ORGANIZATIONAL CHANGE IN THE U.S. FISH AND WILDLIFE SERVICE: STRATEGIC HABITAT CONSERVATION (SHC) AS THE NEXT CONSERVATION APPROACH

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ABSTRACT

ORGANIZATIONAL CHANGE IN THE U.S. FISH AND WILDLIFE SERVICE: STRATEGIC HABITAT CONSERVATION (SHC) AS THE NEXT CONSERVATION APPROACH

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This research is a case study of planned organizational change in a federal government agency, the U.S. Fish and Wildlife Service (FWS). Using theories of organizational change (e.g., rational adaptive, institutional, life cycle, ecology and evolutionary, dialectical and conflict, and policy diffusion and innovation theories) as a framework for my research, I investigated the internal and external factors affecting implementation of Strategic Habitat Conservation (SHC) in the FWS. SHC is generally defined as an adaptive framework that focuses on planning, designing, implementing, and evaluating habitat conservation at landscape scales. I examined the following three research questions: 1) How have the budget, organizational structure, mission, legislation and policy, and conservation priorities of the FWS changed over the last 25 years, and what factors may have influenced those changes? 2) Among existing ecosystem teams (FWS employees from multiple offices and programs working collaboratively in a specific ecosystem), what factors inhibit or facilitate implementation of SHC? and 3) Among existing ecosystem teams, what are employees' experiences with and attitudes about implementation of SHC? To answer the first question, I conducted an archival analysis of FWS annual reports and budget reports from 1985-2010. To answer the second and third questions, I interviewed FWS employees from existing ecosystem teams in the Southeast Region of the FWS in 2008 and 2009.

The archival analysis showed that most metrics have changed only minimally over the last 25 years. For instance, the mission and conservation priorities of the agency have remained

relatively consistent since 1985. However, a few priorities—wetlands, endangered species, and wildlife refuges—received increasing attention and emphasis at different times. The organizational structure has expanded horizontally several times and once vertically, but there has been no major restructuring of the hierarchy. The requested budget has increased 2.5 times the rate of inflation, growing from $529,791,000 in 1985 to $2,639,798,000 in 2010, while the enacted budget has increased from $588,233,000 in 1985 to $2,764,338,000 in 2010, 2.3 times the rate of inflation. Finally, the annual reports identified 14 new pieces of legislation and 12 new policies from this time period. Although no dramatic changes were observed in the metrics examined, internal and external factors have an influence on even minimal changes in metrics. External factors influencing change in the FWS include the U.S. Congress, the judicial system, the President and the Secretary of Interior, public attitudes and opinions about conservation, and organizations with interests in the FWS's mission and activities. Internal factors also influence change in the FWS, including actions and attitudes of leaders and employees.

During interviews, FWS employees identified several factors influencing implementation of SHC. These factors include employee cynicism and distrust, resistance to change, agency culture, leadership, and partnerships. In particular, employee cynicism and distrust, resistance to change, agency culture, and lack of leadership inhibit SHC implementation. Lack of leadership was similarly cited as a factor inhibiting successful implementation of the FWS's ecosystem management approach (EA) in the 1990s. The FWS should be cautious about repeating similar mistakes in attempting to successfully implement SHC. Transformational leadership behavior (TLB), which includes developing, communicating and modeling a vision, providing intellectual stimulation, and empowering employees to achieve a vision, is recommended as a key to addressing a culture of cynicism and resistance to change.

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KEY TO ABBREVIATIONS

ACOE = Army Corps of Engineers

AD = Assistant Director

ANILCA = Alaska National Interest Lands Conservation Act

ARD = Assistant Regional Director

BLM = Bureau of Land Management

CCP = Comprehensive Conservation Plan

CSC = Climate Science Center

CWA = Clean Water Act

DARD = Deputy Assistant Regional Director

DOI = Department of Interior

EA = Ecosystem (management) Approach

ESA = Endangered Species Act

FTE = Full-time Equivalent

FWS = U.S. Fish and Wildlife Service

GARD = Geographic Assistant Regional Director

GC = Guiding Coalition

GPRA = Government Performance and Results Act

HCP = Habitat Conservation Plan

LCC = Landscape Conservation Cooperative

MBTA = Migratory Bird Treaty Act

NBS = National Biological Survey

NCCWSC = National Climate Change and Wildlife Science Center

NCTC = National Conservation Training Center

NEAT = National Ecological Assessment Team

NEPA = National Environmental Policy Act

NFHS = National Fish Hatchery System

NGO = Non-governmental Organization

NMFS = National Marine Fisheries Service

NOAA = National Oceanic and Atmospheric Administration

NPS = National Park Service

NRDAR = Natural Resource Damage Assessment and Response

NWI = National Wetlands Inventory

NWRS = National Wildlife Refuge System

OMB = Office of Management and Budget

OSU = Ohio State University

PARD = Programmatic Assistant Regional Director

RD = Regional Director

RDT = Regional Directorate Team

SHC = Strategic Habitat Conservation

TAT = Technical Advisory Team

TLB = Transformational Leadership Behavior

TNC = The Nature Conservancy

TQM = Total Quality Management

UGA = University of Georgia

USFS = Forest Service

USGS = U.S. Geological Survey

CHAPTER 1

INTRODUCTION AND RATIONALE FOR RESEARCH

Organizations are a pervasive feature of modern society. Complex organizations have been the subject of intense research and analysis since the mid-20th century, and more specifically, the capacity of organizations to innovate and change has been a topic of research interest among organizational scholars since the 1970s (Barnett and Carroll 1995, Pettigrew et al. 2001). Although organizations—particularly bureaucracies—are designed as relatively stable systems of roles and rules, studies show that organizational change occurs regularly (Greenwald 2008).

Organizational change involves a transformation between two points in time and can occur in two dimensions: content and process (Barnett and Carroll 1995). Major changes in content involve transformations in structural elements such as employee hierarchy and distribution of power, culture (e.g., shared values and beliefs), mission, technology, and resources (e.g., budgets) (Armenakis and Bedeian 1999). The process dimension of organizational change focuses on how transformation occurs: the speed, sequence of activities, the decision-making and communication systems, and the resistance encountered.

Some organizational scholars distinguish between different types of change. For example, episodic or planned change is contrasted with continuous or unplanned change. Weick and Quinn (1999) describe episodic change as change that tends to be infrequent, discontinuous, and intentional; it occurs in distinct periods during which shifts are caused by external or internal events. Continuous change is change that tends to be ongoing, evolving, and cumulative (Weick and Quinn 1999). This type of change is emergent, meaning it is the "realization of a new pattern of organizing in the absence of explicit *a priori* intentions (Orlikowski 1996:65). Other

terms for episodic change used in the literature include transformational or revolutionary, while incremental or evolutionary are terms sometimes used to describe continuous change.

Attempting to bring order to the vast body of literature on organizational change, Fernandez and Rainey (2006) organize the most prominent theoretical perspectives as follows: rational adaptive theories, institutional theory, life cycle theories, ecological and evolutionary theories, policy diffusion and innovation models, and dialectical and conflict theories. For each theoretical perspective, Fernandez and Rainey (2006) focus on the nature of organizational change with respect to the primary causes of change and the role of the manager (or leader) in the change process (Table 1)[1]. Scholars widely accept that both external and internal factors can cause organizations to change, and different organizational change theories have different perspectives on the causes of change and the role of managers in particular (Armenakis and Bedeian 1999, Fernandez and Rainey 2006, Greenwald 2008).

Rational adaptive theories and diffusion and innovation models treat managers as agents of change; change is therefore internal. According to rational adaptive theories, which include Lawrence and Lorsch's (1967) contingency theory, resource dependence theory (Pfeffer and Salancik 1978), and organizational learning theory (e.g., March and Simon 1958, Cyert and March 1963), managers analyze their organization's environment and adapt the organization to ensure survival (Fernandez and Rainey 2006). In other words, managers deliberately plan and manage change. Models of policy diffusion and innovation (e.g., Walker 1969, Glick and Hays 1991, Berry and Berry 1999) portray elected officials and public managers as rational actors who adopt new policies or programs to survive or thrive politically and/or make their agencies more

[1] Other authors (e.g., Van de Ven and Poole 1995) organize theoretical perspectives into somewhat similar categories. I chose to focus on Fernandez and Rainey's (2006) categorization of organizational theories because of their focus on the role of managers or leaders in change.

effective at achieving their goals or mission. Public officials also tend to adopt successful practices of their peers (Walker 1969, Berry and Berry 1999).

In contrast to the other theories, life cycle theories view organizational change as natural and spontaneous, occurring as organizations move through various phases in their development (Downs 1967, Quinn and Cameron 1983, Van de Ven and Poole 1995). In life cycle theories, change is imminent and inherent. "The developing entity has within it an underlying form, logic, program or code that regulates the process of change" (Van de Ven and Poole 1995:515), much like DNA does in living organisms. Driven by its underlying code, an organization typically moves through a linear sequence of stages or events in its development to reach some prefigured state. From the perspective of most life cycle theories, managers are seen as irrelevant. However, Quinn and Cameron (1983) argue that organizational members (including managers) may attempt to find ways of adapting the organization.

According to dialectical and conflict theories of change (e.g., Kaufman 1969, Benson 1977, Wise 2002), an organization exists in a world of conflicting events, ideas, and values that compete with each other. These oppositions may be either internal or external to the organization. In either case, change occurs when these opposing events, ideas, and values confront each other, engaging the status quo (Van de Ven and Poole 1995). Van de Ven and Poole (1995:517) describe it this way: "an entity subscribing to a thesis (A) may be challenged by an opposing entity with an antithesis (Not-A), and the resolution of the conflict produces a synthesis…[which] can become the new thesis." There may not always be a creative synthesis, however; the thesis may be replaced by the antithesis (Neal and Northcraft 1991). Therefore, change occurs when either a synthesis or an antithesis replaces the status quo. The actors with

the most power, which may or may not be the managers, are usually the ones who have the most influence on whether or not a change occurs (Benson 1977).

Other organizational theories, such as institutional and ecological theories, point to external influences on change, all encompassed within the larger environmental context of which organizations are a part (Fernandez and Rainey 2006). Institutional and neo-institutional theories see change as external in origin; the environment exerts pressure on the organization (Aldrich 1999), thereby limiting the ability of managers to manage change (Fernandez and Rainey 2006). Conformity to norms, values, and rules drives organizations to change to increase legitimacy and improve survival (Powell and DiMaggio 1991, Scott and Davis 2007). According to ecological and evolutionary theories, which include population ecology (e.g., Hannan and Freeman 1977, 1984) and Weick's (1979) social psychological models, change within populations of organizations occurs through a process of selection: "organizations survive when they 'fit' their environment and succeed at competing for resources; those that do not fit lose out in the selection process and perish" (Fernandez and Rainey 2006:4). Managers develop strategies and decisions to adapt to the environment, but Hannan and Freeman (1984) argue that this may be less likely or less effective in large, complex organizations. Complex organizations take longer to implement change, and by the time a change has been implemented, the environment itself may have changed.

While necessary to provide a coherent framework for understanding the body of work on organizational change, broad theoretical perspectives have yet to be fully utilized in practical applications, particularly in public administration (Fernandez and Rainey 2006). There is a growing body of research on implementation of planned change that provides models or frameworks recommending phases or steps for change agents to follow when implementing

change (e.g., Judson 1991, Kotter 1995, Galpin 1996, Armenakis et al. 1999). However, as Fernandez and Rainey (2006) point out, much remains to be tested and learned, particularly in determining what factors account for the success of change efforts.

The research presented in this dissertation is a practical case study of planned change in a federal government agency, the U.S. Fish and Wildlife Service (FWS). Informed by these theories of organizational change, my research investigates the internal and external factors affecting implementation[2] of change in the FWS. My approach is inductive and uses broad theories of organizational change to provide a framework for my research design. In addition, my approach provides an historical context for an evaluation of the agency's implementation of Strategic Habitat Conservation (SHC), its most recent conservation approach[3]. FWS documents describe SHC as a framework for achieving landscape conservation and characterize SHC as the next step in an evolution of approaches to conservation, building on previous efforts (e.g., the ecosystem management approach (EA) of the 1990s[4]), rather than an approach that suddenly appeared (USFWS 2006, 2008). In this study, I examine the following broad research questions.

1. *How have the budget, organizational structure, mission, legislation and policy, and conservation priorities of the FWS changed over the last 25 years, and what factors may have influenced those changes?*

[2] I use the term "implementation" to describe the whole process of applying a conservation approach. Use of this term does not assume that an approach has been fully implemented or accomplished. It is an on-going process.

[3] I use the term "approach" to describe a framework or method used to guide actions to achieve conservation goals and the FWS mission.

[4] The ecosystem management approach and SHC were formally adopted by the FWS in 1995 and 2006, respectively.

