the NRP calls for an orderly transfer of responsibility as successive lower levels of government are overwhelmed, a system that could not work under the conditions created by the storm. Combined with a lack of leadership, ineffective communications, and political maneuvering, significant time was lost as the bulk of the available military forces waited for authorization to deploy. During this time, the people left behind in New Orleans had to survive as best they could, whether crowded into the Superdome or the convention center or trapped on rooftops or in attics.

We now turn our attention to a discussion of the response to Katrina by the National Guard, the DoD, and the Coast Guard. In keeping with our theme of coordination, we examine these activities to determine the degree to which they fit the pattern of traditional hierarchical coordination, network-based coordination, or contingent coordination.

“Find Your Role and Do Your Part”: The National Guard and the DoD

In the week prior to the hurricane’s landfall, the DoD began preparing their installations on the coast in anticipation of the storm. The U.S. Northern Command, which has operational responsibility for civil support in most of the United States (Bowman, Kapp, and Beasco 2006, 2), began their preparations by sending out orders that allowed the armed services to begin preparations for response without a request from higher authority in hand (Bowman, Kapp, and Belasco 2006, 5). For the DoD and the National Guard Bureau, their organizational structure and lines of authority would be the foundation for some success in the government’s response, but they were also seen as factors that delayed their response.

When orders to commit large numbers of active-duty troops were given, the verbal orders given to commanders were to “find your role and do your part.”

In the days prior to landfall, the governor of Louisiana called up National Guard forces to support the city of New Orleans’ emergency response plan. On Saturday, August 27, 2005, the National Guard prepared to support the New Orleans Police Department at the
troops were standing by for orders. However, some prior to the hurricane’s landfall, most active-duty formal preparation orders and planning allowed the filled with aircraft, with very little official coordination.

City along with local and state officials. The skies were conducting search and rescue missions throughout the National Guard and some active-duty military were to respond. On the second day of the flooding, the disaster, and determining what resources were needed to respond. On the second day of the flooding, the National Guard and some active-duty military were conducting search and rescue missions throughout the city along with local and state officials. The skies were filled with aircraft, with very little official coordination in search and rescue or air traffic control. The number of National Guard troops coming into New Orleans rose to nearly 10,000, but there were still fewer than 1,000 active-duty personnel on scene (GAO 2006a, 21). In Mississippi, DoD personnel who had remained to support their own bases’ cleanup provided support to their local communities. The services were able to provide support because, following DoD policy, an order had been sent forward to send support to the devastated area.

By Thursday, air traffic control patterns had been officially established and instructions for the military were published to manage search and rescue efforts. It would be a number of days before command of the entire search and rescue operation would be established. There were nearly 20,000 National Guard and active-duty personnel in the city (GAO 2006a, 21), a fraction of the number yet to come. The National Guard and the New Orleans Police Department began planning how to secure and evacuate the Ernest N. Morial Convention Center. On the same day, the U.S. Army activated its official command center, the Joint Task Force–Katrina, and began coordinating the evacuation of New Orleans. During the first week, many orders were given verbally, while formal requests for assistance from local officials were clarified and then processed through FEMA and the DoD’s formal request for assistance process. The U.S. Air Force provided medical assistance for the city at the Louis Armstrong International Airport on verbal orders. The airmen supported the triage, treatment, and transportation of more than 18,000 citizens out of the city between September 1 and 4 (Air Force Reserve Command 2007, 1). Although the environment was chaotic and without leadership, officials from all levels of government, as well as the private and nonprofit sectors, worked under inauspicious conditions to provide medical attention and to transport citizens out of New Orleans.

On Friday, September 2, National Guard and active-duty personnel on scene continued to support the Louisiana Department of Wildlife and Fisheries by conducting search and rescue missions by air and boat. At the same time, National Guard troops continued to pour into the city to provide assistance with search and rescue, evacuation, and security against reported looting. In support of the New Orleans Police Department, National Guard troops entered the convention center and secured the mile-long facility. Within 24 hours, the thousands of people who had gathered at the convention center had been evacuated from the city.

For the first 48 hours, responders were focused on conducting search and rescue operations, assessing the damage, and determining what resources were needed to respond. On the second day of the flooding, the National Guard and some active-duty military were conducting search and rescue missions throughout the city along with local and state officials. The skies were filled with aircraft, with very little official coordination

Though National Guard troops had been activated prior to the hurricane’s landfall, most active-duty troops were standing by for orders. However, some active-duty forces, primarily aviation units and personnel from several bases in the affected area, were pre-positioned and began rescue operations immediately following the storm’s passage. The U.S. Navy, which had been communicating with the Coast Guard prior to landfall about their preparations, began search and rescue efforts on August 30, once hurricane force winds had subsided. The Air National Guard provided helicopters to FEMA for search and rescue and damage assessment from Jackson Air National Guard base in Mississippi on Tuesday evening. U.S. Northern Command passed on an order to the services from the Joint Chiefs of Staff to send “whatever you can think of” (U.S. Senate 2006a, 485) and “preposition resources in anticipation of a request for assistance from FEMA” (U.S. House 2006, 66). In response, the services prepared personnel and equipment they thought might be needed. The U.S. Army and Marine Corps conducted training exercises as a means to pre-position supplies and transportation to respond when called upon. The services, bound by the law, prepared as much as they could, ready to do their part, and then waited.

The president announced on Saturday morning, September 3, that the 82nd Airborne, the 1st Cavalry Division, and the 2nd Marine Expeditionary Force were being sent to New Orleans to support the governor...
of Louisiana and the National Guard. These organizations had proactively conducted training exercises earlier in the week to reduce their preparation time and to determine what their role might be, thinking that they would be called up soon after the storm struck. The president’s television appearance was the first indication to the military commanders that these organizations were deploying to New Orleans. The formal order would come not long after the news conference (Cooper and Block 2006, 216–17). But like many of the military deploying to the area, they were unsure of what their exact role would be once they arrived in New Orleans. The federal troops would remain under Lieutenant General Honoré, a command structure separate from the National Guard.

By the end of the weekend, thousands of citizens and tourists who had remained in New Orleans had been brought to the airport and evacuated to other cities. More troops arrived over the weekend from across the country, and by Wednesday, September 7, a week and half after the storm, there were nearly 70,000 National Guard, active-duty, and reserve troops in New Orleans and by Wednesday, September 7, a week and half after the storm, there were nearly 70,000 National Guard, active-duty, and reserve troops in New Orleans (GAO 2006a, 5, 21). The active-duty troops provided rescue support and humanitarian assistance, while the National Guard troops provided security in addition to other tasks.

**Unpacking the DoD’s Response**

As a supporting agency in all 15 functional areas of the NRP the DoD could, and in the case of Katrina, did, participate in much of the response to support other federal, state, and local agencies that were overwhelmed. For the DoD, its participation and management of the response is part of what it trains for when conducting its own operations, and because it is such a large organization, it had the capacity to respond to such a large disaster. To examine the response through the lens of the classic hierarchical view, we find that the use of the Emergency Management Assistance Compacts provided the state of Louisiana an unambiguous understanding of the support that other states would provide in the response. These formal agreements provided information about the types of units, equipment, length of commitment, and command arrangement that would be provided or expected by the incoming units. After the storm passed, the state of Louisiana created EMAC agreements, with the help of the National Guard Bureau, with all 50 states and four territories. In the midst of the recovery, the compacts provided a clear plan for the support the state could expect.

In prior hurricane responses, active-duty forces have taken the lead for the DoD’s response. The department’s new Strategy for Homeland Defense and Civil Support (DoD 2005) places National Guard units in a position to respond more often to natural and man-made disasters. Following traditional command and control structures, the National Guard and active-duty forces may find themselves again trying to develop a unified effort despite not having a unified command structure. In this case, the Louisiana adjutant general, Major General Bennett Landreneau, and the active-duty commander, Lieutenant General Honoré, had known each other prior to the response and had been able to coordinate their response. At the height of the response, there were 50,000 National Guard troops under the command and control of Major General Landreneau.

At the same time, Lieutenant General Honoré led the Joint Task Force–Katrina, the command structure for the active-duty and reserve military forces. In all, a little over 20,000 active-duty and reserve troops were deployed to the Gulf Coast (GAO 2006a, 5). Although it is unusual to have two command structures, and questions arose during the response about the structure, both commanders insisted in testimony to Congress that the command structure had worked well and that coordination between the commands had been the key to its success (U.S. Senate 2006b). This was accomplished because the two men and their organizations had common values and a mutual understanding of the other’s operating procedures. The situation required flexibility and interdependence to achieve the kind of response expected from the DoD.