To address this question, I have reviewed the relatively recent history of the FWS, concentrating on changes in budgets, organizational structure, agency mission, legislation, policy, and conservation priorities from Fiscal Year (FY) 1985 until FY 2010. This time period encompasses the 10 years prior to formal adoption of the EA—the approach preceding SHC—the 11 years following implementation of the EA and leading up to the emergence and adoption of SHC, and the four years after SHC was adopted as a conservation approach. This provides a rich historical context for evaluating implementation of SHC in the FWS. To the extent it is possible with the archival data I collected, I have examined the potential external (e.g., political, economic, and social) and internal (primarily the actions or decisions of managers or leaders) factors that likely influenced changes in the FWS over the last 25 years.

2. Among existing ecosystem teams, what factors inhibit or facilitate implementation of SHC?

Ecosystem teams, which were designed as cross-program teams of FWS employees working collaboratively to identify and achieve goals for a particular ecosystem, were established by the FWS during the EA (USFWS 1995). For reasons described in Chapter 3 (methods), I selected interview participants from existing ecosystem teams in one region of the FWS. Through an inductive analysis of interviews conducted with FWS employees in selected ecosystem teams in 2008 and 2009, I have identified factors inhibiting and facilitating SHC.

3. Among existing ecosystem teams, what are employees' experiences with and attitudes about implementation of SHC?

Similar to Question 2, I have assessed employees' experiences and attitudes through an analysis of interviews conducted with the same employees in 2008 and 2009. In a review of organizational change literature from the 1990s, Armenakis and Bedeian (1999) suggest several

areas for future research, one of which is examining the behavioral and attitudinal reactions of organizational members to change. This area of research is especially important to practical applications like this one because understanding gained from reactions of organizational members to change can be used to modify procedures or steps utilized in implementing change. Organizations are composed of individuals, and therefore, to successfully implement and fully understand organizational change it is important to assess the reactions, attitudes, and perspectives of the individual members of an organization.

Ultimately, my research provides the FWS with information on the factors affecting implementation of SHC specifically and recommendations for removing barriers to organizational change more broadly. For the FWS, understanding and adopting the organizational changes required to successfully implement SHC may be key to achieving its mission of conserving species and their habitats for "the benefit of the American people" (USFWS National Policy Issuance #99-01, June 15, 1999). By providing recommendations for implementing organizational change, this research is also intended to benefit other public organizations that have conservation as part of their mission. In addition, this study will contribute to the scholarship of organizational change theory by describing: 1) the context of change in a bureaucratic organization, 2) the effects of an intended change on organizational members' attitudes and behaviors, and 3) employee perceptions of factors affecting implementation of change.

In Chapter 2, I provide a broad review of the history of the FWS dating back to its inception in 1871. A description of my research methods and data analysis techniques follow in Chapter 3. My first research question is addressed in Chapter 4. In that chapter, I present my findings from a content analysis of archival data on the FWS. My second and third research

questions are addressed in Chapter 5. Results from a content analysis of interviews with FWS employees about implementation of SHC are detailed in that chapter. Finally, a synthesis and discussion of the implications of my findings are presented in Chapter 6.

APPENDIX

TABLES AND FIGURES

Table 1. Major theoretical perspectives on organizational change and primary causes of change, as described by Fernandez and Rainey (2006).

Theoretical perspective	Representative works	Primary causes of change
Rational adaptive theories	March and Simon 1958 Cyert and March 1963 Lawrence and Lorsch 1967 Pfeffer and Salancik 1978	Internal: manager's purposeful action
Policy diffusion and innovation models	Walker 1969 Glick and Hays 1991 Berry and Berry 1999	Internal: elected officials and public managers adopt new policies and programs to improve political standing and/or the agency's effectiveness
Life cycle theories	Downs 1967 Quinn and Cameron 1983	Internal: change is natural and spontaneous
Dialectical and conflict theories of change	Kaufman 1969 Benson 1977 Wise 2002	Internal or external: change occurs when conflicting ideas, values, or events confront each other
Institutional theory	Selznick 1943, 1948, 1957, 1965 Dimaggio and Powell 1983 Zucker 1987 Powell and Dimaggio 1991	External: normative and regulatory pressures in environment motivate change
Ecological and evolutionary theories	Weick 1979 Hannan and Freeman 1977, 1984 Aldrich 1999	External: change occurs due to a process of selection in the environment

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CHAPTER 2

THE HISTORY OF THE U.S. FISH AND WILDLIFE SERVICE AND ITS CONSERVATION APPROACHES

OVERVIEW OF FWS ORGANIZATIONAL HISTORY

The FWS has a complex, "chaotic" organizational history (Clarke and McCool 1997), the beginnings of which can be traced back to the U.S. Commission on Fish and Fisheries in the Department of Treasury and the Division of Economic Ornithology and Mammalogy in the Department of Agriculture. Since the FWS's inception in 1871 as the U.S. Commission on Fish and Fisheries, with a single Fish Commissioner, it has undergone many organizational changes. These include myriad reorganizations (Fig. 1) and changes in functions, internal and external policies and regulations, legal responsibilities, and budgets (Reed and Drabelle 1984, Clarke and McCool 1997).

The FWS as it is known today is the result of many changes in name and organizational structure since its predecessor agencies began (Fig. 1). On the fisheries side, the FWS began in 1871 as the U.S. Commission on Fish and Fisheries which, concurrent with a move from the Department of Treasury to the Department of Commerce, became the Bureau of Fisheries in 1903. In 1939, a Reorganization Act transferred the Bureau of Fisheries from the Department of Commerce to the Department of Interior. The wildlife side of the FWS began in 1885 as the Division of Economic Ornithology and Mammalogy in the Department of Agriculture. In 1905, this Division was renamed the Bureau of Biological Survey, and like the Bureau of Fisheries, in 1939 was transferred to the Department of the Interior. Another executive reorganization in 1940 combined both Bureaus to create the "Fish and Wildlife Service."

In 1956, Congress passed the Fish and Wildlife Act (for a brief description of this and other legislation relevant to the FWS see Appendix B, Table 2), redesignating the "Fish and Wildlife Service" as the "U.S. Fish and Wildlife Service" and creating the positions of Assistant Secretary for Fish and Wildlife and Commissioner of Fish and Wildlife within the Department of the Interior. The "U.S. Fish and Wildlife Service" existed beneath these positions, but consisted of two separate agencies, each with the status of a Federal bureau: the Bureau of Commercial Fisheries and the Bureau of Sport Fisheries and Wildlife. In 1970, under another reorganization, the Bureau of Commercial Fisheries was transferred to the Department of Commerce (under the newly created National Oceanic and Atmospheric Administration (NOAA)) and renamed the National Marine Fisheries Service (NMFS). The Bureau of Sport Fisheries and Wildlife remained in the Department of Interior, and in 1974, Congress renamed the Bureau as the "U.S. Fish and Wildlife Service" (hereafter referred to as the FWS). The reasons for these changes will be discussed in later sections of this chapter.

THE HISTORY OF WILDLIFE CONSERVATION IN NORTH AMERICA

The history of the FWS has been influenced by and closely mirrors the history of wildlife conservation in North America (Reed and Drabelle 1984). Baxter (2006) describes five distinct periods over the course of the FWS's history in which the nature of conservation was different enough from the period before to constitute a "paradigm" change:

1) The wise-use era (1870-1929),
2) Restoration and recovery (1930-1949),
3) Multiple use and sustained yield (1950-1969),
4) The environmental movement (1970-1991), and

5) Ecosystem management and biodiversity (1992-present).

The wise-use era is characterized as a time during which our nation realized its natural resources were finite (Matthiessen 1959, Trefethen 1975, Reed and Drabelle 1984, Reiger 2001, Baxter 2006). Water, forest, soil, mineral, and wildlife resources were viewed as commodities that should be protected and developed wisely. Public conservation policies of this time were primarily three-fold: 1) establish national conservation areas such as national parks and forests, 2) meet the need for wildlife surveys and assessment through development of agencies like the Bureau of Biological Survey, and 3) develop natural resources. The Bureau of Biological Survey was one of the predecessor agencies of the FWS, and therefore, the roots of the FWS lie in the science of resource assessment and providing biological information to the nation (Baxter 2006).

During the restoration and recovery era, the U.S. government responded to the resource exploitation of the period 1880-1920 in the same way it responded to the Great Depression and Dust Bowl era of the 1930s: with stronger federal government programs aimed at restoration and recovery (Reed and Drabelle 1984, Baxter 2006). A federal trust for migratory birds was established through the passage of legislation like the Migratory Bird Treaty Act (MBTA) of 1918, the Migratory Bird Conservation Act of 1929, and the Migratory Bird Hunting Stamp Act ("Duck Stamp Act") of 1934. A fledgling national wildlife refuge system was also expanded during this time through federal acquisition of wetlands. In 1937, Congress passed the Federal Aid in Wildlife Restoration Act, which directed money collected from taxes on firearms and ammunition to state wildlife agencies for recovery, regulation and management of wild game stocks. Also during this time a prominent group of conservation leaders emerged, including Aldo Leopold, Former President Theodore Roosevelt, J. N. "Ding" Darling, George Bird

Grinnell, Ira Gabrielson, and J. Clark Salyer (Trefethen 1975, Reed and Drabelle 1984, Reiger 2001).

The multiple-use and sustained yield era was characterized by a shift in public policy to accommodate and manage for multiple uses of renewable resources (Trefethen 1975, Baxter 2006). Instead of viewing natural resources as just commodities, the U.S. began to view natural resources as supporting consumptive and non-consumptive uses. In the 1950s and 1960s, the U.S. also became focused on developing its water resource infrastructure. Through 1946 and 1958 amendments to the Fish and Wildlife Coordination Act of 1934, the multiple-use principle was extended to federal water resource development. The FWS found itself in a new role of federal water resource planner through its newly established Division of River Basin Studies. The FWS shifted from an agency defined by habitat management and harvest regulation to one that had to balance resource development with conservation.

In the 1960s, two socio-political forces were operating to drive a shift in the conservation paradigm to the environmental movement era: 1) citizen activism and 2) a general comfort with regulatory solutions (Reed and Drabelle 1984, Clark and McCool 1997, Baxter 2006). The concepts of wise-use and multiple-use were increasingly rejected on public lands, and significant parcels of public lands were dedicated to preservation. This era was ushered in by the passage of sweeping environmental legislation like the National Environmental Policy Act (NEPA) in 1969 and the Endangered Species Act (ESA) of 1973. Passage of NEPA and the ESA in 1973 brought an unparalleled expansion to the FWS's trust resource responsibilities and authorities.

By the late 1980s, in response to increasing losses in biodiversity, many scientists and land managers were supporting an ecosystem approach to conservation and management in contrast to single-species conservation (Grumbine 1994). By the mid-1990s, at least 18 federal

agencies, including the FWS, had formally adopted the "ecosystem management" approach (EA) to conservation (Grumbine 1997, Baxter 2006). In the 1990s and early 2000s, scientific, technological, and socio-political influences were catalyzing changes in the wildlife conservation model, making conservation more complex than ever before (USFWS 2006). In response, in 2006 the FWS adopted Strategic Habitat Conservation (SHC) the agency's next approach to conservation.

EVOLUTION OF THE FWS

In the remainder of this chapter, I provide a more detailed history of the early years of the FWS, including its predecessor agencies, with an emphasis on patterns and trends in agency mission, responsibilities, and organizational structure. I also provide a history of the years leading up to the adoption of the EA (the predecessor approach to SHC) in 1995, followed by the adoption of SHC as a conservation approach in 2006.

U.S. Commission on Fish and Fisheries

At the beginning of the wise-use era, in response to public concerns over the possible decline of fishery resources, the U.S. Congress passed a resolution in 1871 establishing the U.S. Commission on Fish and Fisheries (hereafter Commission) and a Commissioner of Fish and Fisheries within the Department of Treasury. This was the first official Federal government action involving conservation of renewable natural resources (Schley 1971). Congress (1871) resolved:

> "That the President be…authorized and required to appoint, by and with the advice and consent of the Senate, from among the civil officers or employees of the government, one person of proved scientific and practical acquaintance with the fishes of the coast, to be

commissioner of fish and fisheries, to serve without additional salary."

Spencer F. Baird, then the Assistant Secretary of the Smithsonian Institution, was appointed by President Grant as the first Commissioner of Fish and Fisheries. Baird was charged with studying and recommending solutions to the decline in food fishes. Soon after his appointment, Baird established the Commission's headquarters at Woods Hole in Cape Cod, Massachusetts and with a small staff, began studying striped bass (*Morone saxatilis*), bluefish (*Pomatomus saltatrix*), and other commercial fish species along the New England coast (Baird 1872). Limited by lack of funding, Baird persuaded many noted scientists to work for the Commission during the summer for little or no pay (Schley 1971). These scientists studied different areas along the coast of New England each year and collected and identified thousands of marine specimens. In 1885, under Baird's direction, the first Federal fishery research laboratory was built at Woods Hole.