In an example of how the DoD worked outside its formal command structure to accomplish its mission, the 82nd Airborne was charged with supporting evacuation at the airport, but it found another role. When troops arrived, they quickly realized that no one was coordinating the overall response at the airport. Army officials took time to develop relationships with the other government, airport authorities, and nonprofit and private organizations providing support at the airport. They proposed an operations center that would provide everyone with a central location within the airport to draw on the different resources of the organizations, coordinate their work, and manage communications equipment to work together to accomplish their missions. The 82nd Airborne troops took advantage of the skills and equipment they thought might be helpful.
during their planning and quickly found their role and developed a support network to continue the medical care, security, and evacuation of thousands of people from the airport.

A major factor governing the overall response of the active-duty forces was the delay on the part of the secretary of homeland security in invoking the Catastrophic Incident Annex of the NRP. Under the NRP, such a declaration is necessary before active-duty military forces can be released in response to a disaster (DHS 2004b). Although the president had declared a state of emergency on August 27 and the hurricane had made landfall on August 29, Secretary Michael Chertoff did not declare the hurricane an “Incident of National Significance” until August 30, a delay of nearly 72 hours (Walker 2006, 62). Both the House and Senate investigative reports made note of this issue (U.S. House 2006; U.S. Senate 2006). Compounding the problem was the political posturing that took place between the White House and the governor’s office in Louisiana over whether National Guard troops would be kept under state control or placed under federal control, as well as when federal assistance had actually been requested (Cooper and Block 2006). Both of these issues had to be resolved before official orders could be given to commit federal troops to the area.

For the Coast Guard, its participation in search and rescue, waterway security, and navigational aids repair are all representative of core missions of the organization, and these missions are otherwise carried out daily as part of normal Coast Guard operations—they do not require a request from state or local officials to initiate. In other words, the Coast Guard did not do anything out the ordinary; what was extraordinary was the scale of the event. The history of the Coast Guard is one of cooperation, adaptation, and flexibility. As a consequence of its many missions and the challenges, we became more familiar with the interagency process. Today, I like to say that one of the core competencies of the Coast Guard is “contingent coordination” as standard operating procedure:

Each time we’ve assumed a new duty or function into the Coast Guard, we’ve adapted by absorbing the cultures and dialects that went with them. After focusing on guarding the U.S. coasts during World War II, for instance, we moved into monitoring recreational boating safety, enforcing fisheries laws and maritime environmental regulations, combating migrant smuggling at sea, interdicting narcotics shipments as part of the war on drugs, and establishing port security after 9/11. In responding to each of those transnational threats and challenges, we became more familiar with the interagency process. Today, I like to say that one of the core competencies of the Coast Guard is that we’re bureaucratically bilingual. (Kitfield 2006)

Although the president had declared a state of emergency on August 27 and the hurricane had made landfall on August 29, Secretary Michael Chertoff did not declare the hurricane an “Incident of National Significance” until August 30, a delay of nearly 72 hours.
This metaphor of the bilingual organization, offered by Coast Guard Commandant Admiral Thad Allen, is an apt description of an organization that has embraced the many “languages” of other stakeholder organizations and has effectively normalized contingent coordination.

**Post-Storm Coordination Structures**

The Coast Guard, one of the five armed services of the United States, possesses attributes of both traditional and network coordination structures. The Coast Guard has formalized rank structures, military chains of command, and hierarchical organizational forms. As a small agency with scarce resources, the Coast Guard has a long history of drawing on local relations and partnering to get the job done. The boundaries of formal structures are frequently spanned through networking both within and outside the organization.

During the preparations for the Katrina response, the field commands (called sectors) began implementing their hurricane plans and assessing resource requirements. As the storm approached and the projected landfall became more accurate, the sector commander communicated with neighboring sectors to coordinate the movement of personnel and resources to safe harbors and to prepare for immediate response following the storm’s passage. When informal resource brokering between sectors became overwhelming, the district commands stepped in as the next layer in the hierarchical management structure and continued the resource brokering negotiations. This process was repeated at successive levels all the way up to headquarters (Anderson 2007).

Network coordination mechanisms are also a part of the Coast Guard’s culture in its diverse work with other organizations. Indeed, there are many federal statutes guiding Coast Guard activities that require networking (Hereth 2007). The Ports and Waterways Safety Act of 1972 (P.L. 87-849), for example, charges the Coast Guard with chairing regional Ports and Waterways Safety Committees that include port stakeholders with responsibilities and interests in the realm of port safety. Likewise, the Oil Pollution Act of 1990 (P.L. 106-580) calls for the creation of committees to establish a network structure to respond to future spills. Enacted following the events of September 11, 2001, the Maritime Transportation Security Act of 2002 charges the Coast Guard regional stakeholders with forming Area Maritime Security Committees to develop a process to continually evaluate overall port security (U.S. Coast Guard 2002). Through the ongoing relationships formed and maintained with these and other networking structures, the Coast Guard maintains close ties with federal, state, and local governments, as well as private sector stakeholders to coordinate all domains of the maritime realm.