Soon after Baird took office in 1871, Congress appropriated $15,000 for the propagation of food fishes, which became a secondary emphasis of the Commission. Livingston Stone, an experienced trout (*Salmo, Oncorhynchus,* and *Salvelinus* spp.) culturist, was chosen to set up a salmon (*Salmo* and *Oncorhynchus* spp.) hatchery in California. This hatchery, the first Federal fresh water hatchery, was used to incubate salmon eggs, which were shipped to rivers throughout the country and around the world to provide salmon as food fish. The introductions of salmon, however, were largely unsuccessful. Stone and Baird continued to expand hatchery operations and successfully established rainbow trout (*O. mykiss*) and striped bass in areas outside of their native ranges. Following Baird's death in 1887, propagation and reclamation of game and food fishes became the primary emphasis of the U.S. Fish Commission.

In 1892, the Commissioner was given the responsibility of enforcing a legislative prohibition against barricading streams to capture salmon in Alaska. According to Clarke and McCool (1997), the Commission began to depend upon the assistance of the fishing industry around this time. Fish inspectors were not provided with government transportation, so they had to rely on using boats of salmon packers to get from one cannery to the next (Cooley 1963).

Bureau of Fisheries

In 1903, an act of Congress established a new agency, the Bureau of Fisheries, in the Department of Commerce and Labor, into which the U.S. Fish Commission was assimilated. The Bureau of Fisheries was given a dichotomous mission by Congress: 1) to conserve and protect the fishery resource and 2) to promote the fishery resource (Clarke and McCool 1997). The Bureau became responsible for supervising and controlling the fur seal (*Callorhinus ursinus*), salmon, and other Alaskan fisheries. Clarke and McCool (1997:108) indicate that the Bureau was increasingly identified with Alaska and the salmon industry in its early years, and that in effect, the "regulator was controlled by the regulated" and was largely unsuccessful in regulating the salmon industry. Passage of the White Act in 1924 (Appendix B, Table 2) improved the situation for the Bureau because the Act provided specific and enforceable provisions to regulate the fishing industry to guarantee future supplies.

Division of Economic Ornithology and Mammalogy

In 1885, nearly 15 years after the U.S. Fish Commission was created, Congress established the Department of Economic Ornithology, a branch of the Division of Entomology, in the U.S. Department of Agriculture (USDA). The following year, the work of the Department of Economic Ornithology was separated from the Division of Entomology and made an independent division: the Division of Economic Ornithology and Mammalogy (hereafter

Division). With Clinton Hart Merriam appointed as the first Chief and an appropriation of $10,000, the Division was tasked with "the promotion of economic ornithology and mammalogy; an investigation of the food-habits, distribution and migrations of North American birds and mammals in relation to agriculture, horticulture, and forestry" (USDA 1886:227).

The work of the Division primarily consisted of collecting facts about the food habits, distribution, and migration of North American birds and mammals as well as the publication of bulletins and special reports about birds and mammals that affected farming interests. Merriam (USDA 1886:227) hoped this work would "correct the present widespread ignorance concerning the injurious and beneficial effects of our common birds and mammals, and to put a stop to the wholesale destruction of useful species now going on." During this time, there were differences of opinion among farmers about whether certain species, such as hawks (*Accipiter* and *Buteo* spp.) and owls (*Bubo* and *Tyto* spp.), were beneficial or injurious. To accurately determine what kind of food birds and mammals were eating, Merriam and his staff, with the help of the agricultural community, began collecting and analyzing the stomachs, gizzards, and crops of birds and mammals. All of this work was a large undertaking, and as early as 1888, Merriam indicated in his annual report that the scope of the Division's work was so large and its budgets and staff so limited that only a portion of the work for which the Division had been tasked could be undertaken (USDA 1888).

Division/Bureau of Biological Survey[5]

In 1890, in response to a recommendation by Merriam, Congress removed restrictive wording in the act appropriating money for the investigations of the Division; changes in the wording, in effect, made the Division a biological survey. The Division was now authorized to

[5] A more detailed history of the Bureau of Biological Survey up to 1927 is provided in Cameron Jenks' book, *Bureau of Biological Survey*.

investigate the geographic distribution of all animals and plants, not just birds and mammals. Over the next several years the Division spent a significant amount of time on biological surveys, the purpose of which were to "[map] in detail the boundaries of the natural life zones of our country, at the same time securing data and specimens illustrating the distribution and status of the various species" (USDA 1893:230). To better reflect the expanded mandate of the Division to study and map the geographic distribution of plants and animals in the U.S., in 1896, Congress approved a change in name to the Division of Biological Survey.

With the passage of the Lacey Act in 1900, the work and responsibilities of the Division were greatly expanded. The purpose of the Lacey Act is "to aid in the restoration of such [game birds and other wild] birds in those parts of the United States adapted thereto where the same have become scarce or extinct, and also to regulate the introduction of American or foreign birds or animals in localities where they have not heretofore existed." The Division was given the responsibilities of overseeing the preservation of birds, overseeing the importation of foreign birds and animals, and prohibiting interstate commerce of birds killed in violation of State laws. In 1901, to better reflect and manage the different types of work of the Division and the responsibilities conferred to it under the Lacey Act, it was divided into three sections: 1) biological surveys and geographic distribution, 2) economic ornithology, and 3) game protection and importation of foreign birds and animals.

In 1903, in response to concerns of prominent naturalists at the National Audubon Society, the American Ornithologists Union, and the Division of Biological Survey over the possible decimation of the brown pelican (*Pelecanus occidentalis*) due to hunting for sport and the feather trade, President Theodore Roosevelt designated Pelican Island, Florida as the first federal reservation for the protection of native birds, thus beginning the National Wildlife Refuge

System (NWRS) and ushering in an era of unprecedented species protection. Multiple bird reservations were added to the NWRS every year, with Roosevelt himself establishing 51 bird reservations and four big-game preserves between 1903 and 1909 (Chase and Madison 2003).

After receiving another name change through an act of Congress in 1905, the Division became the Bureau of Biological Survey (hereafter Bureau), but there were no immediate major changes in structure or function. Soon after, around 1906, the Bureau began working on recommendations for exterminating wolves (*Canis lupus*), coyotes (*Canis latrans*) and house rats (*Rattus rattus*) and studying bacterial diseases for destroying noxious mammals (e.g., rabbits (*Sylvilagus* spp.), squirrels (Sciuridae))—in effect predator control. Although the Animal Damage Control Program began in 1888, it wasn't until about 1914 that Congress began approving appropriations to expand the program. Then in 1929 a Division of Predator and Rodent Control was created within the Bureau to conduct large-scale exterminations of predatory mammals such as wolves, coyotes, and mountain lions (*Puma concolor*). Part of the Bureau's mission from its early days was to investigate and reduce "injurious" pests and wildlife, but under pressure from farmers and sportsmen, eradication of predatory mammals to enhance game and agriculture became a central part of the agency's mission (USFWS 2009). The Animal Damage Control Act, formal legislation for conducting predator control activities, was passed in 1931. Animal damage control was the responsibility of the FWS until 1986, when it was transferred out of the agency (USFWS 2009).

Declines of native birds, particularly game and shorebirds, were receiving increasing attention in the early years of the Bureau and its work expanded to address these declines. For instance, the Bureau began working with the States in 1910 to regulate the plume trade. Administration of a new Federal migratory bird law in 1913 and then the Migratory Bird Treaty

Act of 1918 expanded the Bureau's responsibilities for migratory birds. The Bureau also conducted its first bird census and bird banding in 1914. During World War I, the Bureau received emergency war funding to protect food supplies from predatory animals and injurious rodents. Public concern with fish-eating birds began during this time. In response to severe declines in waterfowl populations, the Migratory Bird Hunting Stamp Act (the "Duck Stamp" Act) was passed in 1934, which required all hunters to purchase a stamp. The revenue generated through this Act was used to acquire important wetlands for waterfowl populations. Waterfowl restoration then became a major focus for the Bureau.

In 1921, the Bureau was restructured and organized into 5 divisions: 1) Economic Investigations, 2) Biological Investigations, 3) National Game and Bird Reservations (later Game and Bird Refuges), 4) Migratory Bird Treaty and Lacey Acts (later Protection of Migratory Birds), and 5) Alaska Reindeer and Fur-bearers (later Alaska Investigations, then Alaska Wildlife). In 1922, the Food Habits Research division was added and then the Fur Resources division was added a few years later in 1925. Another change to the Bureau's structure came in 1934 when two more new divisions were created: Game Management and Public Relations. Finally, in 1937, all field activities were placed under a regional organization (a regional organization still exists in the FWS today) with 10 regional directors. All of these structural changes and additions were adopted to better organize and administer the increasing and diversifying workload of the Bureau. For example, in his annual report, Ira Gabrielson, Chief of the Bureau, stated the 1937 reorganization was carried out "to bring about more efficient administration, including coordination of activities and expedition of work, and to engender a group spirit and solidarity" (USDA 1937:5).

In 1939, under the President's Reorganization Plan No. II, along with the Bureau of Fisheries, the Bureau was transferred to the Department of Interior. In addition, the Wildlife Division of the National Park Service (NPS) was transferred to the Bureau of Biological Survey under this reorganization (DOI 1940).

The Fish and Wildlife Service

In 1940, under the President's Reorganization Plan No. III, the Bureaus of Fisheries and Biological Survey were consolidated to form the "Fish and Wildlife Service". Responsibilities of the Fish and Wildlife Service during World War II included: protection of fisheries and other food resources; providing facilities or refuges for military training; harvesting grains, crops, and timber from refuges for the war effort; transferring fisheries vessels to the U.S. Coast Guard, Navy and Marines; and cooperating with the military, especially game management agents with law enforcement training, as needed (USFWS 2009).

Sixteen years after being created, the Fish and Wildlife Service was formally established with the passage of the Fish and Wildlife Act of 1956. The Act also created two new bureaus: the Bureau of Commercial Fisheries and the Bureau of Sport Fisheries and Wildlife. Each had the status of a Federal bureau, but both were overseen by an Assistant Secretary for Fish and Wildlife and a Commissioner of Fish and Wildlife. This lasted until 1970 when the Bureau of Commercial Fisheries was transferred to the Commerce Department under NOAA and became known as the National Marine Fisheries Service (NMFS).

The U.S. Fish and Wildlife Service

The 1970 transfer of the Bureau of Commercial Fisheries did not affect the Bureau of Sport Fisheries and Wildlife in that the latter Bureau remained in the Department of Interior. Under the Direction of Director Spencer Smith. However, the Bureau underwent an extensive

reorganization in the early 1970s. Traditional Bureau functions were "retained and assimilated into the revised organization" (USFWS 1975:vii). The reorganization included a restructuring of the Washington Office Directorate to include a "program manager" concept that stressed responsibility and accountability (USFWS 1975).

In 1974, the Bureau of Sport Fisheries and Wildlife became the U.S. Fish and Wildlife Service (FWS). With the passage of far-reaching legislation like the ESA and NEPA, the FWS was mandated with a huge administrative burden (Clarke and McCool 1997). According to Clarke and McCool, "overcommitment" was talked about frequently in congressional oversight and appropriations hearings during the 1970s.

In 1980, the passage of the Alaska National Interest Lands Conservation Act (ANILCA) established nine new refuge units in Alaska, increasing the number of acres in the National Wildlife Refuge System from 22 to 76 million acres. Despite this expanded responsibility, the Reagan administration cut the agency's budget during this time.

The Ecosystem Management Approach of the 1990s

In response to increased losses in biodiversity, in 1994, the FWS became a lead federal agency in formally adopting an ecosystem management approach (EA) to fish and wildlife conservation (Beattie 1996). By 1995, ecosystem terminology and a concept document were adopted, and the FWS formally joined with other federal land-management agencies (the U.S. Forest Service, the Bureau of Land Management (BLM), and the National Park Service (NPS)) in a *Memorandum of Understanding to Foster the Ecosystem Approach*. The FWS's 1995 concept document, *Ecosystem Approach to Fish and Wildlife Conservation*, articulated its goal as effective conservation of natural and biological diversity through the perpetuation of dynamic, healthy ecosystems (Beattie 1996). The three major goals of the EA outlined in the concept

document were: 1) increasing effectiveness of conserving fish and wildlife, 2) improving cross-program coordination within the FWS, and 3) increasing the quality and quantity of partnerships with external stakeholders (USFWS 1995). The concept document outlined the ways in which the agency needed to change to adopt the EA, including incorporating a change in organizational structure. To support ideas in the concept document, all field personnel in FWS's three largest programmatic areas—Refuges and Wildlife, Fisheries, and Ecological Services—were placed under a Geographic Assistant Regional Director (GARD). Each new GARD had supervisory responsibility in an "ecoregion" (Danter et al. 2000).

To determine the effectiveness of the EA, the FWS hired an assessment team from The Ohio State University (OSU) in 1997 to conduct a formal evaluation of the agency's approach. The OSU assessment found that although cross-program collaboration and partnering with stakeholders had improved, agency personnel were confused about the EA. Confusion stemmed from lack of their involvement in implementation, lack of clarity in the definition of and approach to ecosystem management, poor communication about the ecosystem approach, and poor leadership of managers and accountability for change management at all levels (Mullins et al. 1998, Danter et al. 2000). The OSU recommendations for improving implementation of ecosystem management focused on issues of vision, communication, transparency in decisions, accountability, providing training and rewards, and increasing partnerships. In addition, the OSU team discussed the importance of leaders in implementing the EA; they recommended that leaders initiate and reinforce communication, eliminate barriers to implementation of ecosystem management, be held accountable for their actions, and provide training and experience for personnel (Danter et al. 2000) The FWS Directorate, which includes the Director, Deputy Director(s), Regional Directors and Assistant Directors of all programs (Fig. 2), adopted all but

one of OSU's recommendations (the recommendation to add a Landscape Ecology Office at the Washington level was not adopted), thereby acknowledging that leadership was important in changing organizational structure and function and garnering support from employees (Danter et al. 2000).

According to Danter et al. (2000), implementing the EA successfully required a change to an agency governance style that is more leadership-oriented and adaptive. They argued that agencies should "liberate" their employees from the traditional command-and-control management approach so they can become more decentralized, open to risk-taking and adaptive, characteristics that would support implementation of the EA (Knight and Meffe 1997). Therefore, Danter et al. (2000) recommended that FWS officials change their leadership style to support organizational changes required for implementation of ecosystem management.

Even though the FWS adopted the EA in the mid-1990s and the agency's Directorate decided to implement most of the OSU Assessment Team's recommendations, many current agency activities continue to reflect a more traditional conservation approach in which pursuits are agency-specific, species-specific, project-oriented, and opportunity-driven—an opportunistic rather than strategic approach (USFWS 2006). Many ecosystem teams developed during the EA devolved into FWS-centric partnerships, and adequate resources were not available to build capacity for broad-based partnership-guided conservation at large scales (USFWS 2006). The transformational leadership called for by Danter et al. (2000) to support organizational changes required by the EA was not achieved within the FWS at an agency-wide scale.

Moving into the 21st Century: Strategic Habitat Conservation as the Next Approach

In 2004, citing a need for a different approach to species and habitat conservation efforts due to changes in the broader field of conservation, leaders in the FWS and the USGS chartered

the National Ecological Assessment Team (NEAT) (USFWS 2006, 2008). The NEAT's goals were to: 1) characterize current and emerging scientific conservation strategies and 2) recommend unifying approaches and capacity building measures (USFWS 2006). The NEAT characterized the conservation approach of the FWS as shifting from opportunity-driven, ideologically based (e.g., wetlands are important and therefore should not be destroyed), single species or small-scale conservation to science-based, strategic conservation of landscapes. The latter approach was termed SHC.

SHC, as described in the NEAT report, is a framework for setting and achieving conservation objectives at multiple scales based on the best available scientific information (USFWS 2006). It is an iterative process of developing conservation strategies, making efficient management decisions, and utilizing research and monitoring data to evaluate accomplishments and refine future conservation strategies (Johnson et al. 2009). SHC is implemented through an adaptive management loop that includes five key elements: 1) biological planning, 2) conservation design, 3) delivery of conservation actions, 4) monitoring, and 5) research (Fig. 3; USFWS 2006). According to Johnson et al. (2009), the goal of using SHC as a conservation approach is to make the FWS more efficient and transparent.

Following endorsement of *Strategic Habitat Conservation: Final Report of the National Ecological Assessment Team* (USFWS 2006) by the FWS Directorate in July 2006, the FWS Director called for establishment of Regional Teams, directing implementation efforts to be regionally based. All nine regions of the FWS appointed teams to determine how to best achieve buy-in from employees to implement SHC in their regions. At the time of this study, the regional implementation (or advisory in some regions) teams were in different stages in developing and providing recommendations for successfully implementing SHC in their

respective regions (see Epilogue for further discussion of what happened with regional teams after my study ended).

Like the EA, implementation of SHC in the FWS will require changes in organizational behavior (Danter et al. 2000). Bureaucracies are generally resistant to changes in culture (Yaffee 1996), and implementation of SHC represents a change in culture for the FWS. This change in culture was necessary for ecosystem management to succeed in the FWS, but by many accounts, this was not achieved (Danter et al. 2000).

It is important to note here that although the EA was formally "adopted" and "implemented", the EA was only partially implemented in the FWS, and after formal mandates from FWS leaders waned or disappeared, many ecosystem teams stopped meeting (D. Flemming, FWS-Ecological Services, personal communication, March 22, 2011). However, many teams that enjoyed working together and found efficiencies and increased benefits by working collaboratively on common goals, continued to meet (and still meet today) and use ecosystem management principles. As discussed in Chapter 2, the FWS reorganized at the Regional level to implement the EA. Employees did not want or support a reorganization (Mullins et al. 1998, Danter et al. 2000), and by many accounts the EA failed. SHC is different from the EA in that there has been no reorganization in the FWS to support implementation of SHC. The two approaches share some similarities in that they both employ the use of adaptive management principles, stress the importance of partnerships to meeting goals, and base decisions on natural, ecologically defined boundaries. The EA was more focused on internal collaboration, partnerships and reorganizing while SHC is more focused on technical elements (e.g., biological planning, conservation design, monitoring and evaluation) of achieving conservation goals. The goal of the EA was "the effective conservation of natural biological

diversity through perpetuation of dynamic, healthy ecosystems" (USFWS 1995:3), while the goal of SHC is "setting and achieving conservation objectives at multiple scales based on the best available information, data, and ecological models" (USFWS 2006:29).

APPENDIX A

TABLES AND FIGURES

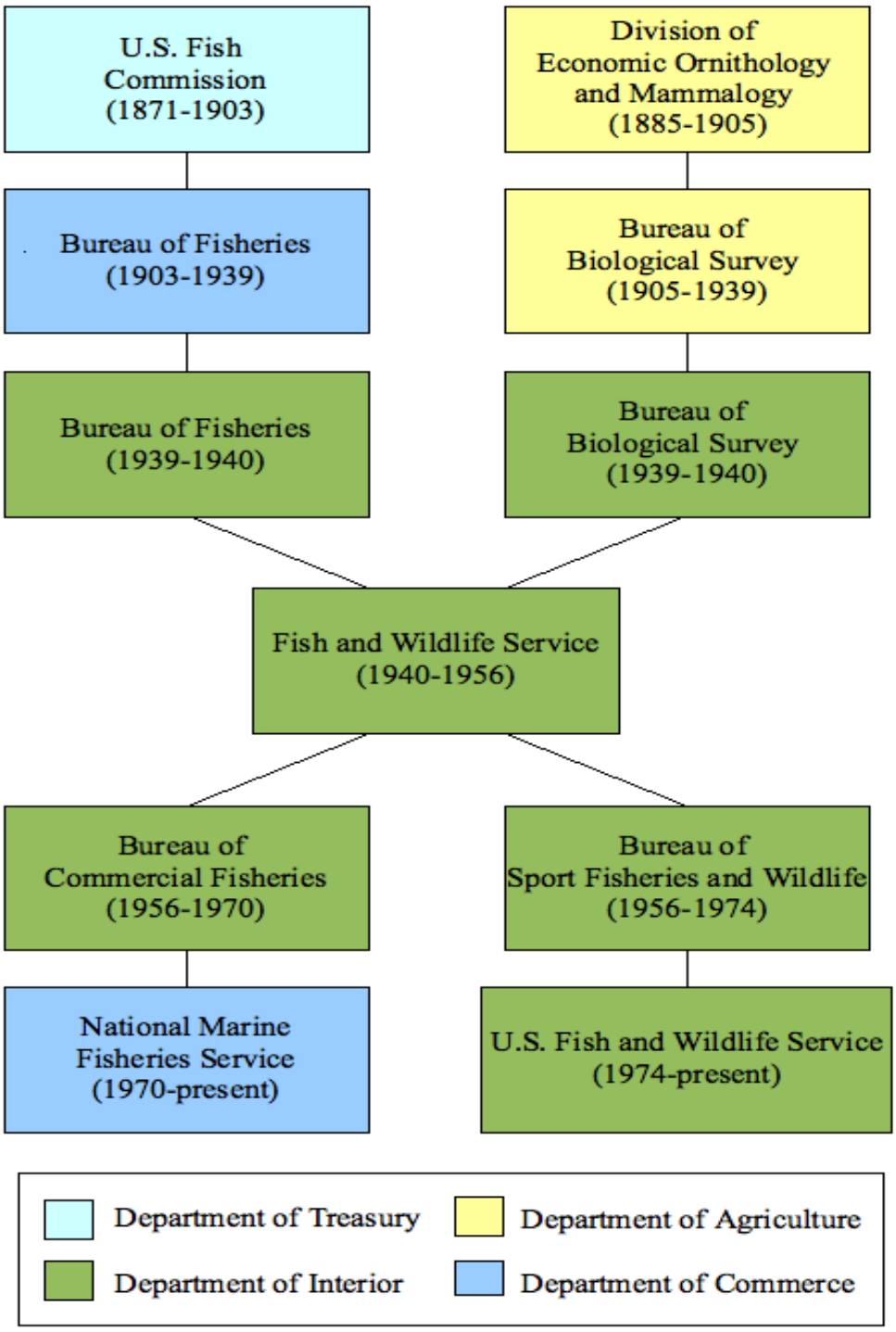

Figure 1. Federal fish and wildlife agencies leading to the creation of the U.S. Fish and Wildlife Service. For interpretation of the references to color in this and all other figures, the reader is referred to the electronic version of this dissertation.

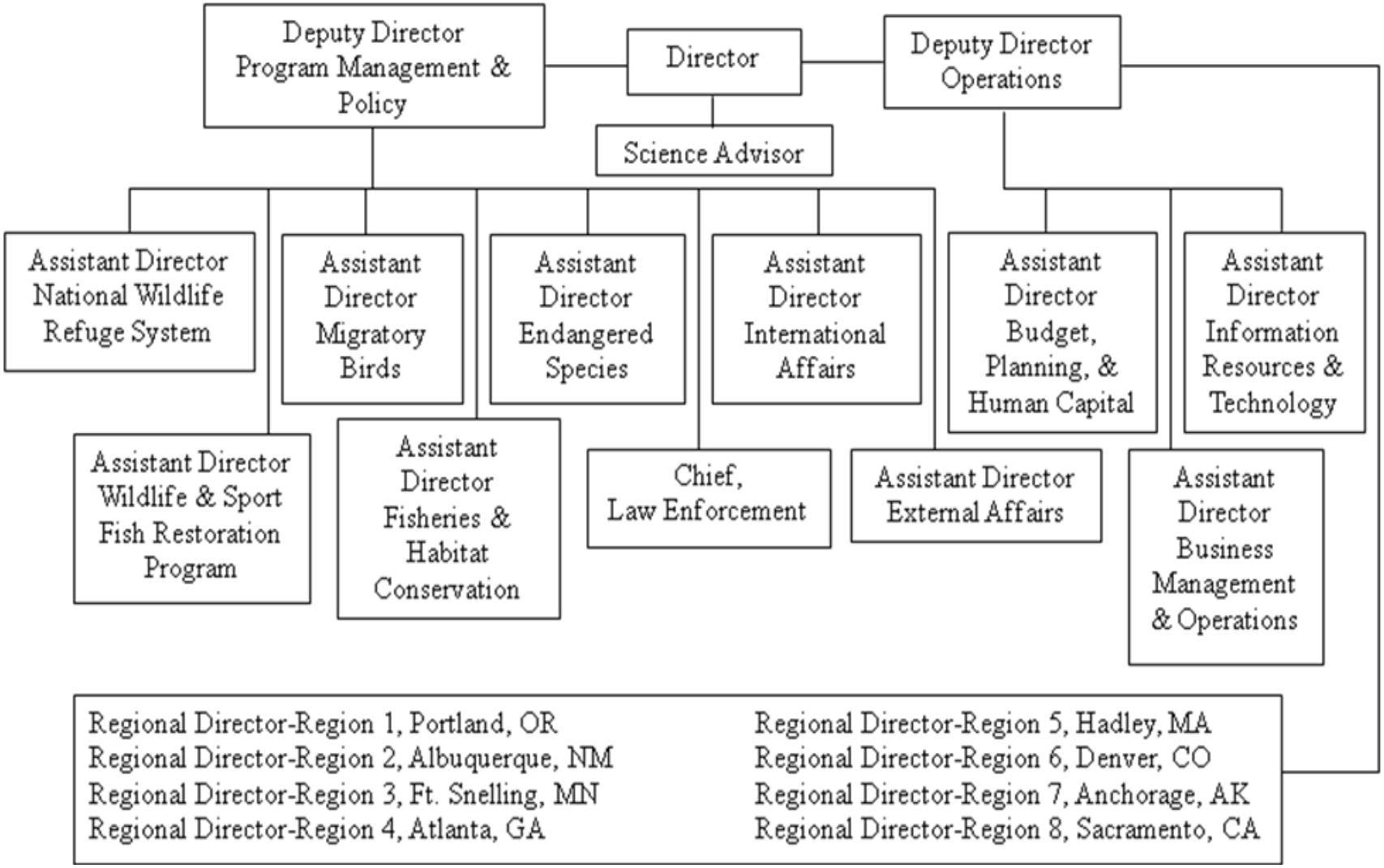

Figure 2. Current organizational structure of the FWS at the national level. (Chart adapted from www.fws.gov/offices/orgcht.html)