The aforementioned networks established by local Coast Guard commanders through legislative mandates were fully leveraged during the response to Katrina. Senior Coast Guard officials in executive roles in the Katrina disaster response frequently contacted local commanders for points of contact and subject-matter experts in various aspects of the response and recovery effort. It was through this process that informal network relationships were brought to bear on problem solving by accessing individuals with intimate knowledge of other’s responsibilities and needs (Hereth 2007).

Part of the Coast Guard’s work in the response to Katrina was the task of reconstituting the maritime transportation system. The flexibility of network coordination structures within the overall federal response structure enabled the resolution of multifaceted problems. As a part of the network of government agencies, port authorities, trade associations, and shipping interests, the Coast Guard leveraged its relationships across formal organizational boundaries to provide timely support to the federal response. For example, a wheat grower’s association approached the Coast Guard with concerns about delayed shipments and their economic impact. The Coast Guard’s Damage Assessment Teams found that the grain silos in New Orleans had been largely undamaged by the storm. When it was discovered that the grain depot was inaccessible because of the waterway closure, the team pooled its resources with the National Oceanographic and Atmospheric Administration and the U.S. Army Corps of Engineers to open the shipping lanes for the barges. When the grain depot workers were displaced from their homes because of the storm damage, they worked with FEMA to obtain housing trailers for the workers. When the team learned that the roads to the grain depot were impassible for the workers, the Coast Guard worked with State Highway Administration to make the roads accessible. The network coordination structure that the Coast Guard had established, through its regular mission and its understanding of the NRP, facilitated this multifaceted solution in only three days (Hereth 2007).

The value of collaboration and interdependence permeated the many networks leveraged throughout the
Army National Guard provided air control around the and Black 2006, 230). Although the U.S. Navy and military and civilian frequencies (U.S. Coast Guard promulgated and incorporated the capabilities of both operations, in the Katrina response, there was no overarch-

search and rescue. Therefore, while the formalized plans called for nonfederal support of search and rescue, coordination required members of different agencies to be sensitive to different agency cultures and exercise patience in order to ensure a seamless integration and an overall successful operation (U.S. Coast Guard 2005b). Conversely, complementary cultures can provide useful inroads to jump-start network coordination. In instances in which integration with other military organizations was required, the Coast Guard leveraged the “chief’s network” to connect with other U.S. Navy, Marine Corps, Army, Air National Guard, and Air Force units to facilitate better communications, understanding of each others needs and capabilities, and mutual support (U.S. Coast Guard 2005c).

The Breakdown of Traditional Structures

While many of the Coast Guard’s successes were marked by effective network coordination, many of the Coast Guard’s coordination problems involved the failure of traditional coordination mechanisms. The National Search and Rescue Plan, while quite effective in typical, routinized search and rescue operations (National Search and Rescue Committee 1999), was marginalized when New Orleans flooded, as the Coast Guard is responsible for coordinating search and rescue over water, while the Air Force is responsible for coordinating search and rescue over land. The NRP was designed to respond to urban search and rescue on dry land, with FEMA as the lead agency, supported by the U.S. Forest Service and the Departments of Defense, Agriculture, and Health and Human Services (DHS 2004b). Also, local and civil aviation forces responding in New Orleans would not have been familiar with the National Search and Rescue Plan (U.S. Coast Guard 2005d) or the NRP because neither plan calls for nonfederal support of search and rescue. Therefore, while the formalized search and rescue plans function under normal conditions, in the Katrina response, there was no overarching, shared communication plan that could be quickly promulgated and incorporated the capabilities of both military and civilian frequencies (U.S. Coast Guard 2005d) to provide a coordinated response (Cooper and Black 2006, 230). Although the U.S. Navy and Army National Guard provided air control around the Superdome’s landing pad beginning on Wednesday, August 31, the military and civilian air crews relied on “see-and-avoid doctrine” for days until airborne radar aircraft were established over the rest of New Orleans by the DoD (U.S. Coast Guard 2005c), the Federal Aviation Administration, and the U.S. Navy, Army, and Air National Guard.