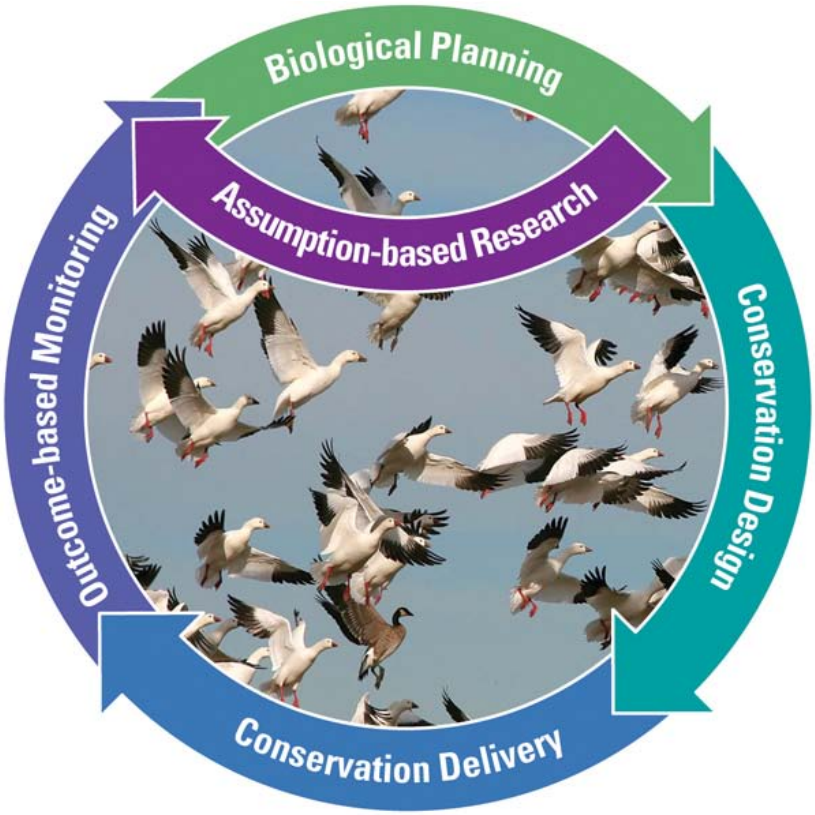

Figure 3. The Strategic Habitat Conservation (SHC) approach as illustrated in the 2006 National Ecological Assessment Team (NEAT) Report and 2008 SHC Handbook (USFWS 2006, 2008).

APPENDIX B

RELEVANT FEDERAL LEGISLATION

Table 2. Relevant Federal Legislation

Year	Legislation	Purpose
1900	Lacey Act	Prohibits interstate commerce of game killed in violation of local laws
1918	Migratory Bird Treaty Act (MBTA)	Provides for the regulation of migratory bird hunting
1924	White Act	Provides enforceable provisions to protect and conserve Alaskan fisheries
1926	Black Bass Act	Prohibits interstate commerce of black bass taken, purchased, or sold in violation of state laws
1931	Animal Damage Control Act	Provides the Secretary of Agriculture with broad authority to investigate and control certain predatory or wild animals and nuisance mammal and bird species
1934	Migratory Bird Hunting Stamp Act ("Duck Stamp Act")	Requires waterfowl hunters to purchase a stamp for hunting; revenue generated by the stamp is used to acquire wetlands important for waterfowl
	Fish and Wildlife Coordination Act	Requires equal consideration and coordination of wildlife conservation with water resources development programs
1937	Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act)	Provides funding (through an excise tax on sporting arms and ammunition) to states for purchasing and improving wildlife habitat
1940	Bald Eagle Protection Act	Prohibits the taking, possession and commerce of bald and golden eagles
1950	Federal Aid in Sport Fish Restoration Act (Dingell-Johnson Act)	Provides funding (through excise taxes on sport fishing tackle, fish finders, and electric tolling motors) to states for fish restoration and management plans and projects
1956	Fish and Wildlife Act of 1956	Organic act establishing the Fish and Wildlife Service; creates two new bureaus: Bureau of Commercial Fisheries and Bureau of Sport Fisheries and Wildlife

Table 2 (cont'd)

1966	National Wildlife Refuge System Administration Act	Provides new guidance on administering the Refuge System and requires that proposed uses on refuges be compatible with refuge purposes; first piece of legislation to address management of the Refuge System
1969	National Environmental Policy Act (NEPA)	Requires Federal agencies to consider the environmental impacts of their proposed actions and reasonable alternatives to those actions
1973	Endangered Species Act (ESA)	To protect and recover threatened and endangered plants and animals
1975	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	International agreement that regulates the importation, exportation, and re-exportation of species listed on three appendices
1980	Alaska National Interest Lands Conservation Act (ANILCA)	Established nine new units of the National Wildlife Refuge System and enlarged and consolidated several existing units in Alaska, adding over 53 million acres of land
1997	National Wildlife Refuge System Improvement Act	Provides first organic legislation for management of the Refuge System

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CHAPTER 3

METHODS

This study provides answers to the following research questions:

1. How have the budget, organizational structure, mission, legislation and policy, and conservation priorities of the FWS changed over the last 25 years, and what factors may have influenced those changes?
2. Among existing ecosystem teams, what factors inhibit or facilitate implementation of SHC?
3. Among existing ecosystem teams, what are employees' experiences with and attitudes about implementation of SHC?

GENERAL APPROACH

To answer the above questions, I integrated primary data collection and analysis (in-depth interviews about SHC with current FWS employees) with secondary data collection and analysis (archival analysis of historical FWS documents). Both my primary and secondary data collection and analyses derive from a constructivist perspective that assumes knowledge is created by the researcher during data collection (Creswell 2003). Primary data collection is designed so the researcher can gain insight into the meaning people bring to phenomena (Denzin and Lincoln 2000). I used secondary data collection to complement and provide context to my primary data.

DATA SOURCES

Archival Documents

Sampling

To determine how the budget, organizational structure, mission, legislation and policy, and conservation priorities and accomplishments of the FWS changed over the last 25 years and what factors influenced those changes (Research Question 1), I collected and reviewed a variety of annual reports from the FWS and the Department of the Interior (DOI) from fiscal year (FY) 1985 to FY 2010 (Table 3). I chose the time period 1985-2010 for three reasons. First, it encompasses the 10 years before the FWS formally adopted the ecosystem management approach (EA) to conservation (1995), the forerunner to SHC. This provides an opportunity to establish a baseline for trends. Second, this time period allows me to assess changes that occurred during the 11-year period between the adoption and implementation of the EA and the adoption of SHC in 2006. Finally, this time period includes the four years following the adoption of SHC.

Neither the FWS nor the DOI published annual reports every year from FY 1985-FY 2010, so I needed to collect annual reports from a variety of sources (Table 3). According to the Director of the DOI library, neither the FWS nor the DOI seemed to publish annual reports with agency or bureau activities or accomplishments from FY 1985-FY 1989 (G. Franchois, personal communication, 2010). The only reports available for this time period are the *Interior Budget in Brief* (hereafter *Budget in* Brief) reports that summarize annual budget requests for each DOI agency and bureau. The FY 1989 *Budget in Brief* report, however, was missing from the DOI library's holdings and could not be located elsewhere.

Annual reports by the FWS were published for FY 1990-FY 2007, with the exception of FY 1994 and FY 1995. It is unclear why the FWS did not publish a report separate from the DOI report in FY 1994 and FY 1995 (G. Franchois, personal communication, 2010). From FY 1990-FY 2007, these annual reports were published under various titles (Table 3). Beginning in FY 2008, the DOI consolidated agency and bureau reports due to budget constraints, so the FWS has not published its own annual report since FY 2007 (G. Franchois, personal communication, 2010). I did not use the consolidated DOI reports, however, because information for multiple bureaus within DOI is combined under broad categories of priorities and accomplishments (e.g., "Resource Protection") and information specific to the FWS was therefore difficult to separate out. In summary, I used two main sources for the archival analysis: 1) *Budget in Brief* reports from FY 1985-FY 2010 (FY 1989 was missing) and 2) FWS annual reports from FY 1990-FY 2007.

These annual reports contain general information such as budget, mission, organizational structure, conservation priorities of the FWS, and relevant legislation and policy in a given year. When analyzed over a specific time period, these documents provide insight into (a) how the FWS has changed or remained the same over time related to the metrics listed above and (b) which factors may have influenced such changes. There are other publicly available quarterly magazines and annual reports published by different Regions and Programs (e.g., Fisheries) of the FWS, but I analyzed only the annual reports for the FWS as a whole because these reports contain the broad categories of information for which I was interested.

The strengths of using *Budget in Brief* and annual reports are they are publicly available and (relatively) consistently published. They also document activities or changes that may be important internally and externally. The potential weakness of using only these types of

documents is that, because they are designed and published primarily for public audiences, they are highly edited. Unlike more private documents, such as personal e-mails, letters, journals, or notes, publicly available reports do not document processes involved in making decisions or reveal personal opinions or experiences of FWS employees.

Measurement

With the annual reports, I was specifically looking for information in six areas: (1) annual budget, (2) FWS mission, (3) FWS organizational structure, (4) relevant legislation enacted by the U.S. Congress, (5) policy enacted by the FWS Director and/or Directorate and Secretary of Interior, and (6) FWS conservation priorities. I focused on these areas (metrics) because they provide a broad overview of how the FWS is funded (budget) and structured (organizational structure) as well as the agency's primary goals (mission, conservation priorities), and responsibilities (legislation and policy) from year to year.

"Annual budget" measures two components: 1) the amount of money the FWS requests from Congress every year (estimated) and 2) the amount of money Congress appropriates to the FWS every year (enacted). In the *Budget in Brief* reports, the FWS annual budget (estimated and enacted) is listed and is broken down by "activity" (e.g., Endangered Species, Refuges) and "sub-activity" (e.g., recovery, operations). "Mission" measures the overall purpose of the FWS. The mission is often specifically stated in the annual reports, usually at the beginning of the reports, sometimes with the heading "Mission." "Structure" measures how the FWS is organized in terms of its programs and divisions under each program. Some annual reports have a section or graphic that describes the organizational structure of the FWS at the Washington Office level during that year. "Legislation" measures any Federal legislation which confers authority or responsibility on the FWS. For example, the Endangered Species Act (ESA) of 1973 is

legislation that confers authority and responsibility on the FWS for protecting endangered species. "Policy" measures any internal policies the FWS adopts in a given year. An example of a policy is a Director's Order to restructure a program of the FWS. Policy also measures any policies or orders issued by the Secretary of Interior. In some annual reports, information on legislation and policy are found in sections specific to legislation, while in other annual reports legislation and policy are discussed or mentioned in multiple sections.

"Conservation priorities" measure the conservation issues that are most important to the FWS in a given year. Protection of endangered species is an example. Priorities are often identified in the annual reports I sampled as either specific goals for each FWS program (e.g., the goal for the Fisheries Program in FYY 1992 was "to restore, enhance, manage, and protect the fishery resource") or more general headings such as "Partnerships".

Data Analysis

I analyzed the annual reports using a qualitative content analysis approach, which examines text for common themes and patterns (Krippendorff 2003, Saldaña 2009). I used a deductive coding scheme to code each annual report for the six metrics described above. Since I was interested in specific metrics, a deductive coding scheme was most appropriate for that analysis. The strength of using this type of coding scheme is that it allowed me to focus on only those areas in which I was interested. A potential weakness of using a deductive coding scheme versus an inductive coding scheme is that I may have missed some patterns in the text that were important or were related to my metrics that I did not recognize or identify *a priori*.

I developed a code-book for the conservation priorities metric (see Appendix B, Table 6) to establish labels for words and phrases that were important or common. I used structural coding to code each annual report for mission, legislation and policy, and organizational

structure and a combination of structural and descriptive coding to code each annual report for conservation priorities. Structural coding applies a conceptual phrase representing a topic of inquiry (e.g., "conservation priorities" in this study) to a segment of data (Saldaña 2009). Descriptive coding summarizes the basic topic of a passage of qualitative data in a word or phrase (Saldaña 2009). During my initial coding, I used structural coding. After completing the structural coding, I coded the data under the structural code "conservation priorities" further using descriptive coding; I developed descriptive codes for each segment of data with the structural code "conservation priorities". After developing initial descriptive codes for conservation priorities, I recoded the annual reports twice to refine the code-book for this metric. Then I grouped similarly coded data into categories based on shared characteristics and used these categories to determine themes and patterns in the data. After applying structural codes for the metrics mission, legislation, policy, and organizational structure, I developed lists of legislation, policies, and mission statements as they appeared in the annual reports. After locating organizational charts in the annual reports, I compared these to each other to determine changes in structure over time. Annual budget (estimated and enacted) for each year was determined and used to graph changes in budget over the 25-year time period. Results of this analysis are presented in Chapter 4.

Interviews

A qualitative approach was especially appropriate to help answer my second and third research questions because I am interested in FWS employees' perceptions of the factors that affect implementation of SHC and their experiences with and attitudes about this change. In-depth qualitative interviews helped me develop a deep level of understanding of FWS employees' experiences with, attitudes about, and reactions to SHC implementation. Since I was

interested in employees' perspectives of how SHC is being or can be implemented in the FWS and not how their views change over time, I used a retrospective cross-sectional research design in which I interviewed employees at one point in time and asked them to discuss the past (from when SHC was adopted by the FWS in 2006) as well as the present (Creswell 1998). Therefore, my unit of analysis for the interviews is the individual.

Sampling

When the ecosystem approach (EA) to conservation was adopted in 1995, the FWS divided the U.S. into 53 ecosystem units (Fig. 4), each of which had a corresponding ecosystem team (hereafter eco-team). The boundaries of these units were determined by the FWS's National Ecosystem Approach Team by grouping U.S. Geological Survey (USGS)-defined watersheds. An eco-team is defined as a group of FWS employees, including managers or leaders, working together (often with outside partners) to address conservation issues at the ecosystem level. When they were created, eco-teams were typically comprised of employees from multiple offices, including Ecological Services Offices, Fish Hatcheries, Migratory Bird Field Offices, Law Enforcement, and/or National Wildlife Refuges, within a particular ecosystem unit. Each eco-team, and its partners, was tasked with developing a management plan for its ecosystem unit that included specific goals, objectives, management actions, and budget projections (USFWS 1995).

When the FWS adopted the EA, the Southeast Region[6] (also known as Region 4) was divided into 11 ecosystem units (see Table 4), each with a corresponding eco-team. Of these 11 eco-teams, four are currently active and have been meeting regularly since the mid-1990s. For

[6] The Southeast Region encompasses the states of North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Louisiana, and Arkansas as well as the Commonwealth of Puerto Rico and the U.S. Virgin Islands.

confidentiality reasons I have not identified which eco-teams are still active and hereafter use pseudonyms for the eco-team names.

To select my interview participants, I used multistage cluster sampling with stratified random sampling in the final stage. My target population includes all FWS eco-teams in the U.S. I selected eco-teams as my target population because these teams generally had members from all FWS programs and included supervisors and non-supervisors, thus providing a representative cross-section of FWS employees, and because it should be relatively easy to obtain lists of eco-team members. At the first stage of sampling, I sampled eco-teams from the Southeast Region of the FWS because it was logistically more feasible for me to travel to conduct interviews in only one FWS Region rather than multiple Regions. The weakness of sampling from only one Region is that it may not be representative of other FWS Regions. However, the strength of choosing one Region from which to sample is that interviewing many employees in the Southeast Region helped me gain an in-depth understanding of what is happening with SHC implementation in that Region, an understanding that might have been difficult to reach if I had only interviewed a few employees in a few different regions.

At the second stage of sampling, I sampled the four currently active eco-teams in the Southeast Region from the 11 that originally existed in 1995. One reason I selected the four active eco-teams was because several FWS employees who were members of the Southeast Region's SHC Advisory Team and were familiar with the activities of the eco-teams indicated that these eco-teams were likely at different stages of "embracing," understanding, and implementing SHC. These employees indicated that two of the active teams only met annually for members to share information about what their respective offices or refuges had accomplished or were working on that year; one eco-team was actively talking about and

determining how to implement SHC and had even changed its name from an eco-team to an SHC team; and the fourth eco-team was somewhere in the middle.

Another reason I limited my sample to those four active eco-teams is because it was difficult to obtain complete, accurate lists of the members of the seven defunct eco-teams when they were active. The weakness of not sampling from these eco-teams is that individuals from these eco-teams may have valuable information to share about barriers to implementation of SHC. However, since the four active eco-teams seemed to be at different stages of understanding and implementing SHC and their member lists were available, I sampled from only the active eco-teams.

To obtain lists of the members of the four active eco-teams, I contacted the chairs of each eco-team to discuss my research and gauge their interest and willingness to participate. Chairs from three of the eco-teams (eco-teams 1, 2, and 3) expressed excitement about my research, invited me to their next eco-team meetings, and indicated they would help in any way they could. The chair from eco-team 4 said he was willing to provide me with a list of attendees from their most recent eco-team meeting (August 2008) and indicated that anyone who attended the annual meeting was considered a member of the eco-team. The chair for eco-team 3 suggested I contact the record keeper of the eco-team for a member list. The record keeper indicated the last "official" team member list was from 2006 and instead gave me a list of the attendees from the most recent eco-team meeting in 2008.

The member lists for the four eco-teams were current as of August 2008, October 2008, November 2008, and May 2009, respectively (see Table 5 for the number of members on each eco-team as of those dates). I conducted interviews with participants from eco-team 1 at various times between October 2008 and February 2009, with participants from eco-team 2 between

November 2008 and October 2009, with participants from eco-team 3 between June and November 2009, and with participants from the eco-team 4 during October and November 2009.

Once I obtained a list of members for each team[7], I used stratified random sampling to select 15 potential interview participants from each eco-team. I selected 15 potential participants for two reasons. First, this sample size seemed sufficient to reach a point where I would hear very little new or different in additional interviews. Second, given my time and resources, 15 was a feasible number to interview in each eco-team. Each eco-team has a different number of office or refuge supervisors (e.g., Project Leaders, Deputy or Assistant Project Leaders, Hatchery Managers, Refuge Managers, and Deputy or Assistant Refuge Managers) and non-supervisors (e.g., biologists, outreach or public affairs specialists, fire management officers, and foresters) (Table 5). For instance, eco-team 3 had nine supervisors and 16 non-supervisors, while eco-team 4 had 18 supervisors and 13 non-supervisors. Since I suspected that FWS employees working at different levels of the hierarchy may have different attitudes about and experiences with implementation of SHC, I stratified for supervisor status in my sampling procedures. Within each of the four eco-teams, I conducted independent random selections of supervisors and non-supervisors based on their proportional representation on each eco-team.

I first contacted potential participants in my sample via email. If a potential participant did not respond to my first email, I sent a second email. If a potential participant did not respond to my second email, I then contacted him or her by phone. This was followed by a second phone call if there was no response to the first. In my emails and over the phone, I explained my

[7] The number of members on each eco-team fluctuates over time as employees leave due to retirements or job transfers, as new employees are hired, or depending on individual interest and supervisor support.

research project and asked each potential participant if he or she was willing to participate. If they were, I set up a time and place to interview them.

The average number of contacts necessary to establish participation varied across eco-teams. In eco-team 1, the average number of contacts was 1.2 per person. Of the 15 potential participants I initially contacted, only one did not agree to participate. The non-participant cited an unpredictable schedule due to medical issues as the reason for not participating. I randomly sampled another potential participant from the eco-team member list, and this potential participant responded to my first email and agreed to be interviewed. Therefore, I contacted a total number of 16 potential participants from the eco-team 1. Three other interviews were cancelled due to illness or scheduling conflicts. Therefore, I interviewed a total of 12 participants in eco-team 1.

In eco-team 2, I made an average of 1.9 contacts per person to establish participation. Of the 15 potential participants I initially contacted, two never responded to my emails or phone calls. Therefore, I randomly sampled two more potential participants from those remaining on the eco-team member list. One did not agree to participate due to a busy schedule, and the other agreed to participate after my first contact. This potential participant ultimately had to cancel the interview due to a family emergency. Overall, I contacted a total number of 17 potential participants and interviewed 13 participants from this eco-team.

Four of the 15 potential participants I initially contacted from eco-team 3 declined to be interviewed. Two cited lack of knowledge about SHC as the reason for non-participation, one was on maternity leave, and the fourth was on administrative leave. Two of the 15 potential participants never responded. Therefore, I randomly sampled an additional six potential participants from those remaining on the list of eco-team members. Two agreed to participate,

one declined to be interviewed due to a busy schedule, and the other three never responded. Finally, I contacted the remaining four eco-team members; one was out of the office for an unspecified amount of time, and the other three did not respond. Although 13 total participants agreed to be interviewed, I only conducted 11 interviews with members of this eco-team. Two interviews were cancelled due to scheduling issues. I made an average of 1.8 contacts per person on this eco-team.

With eco-team 4 I made an average of 3.3 contacts per person and interviewed 11 participants. I ended up contacting all members of this eco-team due to lack of response from my initial sample of 15 potential participants. Of the 31 eco-team members contacted, eight declined to be interviewed. Of these, three indicated they were too busy, four declined to give a reason, and one did not feel comfortable being interviewed because he was "not a biologist." Nine of the 31 eco-team members never responded to any of my emails or phone calls. Fourteen eco-team members agreed to be interviewed. Of those 14, three indicated it was difficult to commit to a date and time for an interview because they were often called into the field. Instead, they suggested I call "next week sometime" or any time on a particular day or two during a specific week. These individuals were unavailable during my two subsequent attempts to call, however, and these interviews did not occur. Therefore, I interviewed a total of 11 members from eco-team 4.

Fifty-four of 89 (60.7%) potential participants ultimately agreed to participate. Of those 54, two interviews were cancelled due to illness, one was cancelled due to a family emergency, and four were rescheduled multiple times and ultimately cancelled. Therefore, I conducted a total of 47 interviews for this study. Given the difficulty of obtaining responses and securing participants in some of the eco-teams, particularly eco-team 4, there may be some non-response

or non-participant bias. Individuals who did not respond or did not agree to be interviewed were from all programs, both genders, and both types of job rank defined in this study (i.e., supervisors and non-supervisors).

Prior to each interview, I provided the participant with a consent form and statement of confidentiality (Appendix C). If the interview was face-to-face, I gave the participant the consent form and statement of confidentiality by hand before starting the interview. For those interviews conducted over the phone, I sent the consent form and statement of confidentiality to the participant via email and asked them to fax or email a signed copy back to me. Interview methods and questions (Appendix D) were reviewed and approved by Michigan State University's Institutional Review Board (IRB; approval #08-487).

Whenever possible, I conducted face-to-face interviews with selected eco-team members in their private offices or whatever room or area in their office building they felt most comfortable. In one case, I conducted an interview with a participant while we were driving to a meeting he could not reschedule and it was the only time he could talk to me. When it was not possible to meet the participant in person, I conducted their interview over the phone. I conducted 40% of the interviews by phone. Because of travel and scheduling constraints, due in part to difficulty in obtaining responses to emails and phone calls, I conducted all interviews with eco-team 4 participants by phone. Excluding interviews with eco-team 4, I conducted 22% of my interviews by phone. Among the other three eco-teams, individuals who chose phone interviews were not available for in-person interviews during the times I was able to travel to their geographic area.

Among all participants, interview length ranged from 21-98 minutes, with a median length of 52.5 minutes and a mean length of 54 minutes. Two interviews were less than 30

minutes in length, and four others were more than 90 minutes long. Face-to-face interviews tended to last more than 60 minutes, while phone interviews tended to be less than 60 minutes long.

Between October 2008 and December 2009, I conducted the 47 interviews for this study. I dropped two interviews from my analysis because the participants' familiarity with SHC was minimal. Therefore, I included 45 interviews in my analysis. Of these 45 participants, 13 were female, 32 were male, 23 were office or refuge supervisors and 22 were non-supervisors (Table 5).