Coast Guard helicopters were among the first to begin rescue operations. At the height of the Hurricane Katrina response, the Coast Guard, with support from the Coast Guard Auxiliary, poured more than 40 percent of its air forces into the affected area (GAO 2005e). The Coast Guard was able to create helicopter crews using personnel from different sectors across the Coast Guard because each had received the exact same training. This decision to standardize training and the flexibility to respond allowed the Coast Guard to adapt to the situation and save many lives (Anderson 2007).

In the early stages of the response, the U.S. Joint Forces Command made a direct request to the Coast Guard Command and Control Engineering Center for access to their maritime Common Operating Picture (COP). The COP shares operational information—in this case, information about the response in New Orleans—with all of the Coast Guard command centers and mobile assets. In the interests of responsiveness and interagency coordination of the federal response, the center obliged the request despite the fact that an earlier project had provided access to the COP through the U.S. Northern Command. Again, the Coast Guard recognized the common goal of improving the response and, following the informal network of coordination, provided what was needed, when it was needed (U.S. Coast Guard 2005f). The center reported in its review of the response that the use of traditional hierarchical forms of coordination were appropriate, yet when the crisis demanded, they had employed network coordination to get the job done.

During the disaster response, one element of the Coast Guard force wavered between maintaining command and control through its “organic” hierarchy and through the local command structure in place. Members from the Coast Guard’s Civil Engineering Units deployed to the area reported breakdowns in the chain of command and conflicting orders in their work with the Disaster Assessment Teams. Although the units’ marching orders traditionally came from their oversight office in Miami, at times the teams were tasked with contradictory orders from senior sector officials. Perceptions of conflicting orders slowed down the team’s effectiveness in setting up temporary facilities. This is an example of dissonance with an emerging network structure (i.e., the incident command structure employed by the sector) when attempting to operate from an established hierarchical structure (U.S. Coast Guard 2005e).
The NRP provides the prescription necessary to strengthen the nation’s contingency response system from the risks of “cascading failure” (Hereth 2007) in the future through the employment of network coordination structures. By networking local, state, and federal officials within the same unified command structure at the outset of a disaster response, successive levels can readily be accessed for assistance without the need for local systems to fail and request assistance sequentially. For responses of a relatively small scope, the federal investment in the incident command structure from the outset is a modest one, allowing higher governmental levels to get timely information should their assistance be needed while at the same time leaving the local responders free to execute the missions with available resources if they are able (Hereth 2007).

The challenges of an event of the magnitude of Hurricane Katrina pose substantive challenges to hierarchical coordination structures. Contingent coordination provides the way forward when hierarchical coordination mechanisms seem to strain the boundaries of federalism. Allen (2007) further observes that effective interorganizational coordination requires leaders and participants to be multilingual regarding doctrine, standard operating procedures, and jargon. The U.S. Coast Guard relied on its “multilingual” skill sets to bridge gaps, devise solutions, and operate effectively in the interorganizational realm of contingent coordination.

Conclusion
Our look at the activities of the National Guard, DoD, and Coast Guard during Hurricane Katrina suggests evidence of traditional hierarchical coordination, network-based coordination, and contingent coordination. When comparing the response of the Coast Guard to that of the DoD’s military services, one of the differences is their relative ability to adopt a “contingent coordination” posture. In the case of the Coast Guard, we have an agency that “lives and breathes” contingent coordination daily. The organizational culture supports and encourages this kind of behavior, and the Coast Guard’s ability to meet its statutory requirements demands this behavior. In many ways, the Coast Guard does not practice “contingent coordination” as defined by Kettl (2003) because its coordination is not contingent on anything; rather, it is “business as usual” for the Coast Guard. It is, perhaps, not surprising that one of the post-Katrina changes made to the NRP was to pre-designate primary federal officials, who will be Coast Guard flag officers (admirals). Senior Coast Guard officials regularly demonstrate their ability to work collaboratively with varied stakeholders.5

In contrast, the DoD military services are traditionally insular. Their mission does not require the need for ongoing collaborative relationships with local, state, private, and nonprofit stakeholders; indeed, stories abound about interservice rivalries, suggesting that the culture of each service is still highly insular, even under the common umbrella of the DoD.6 Yet there is also clear evidence that military services coordinated well with each other and with external organizations during the Katrina response, lending credence to Kettl’s notion of contingent coordination. In this case, the contingency was the storm, and the military responded. The evidence suggests that any issues surrounding the initial response of the active duty military were not the result of coordination problems but rather of decision making at the political level.