Measurement

Prior to collecting data, I designed and pre-tested interview questions with two FWS employees, and I asked these employees for feedback on the interview questions. In particular, I asked them to identify areas of confusion or potential issues with my interview style. Neither of these interviews was included in my analysis. Two other FWS employees as well as an individual that does not work for the FWS reviewed my interview questions and commented on the clarity, order, and appropriateness of my questions. I made minor modifications to my interview questions and their order based on my discussions with these five individuals.

I designed two sets of interview questions: 1) a set of questions to determine participant demographics such as level of education and career progression with the FWS, and 2) a set of questions specifically related to SHC. To determine participants' level of education, career progression before and while working for the FWS, and amount of time worked for the FWS, I asked the following main questions:

1. Tell me about your college/university education. Where did you attend college? What did you major in?

2. Did you pursue any advanced degrees? What were they?
3. Which jobs/positions did you have prior to working for the FWS?
4. Please tell me about your career progression with the FWS. How long have you worked for the agency? Where have you worked? What positions have you held and for how long?
5. What is your current position with the FWS? How long have you held that position? What are the duties/responsibilities of your position?

I asked these questions to assess whether or not participants' level of education and length of time worked for the FWS influence their attitudes and opinions about SHC.

I designed the second set of questions about SHC to determine which internal and external factors affect SHC implementation and employee attitudes about and perceptions of SHC. As summarized in Chapter 1, the organizational change literature identifies internal and external causes of change and the role of managers. I designed interview questions to help determine which of these possible causes of change are most important in implementation of SHC. With this goal, I developed questions to address the nature of communication about SHC, the role of managers in SHC implementation, relationships with outside partners, the resources needed to implement SHC, and the barriers to SHC implementation. Therefore, I asked participants the following main questions related to SHC:

1. How would you describe your understanding of SHC?

   (Probes: How would you define it? What have you heard or do you know about it?)
2. To what extent is SHC being implemented in your eco-team and your office or program?

   (Follow-up: How or in what ways is it being implemented? Can you give an

example?)

3. What has the communication about SHC been like in your eco-team and your office or program?

   (Follow-ups: How has the need for SHC been communicated? Through emails, in meetings or other ways? Has the communication been effective in increasing your understanding of SHC?)

4. What role have managers/supervisor played in integrating elements of SHC into your work and your eco-team's work?

   (Follow-ups: To what extent has your supervisor supported or not supported SHC efforts? To what extent has your supervisor enhanced your understanding of SHC?)

5. To what extent does your office or program and your eco-team work with partners?

   (Follow-ups: Who are they? What were the catalysts for working with these partners? How would you describe the quality of these partnerships– are they strong and effective?)

6. What resources do you think are crucial for your office or program and your eco-team to effectively implement SHC?

7. What do you think are the barriers to more complete implementation of SHC by your office, by your eco-team, and within this Region?

8. What is your view on the potential success of SHC in your eco-team or your office?

9. What is your view on the potential success of SHC in this Region?

10. Is there anything else you think would like to share or talk about in regards to SHC and its implementation?

Data Analysis

Interviews were digitally recorded and transcribed (using either Dragon NaturallySpeaking© Professional software or an online transcription service). After being checke for accuracy, I analyzed the interview data using a qualitative content analysis approach. I developed code-books (see Appendix E, Tables 7 and 8) to establish labels for words and phrases that were important or common. Similar to the archival analysis I used structural and descriptive coding to summarize segments of qualitative data with words or phrases. I used structural coding for responses to the first set of interview questions about participant demographics (Table 7) and descriptive coding for responses to the second set of questions about SHC implementation (Table 8). After two cycles of recoding interview transcripts to refine the code-book, similarly coded data were grouped into categories based on shared characteristics. These categories were used to determine themes and patterns in the data.

Results of this analysis are presented in Chapter 5 and summarize participants' perceptions of the internal and external factors that affect implementation of SHC (Research Question 2) as well as their overall attitudes about and experiences with SHC implementation (Research Question 3).

APPENDIX A

TABLES AND FIGURES

Table 3. List of archival documents and sources used in the content analysis for Chapter 4.

Year	Report Title	Source[a, b, c]
1985	The Interior Budget in Brief: Fiscal Year 1985 Highlights	DOI library
1986	The Interior Budget in Brief: Fiscal Year 1986 Highlights	DOI library
1987	The Interior Budget in Brief: Fiscal Year 1987 Highlights	DOI library
1988	The Interior Budget in Brief: Fiscal Year 1988 Highlights	DOI library
1989	*Missing*	*NA*
	Fish & Wildlife '90: A Report to the Nation	UGA library
1990	The Interior Budget in Brief: Fiscal Year 1990 Highlights	DOI library
	Fish & Wildlife '91: A Report to the Nation	NCTC
1991	The Interior Budget in Brief: Fiscal Year 1991 Highlights	DOI library
	Fish & Wildlife '92: A Report to the Nation	NCTC
1992	The Interior Budget in Brief: Fiscal Year 1992 Highlights	DOI library
	Annual Financial Report of Fiscal Year 1993 Activity	DOI library
1993	The Interior Budget in Brief: Fiscal Year 1993 Highlights	DOI library
	U.S. Department of Interior Annual Report: Fiscal Year 1994	DOI website
1994	The Interior Budget in Brief: Fiscal Year 1994 Highlights	DOI library
	U.S. Department of Interior Annual Report: Fiscal Year 1995	DOI website
1995	The Interior Budget in Brief: Fiscal Year 1995 Highlights	DOI library
	Working with America: Annual Report of the USFWS	NCTC
1996	The Interior Budget in Brief: Fiscal Year 1996 Highlights	DOI library
	Shared Commitments to Conservation: 1997 Annual Report of the USFWS	NCTC
1997	The Interior Budget in Brief: Fiscal Year 1997 Highlights	DOI library
	Shared Commitments to Conservation: 1998 Annual Report of the USFWS	NCTC website
1998	The Interior Budget in Brief: Fiscal Year 1998 Highlights	DOI library

Table 3 (cont'd)

	Shared Commitments to Conservation: 1999 Annual Report of the USFWS	NCTC website
1999	The Interior Budget in Brief: Fiscal Year 1999 Highlights	DOI library
	Shared Commitments to Conservation: 2000 Annual Report of the USFWS	NCTC website
2000	The Interior Budget in Brief: Fiscal Year 2000 Highlights	DOI library
	Shared Commitments to Conservation: 2001 Accountability Report of the USFWS	NCTC website
2001	The Interior Budget in Brief: Fiscal Year 2001 Highlights	DOI website
	Shared Commitments to Conservation: 2002 Annual Financial Report of the USFWS	NCTC website
2002	The Interior Budget in Brief: Fiscal Year 2002 Highlights	DOI website
	Shared Commitments to Conservation: 2003 Annual Financial Report of the USFWS	NCTC website
2003	The Interior Budget in Brief: Fiscal Year 2003 Highlights	DOI website
	Shared Commitments to Conservation: 2004 Annual Financial Report of the USFWS	NCTC website
2004	The Interior Budget in Brief: Fiscal Year 2004 Highlights	DOI website
	Shared Commitments to Conservation: 2005 Annual Financial Report of the USFWS	NCTC website
2005	The Interior Budget in Brief: Fiscal Year 2005 Highlights	DOI website
	Shared Commitments to Conservation: 2005 Annual Financial Report of the USFWS	NCTC website
2006	The Interior Budget in Brief: Fiscal Year 2006 Highlights	DOI website
	Shared Commitments to Conservation: 2007 Annual Financial Report of the USFWS	NCTC website
2007	The Interior Budget in Brief: Fiscal Year 2007 Highlights	DOI website

Table 3 (cont'd)

2008	The Interior Budget in Brief: Fiscal Year 2008 Highlights	DOI website
2009	The Interior Budget in Brief: Fiscal Year 2009 Highlights	DOI website
2010	The Interior Budget in Brief: Fiscal Year 2010 Highlights	DOI website

[a] DOI = Department of the Interior, UGA = University of Georgia, NCTC = National Conservation Training Center

[b] DOI website: http://www.doi.gov/pfm/deptrept.html

[c] NCTC website: http://library.fws.gov/FWSOpenAccess.html

Table 4. Ecosystem units and corresponding ecosystem teams in the Southeast Region of the FWS. Unit numbers correspond to those seen on the map in Fig. 4.

Unit #	Ecosystem Unit Name
16	Southern Appalachians
27	Lower Mississippi River
28	Tennessee/Cumberland River
29	Central Gulf Watersheds
30	Florida Panhandle Watersheds
31	Altamaha Watershed
32	Peninsular Florida
33	Savannah/Santee/Pee Dee Rivers
34	Roanoke/Tar/Neuse/Cape Fear Rivers
35	Caribbean
53	South Florida

Table 5. Number of ecosystem team (eco-team) members, male and female participants and supervisors and non-supervisors interviewed in the four currently active eco-teams in the Southeast Region of the FWS.

	Eco-team 1	Eco-team 2	Eco-team 3	Eco-team 4	TOTAL
Total # of eco-team members	31	23	25	31	110
Total # of supervisors on eco-team	10	15	9	18	52
Total # of non-supervisors on eco-team	21	8	16	13	58
Total # of interview participants	12	13	10	10	45
# of female interview participants	4	4	3	2	13
# of male interview participants	8	9	7	8	32
# of supervisor interview participants	5	10	3	5	23
# of non-supervisor interview participants	7	3	7	5	22

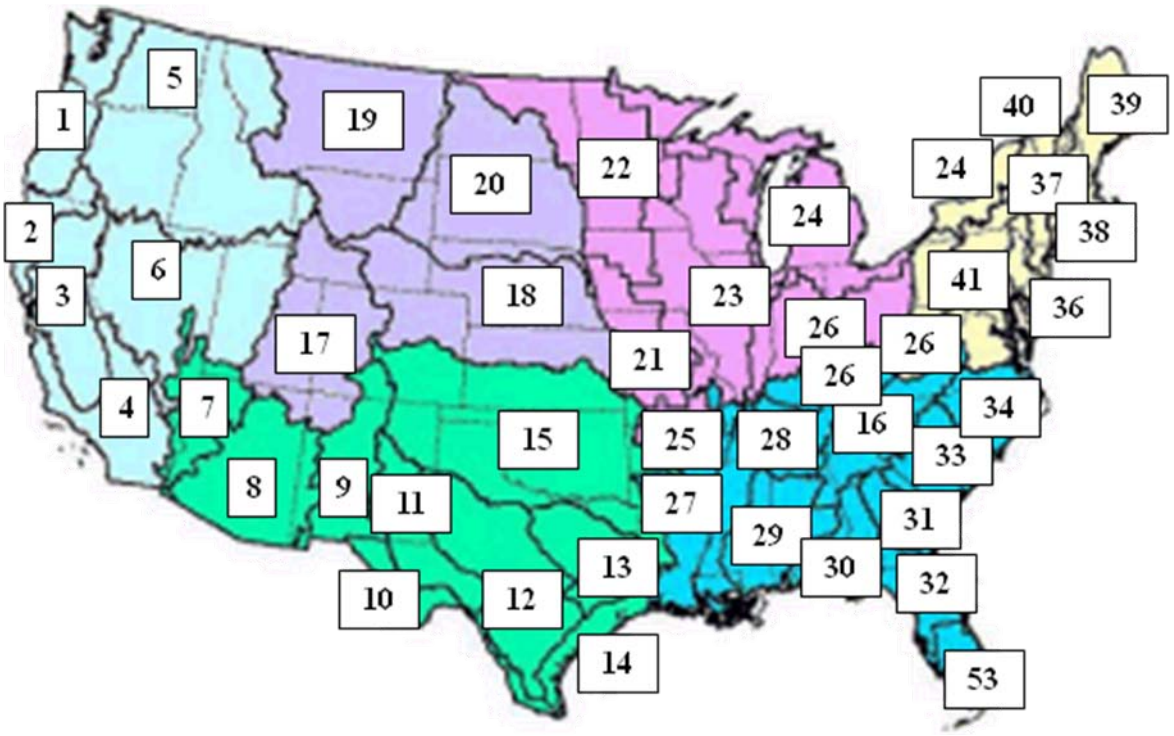

Figure 4. FWS-defined ecosystem units across the continental U.S. (Map adapted from http://www.fws.gov/ecosystems/)

APPENDIX B

CODEBOOK FOR ANALYSIS OF ARCHIVAL DOCUMENTS

Table 6. Codebook for analysis of FWS archival documents—conservation priorities metric.