Enduring questions remain about the ability of our governments at all levels to mount a coordinated, effective response to the next disaster, either natural or man-made. In this respect, the news is somewhat encouraging. The response to Katrina is one of the most-investigated (and most-studied) events in modern history, and many changes have resulted from this work. The NRP has been revised once since Katrina and is again under review (DHS 2007), and issues of communication interoperability and information sharing are being addressed. Some of these lessons were applied as early as the preparation for Hurricane Rita, which hit the coast of Texas just a few weeks after Katrina made landfall. Organizations and political leaders at all levels of government now have experience implementing the NRP and NIMS, something that was not the case prior to Katrina. Finally, Katrina served as something of a “wake-up call” to emergency managers and first responders from the national to the local level, vividly demonstrating the importance of effective coordination.

While coordination provides a useful framework for analyzing the response to Katrina, there are other factors and frameworks not addressed in this analysis that might prove equally fruitful. For example, it is clear to us that organizational culture has a tremendous impact on the ability of one organization to coordinate successfully with others. Organizations that routinely collaborate with others and encourage and foster such activities are likely to be more successful at coordination than those that do not. Likewise, leadership plays a critical role in collaborative networks.

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of the various agencies involved need to have the discretion and authority to make decisions on behalf of their agencies, whether at the highest levels or lowest levels of the organization. The importance of leadership also extends to the political level. While beyond the scope of this article, uncertainty and political posturing likely contributed to a delayed response while active duty military units waited for official orders to deploy (Cooper and Block 2006). In short, there are many remaining questions and much to learn as more details of the military and political response to Katrina unfolds that should serve as the basis of fruitful future research in terms of creating effectively managed organizational structures for crisis response.

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Notes
1. According to Hereth (2007), the traditional response structure that was in place during response to Hurricane Katrina broke down because of “cascading failure” of the stovepiped systems. There were separate response structures set up at each successive level of government (local, state, and federal). Traditional responses to hurricanes relied on the local emergency response to take initial action and report shortcomings to the state’s emergency operations apparatus and on the state to subsequently report to the federal government for needed assistance. This traditional hierarchy relied on sequential reporting to access resources from the next-highest level. The sheer magnitude of the damage caused by Hurricane Katrina resulted in the sudden and complete failure of the local response system, and this was a key reason that the subsequent state and federal responses fell victim to cascading failure and subsequent delays and inefficiencies.
2. While there are many relevant laws, the most relevant to this research are as follows: The Robert T. Stafford Disaster Relief and Emergency Assistance Act “establishes programs and processes for the federal government to provide disaster and emergency assistance to states, local governments, tribal nations, individuals, and qualified private non-profit organizations” (42 U.S.C. § 5121). The act provides the mechanism for an emergency declaration when local, state, and federal officials determine that their capacity has been exceeded and the federal government can provide assistance (DHS 2004b, 79). In addition, two pieces of legislation directly address the use of federal troops in domestic incidents. The Posse Comitatus Act of 1878 and DoD policy both prohibit the use of federal military forces to perform law enforcement functions within the United States (18 U.S.C. § 1385; Department of Defense Directive No. 5525.5) The Insurrection Act of 1807 (10 U.S.C. § 331) gives the president the authority to use federal troop to suppress civil unrest against a government. The president did not invoke the act, nor did the governor of Louisiana request it. Federal forces did not conduct law enforcement functions during the response to civil authority after Hurricane Katrina.
3. This phrase is taken from a televised speech given by President George W. Bush in Jackson Square on September 15, 2005.
4. The “chief’s network” refers to the informal network of senior enlisted members of the military services. These career noncommissioned officers foster personal relationships and friendships that last throughout their careers, and they use these connections to facilitate organizational goals within their respective services. These informal networks are likewise recognized across organizational boundaries, from one military service to another, and frequently result in astute and efficient problem solving.
5. Both law and practice preclude the active-duty military from leading the overall response to a domestic disaster.
6. We do note the recent trend in the military services and DoD toward the use of joint field commands to better integrate the nation’s military capabilities. While a full analysis of these joint commands is beyond the scope of this paper, evidence suggests that such coordination mechanisms have been successful.

References


2005d. Air Station Elizabeth City After-Action Report, October 6.

2005e. Coast Guard Civil Engineering Unit, Providence After-Action Report, October 28.