CONSERVATION PRIORITIES
Adaptive harvest management
Addressing increasing lawsuits related to species listings
Addressing amphibian declines
Ban on ivory trade
Biodiversity conservation
Captive breeding of endangered species
Celebrating 90th Anniversary of NWR
Coastal ecosystem protection and restoration
Communication tower collisions framework for research
Conservation agreements for marine mammals
Contaminant cleanup
Continuing work at cooperative units
Designating critical habitat for listed species
Developing Candidate Conservation Agreements (CCAs)
Developing a global invasive species database and early warning system
Downlisting and delisting threatened or endangered species
Ecosystem management approach
Endangered Species Act reauthorization
Endangered species listing and recovery
Establishing new endangered species grant programs
Exxon Valdez oil spill response continued

Table 6 (cont'd)

Exxon Valdez settlement reached
Federal Aid grants to states
Fisheries restoration
Global climate change research program
Habitat conservation
Habitat Conservation Plans (HCPs) developed
Improving condition of National Wildlife Refuge (NWR) and National Fish Hatchery System (NFHS) facilities
Increasing e-commerce and web-based information systems
Increasing endangered species outreach
Increasing public education and outreach
Increasing workforce diversity
Initiating 5-year reviews of listed species
International conservation and enforcement
Invasive species prevention and control
Joint Ventures established in various areas of U.S.
Junior Duck Stamp contest launched
Landscape approaches to conservation
Maintaining fish stocks
Management decisions based on sound science
Migratory bird conservation plans developed
National Conservation Training Center (NCTC) funded and built
National Outreach Strategy developed

Table 6 (cont'd)

National Wetlands Inventory (NWI) maps produced
National Wild Fish Health Survey conducted
Natural Resource Damage Assessments initiated
New community-based refuge support groups developed
New NWRs acquired
New partnerships
North American Bird Conservation Initiative (NABCI) established
North American Waterfowl Management Plan (NAWMP) Anniversary
NWI report on status and trends of wetlands published
NWR inventory and monitoring standards drafted
Public outreach on reauthorization of ESA
Public use and enjoyment
Recovery plans developed
Recruiting new employees
Refuge management and enhancement
Reintroducing rare species
Research
Restoring depleted fisheries
Revising FWS 5-year strategic plan
Safe Harbor Agreements (SHAs) developed
Sustainability of fish and wildlife populations
Waterfowl numbers increasing
Wetland and waterfowl conservation
Working with private landowners

APPENDIX C

INTERVIEW CONSENT FORM

APPENDIX C. Interview Consent Form

Organizational change in the U.S. Fish and Wildlife Service: Strategic Habitat Conservation (SHC) as a new conservation approach

To address increasingly complex and challenging conservation issues, the U.S. Fish and Wildlife Service (Service) is embracing Strategic Habitat Conservation (SHC) as a new approach. The Service's Director called for the establishment of Regional Teams, emphasizing the need for implementation efforts to be regionally based. The Southeast Region's SHC Advisory Team is working to provide a framework for integrating SHC in the region. A need exists to evaluate the factors that facilitate or inhibit implementation of SHC throughout the region. You are being asked to participate in this study because of your role as a member of an eco-team in the Service's Southeast Region.

The time that will be required of you to participate in the study will be no longer than one-and-a-half hours and will likely be 45-60 minutes. By participating in this study, you face a small risk of discomfort if your peers disapprove of your participation; however, many precautions have been taken to minimize that risk. You will never be identified by name but will be assigned a code that corresponds with your identity. Your interview will only be audio-taped with your permission. Data will be stored on my (N. Lamp's) computer at my personal residence in Athens, Georgia. Hard copies of the data and list of codes and participants will be stored in a locked file cabinet at my personal residence in Athens, Georgia. Your privacy will be protected to the fullest extent allowed by the law. Your participation is voluntary. You may refuse to answer questions or terminate the interview at any time without experiencing any repercussions. You may elect not to participate at all. Discussion regarding interviews will be limited to exchanges among the three co-investigators on this project for data analysis purposes.

Your cooperation in this study will provide you with an opportunity to express your opinions about factors that facilitate or inhibit implementation of SHC on your eco-team. The information gathered from this study may be used to develop a guide for "best practices" that eco-teams, offices, programs, or other partnerships within the FWS can adopt to better implement SHC.

If you have any questions about this study, please contact the primary investigator, Dr. Aaron McCright, E-185 Holmes Hall, Lyman Briggs College, Michigan State University, East Lansing, MI 48825; phone: 517-432-8026; email: mccright@msu.edu or co-investigators, Dr. Kelly Millenbah, 13 Natural Resources Building, Michigan State University, East Lansing, MI 48824; phone: 517-353-4802; email: millenba@msu.edu or Nikki Lamp, 195 Sylvan Rd, Athens, GA 30606; phone: 517-420-2462; email: lampnico@msu.edu.

If you have any questions or concerns regarding your rights as a study participant, or are dissatisfied at any time with any aspect of this study, you may contact – anonymously, if you wish – Dr. Peter Vasilenko, Director of Michigan State University's Human Research Protection Program by phone: 517-355-2180, fax: 517-432-4503, email: irb@msu.edu, or regular mail: 202 Olds Hall, Michigan State University, East Lansing, MI 48824.

Your signature below indicates your voluntary agreement to participate in this study.

_____ _____

Signature Date

Your signature below indicates your voluntary agreement to be audio-taped for this study.

_____ _____

Signature Date

APPENDIX D

INTERVIEW GUIDE

APPENDIX D. Interview Guide

Background Information

1. Tell me about your college/university education.
   a. Where did you attend college?
   b. What did you major in?
2. Did you pursue any advanced degrees?
   c. What were they?
3. Which jobs/positions did you have prior to working for the FWS?
4. Please tell me about your career progression with the FWS.
   d. How long have you worked for the agency?
   e. Where have you worked?
   f. What positions have you held and for how long?
5. What is your current position at the FWS?
   g. How long have you held that position?
   h. What are the duties/responsibilities of your position?

SHC Questions

1. How would you describe your understanding of SHC and the functional elements?
2. To what extent is SHC being implemented in your eco-team and your office or program?
   a. How is it being implemented?
3. What has the communication about SHC been like in your eco-team and your office or program?
   a. How has the need for SHC been communicated?
   b. How have the principles of SHC been communicated?
   c. Has the communication been effective in increasing your understanding of SHC?
4. What role have managers/supervisor played in integrating elements of SHC into your work and your eco-team's work?
   a. To what extent has your supervisor supported or not supported SHC efforts?
   b. To what extent has your supervisor enhanced your understanding of SHC?
5. To what extent does your office or program and your eco-team work with partners?
   a. Who are they?
   b. What were the catalysts for working with these partners?
   c. How would you describe the quality of these partnerships?
6. What resources do you think are crucial for your office or program and your eco-team to effectively implement SHC?
7. What do you think are the barriers to more complete implementation of SHC by your office, by your eco-team, and within this Region?
8. What is your view on the potential success of SHC in your eco-team or your office?
9. What is your view on the potential success of SHC in this Region?
10. Is there anything else you think would like to share or talk about in regards to SHC and its implementation?

APPENDIX E

CODEBOOKS FOR INTERVIEWS

Table 7. Codebooks for interviews with FWS employees about SHC implementation—Part I: Participant Demographics

Variable	Code
Ecosystem team membership	Team 1 = 1
	Team 2 = 2
	Team 3 = 3
	Team 4 = 4
Gender	Male = M
	Female = F
Number of years worked for FWS	<5 = 1
	5-10 = 2
	11-15 = 3
	16-20 = 4
	21-25 = 5
	26-30 = 6
	>30 = 7
Job Rank	Supervisor = 1
	Non-supervisor = 2
FWS program represented	Refuges = R
	Fisheries = F
	Migratory Birds = M
	Ecological Services = E
Level of education	B.S. = 1
	M.S. = 2
	Ph.D. = 3
Major	Record specific major(s) stated

Table 8. Codebook for interviews with FWS employees about SHC implementation—Part II: SHC Questions.

Code	Code Description
advantages with new technology	Technologies like GIS are useful tools for SHC
already communicating with partners	Some employees/offices/teams are already communicating with partners about SHC
already doing SHC	SHC is a new name for an old concept
big learning curve	Too much to learn
bottom-up approach	Employees would like to see more leadership from the field rather than top-down
broad scale perspective	SHC applied at a broad scale
build on success	Continue creating successes
buy-in needed	Partners and employees need to embrace SHC
capacity building needed	Capacity in research, monitoring and planning needed
cautious about dictating to partners	Exercise caution in telling partners they need to implement SHC
change as a long-term process	Change takes time
changing budget priorities	How will SHC affect budgets?
comfortable with concept of SHC	Concept makes sense
communicate vision better	A clear vision is needed
communication at meetings	Employees hear about SHC at meetings
communication needed at lower levels	More sustained communication to the field level
communications through email	Employees receive emails about SHC from supervisors and leaders at Regional and National levels
competing initiatives	SHC vs. LCC vs. climate change

Table 8 (cont'd)

concern over planning focus	Will planning detract from delivery?
congressional outreach needed	Inform congressional representatives about SHC
consistency needed	A more uniform approach is needed
cross-program coordination needs improvement	Programmatic conflicts still exist and lack of coordination is an issue
cynicism	Trust issues and history of failed initiatives
dependence on partners	Need partners to accomplish mission
dislike top-down feel	Need less of a top-down approach
efficiency needs	Too many redundancies
examples needed	Employees want concrete examples of SHC implementation
fear of losing authority	Employees do not want to lose control of their projects
fear of speaking honestly	Employees are afraid to tell supervisors what they really think about SHC
generational shift may be needed	The younger generation of employees may be more likely to embrace SHC; older generation changes slowly
good concept	Like the concept of SHC
good partnerships	Partnerships are generally good, strong, and effective
guidance needed for implementation	Lots of questions on how to implement SHC in the field (i.e., on the ground)
historical trends	SHC will evolve into something different just as previous initiatives
holistic approach	SHC is an all-encompassing approach to conservation

Table 8 (cont'd)

hopeful	Employees are hopeful SHC will be successful
incentives needed	Tangible incentives (e.g., funded) are needed to encourage SHC implementation
incorporate into performance plans	Make employees accountable by incorporating SHC into performance plans
integrate into budget decisions	Consider SHC in funding decisions
internal competition for funding	Concern that programs will have to compete for funding
jaded by past failures	Employees are negative about SHC because of history of failures
lack of clear plan	No consistent message has been provided
lack of discussion among peers	Peer-to-peer discussions are needed
lack of funding	Commitment of resources needed
lack of interest	Employees do not care about implementing SHC
lack of leadership endorsement	Leaders need to embrace and endorse SHC
lack of monitoring	Monitoring capability is a weakness
lack of staff	More staff with specific skills (planning, law enforcement, GIS, modeling, field technicians) are needed
lack of time	Overwhelmed by workload
landscape level management	SHC looks focuses on landscape scale
LCCs as stealing resources	Concern that LCCs will compete for funding
leaders are "kool-aid drinkers"	Leaders will do what they are told
leverage resources with partners	Combine funding and in-kind services with partners
low morale among staff	Employees are feeling overwhelmed

Table 8 (cont'd)

momentum in Ecological Services (ES)	SHC seems to have momentum in the ES program
monitoring detracts from delivery	Concern that focus on monitoring will detract from delivery
multiple partners	Many partnerships exist
need to defend decisions	Accountability in decision-making needed
new position descriptions needed	Position descriptions should require skills for SHC implementation
organizational inertia as barrier	Old perceptions and slow progress are hindrances to change
overlapping agendas with partners	FWS agenda complementary to many partners
overreliance on models	Too much emphasis on models
prefer habitat vs. species goals	Focus on habitat rather than species goals
priorities need to be clarified	Questions about what FWS priorities are and how SHC will affect them
priority for Director	FWS Director has made SHC a priority
questioning culture	The culture in FWS is to ask a lot of questions
refuges as kingdoms	Refuges traditionally worked only inside boundaries
regional differences	Implementation of SHC varies across FWS regions
relationship builders needed	Employees with people skills needed
reluctance to change	Employees are reluctant to change; have a wait-and-see attitude
reporting requirements don't align with SHC	Need to revise reporting requirements
resistance to change	Employees are resistant to change
respect for Regional Director (RD)	Employees feel respect for RD

Table 8 (cont'd)

roles need to be defined	Questions about where employees, offices, and programs fit in SHC implementation
sensible organizational structure needed	A modified organizational structure may be needed
SHC as a GIS exercise	SHC is just a GIS project
SHC as another initiative	Like ecosystem management
SHC as business model	SHC as a new way of doing business
SHC as buzzword	SHC is the latest popular word
SHC as cultural change or transformation	Implementation of SHC may require a cultural change
SHC as intellectual exercise	SHC is just a white paper, visionary idea with no real application
SHC as waste of time	SHC is not worth spending time on
SHC in context of climate change	Questions about how SHC interacts with or applies to climate change
short-term responses vs. long-term planning	SHC requires long-term planning
similar to adaptive management	Similar approach or framework
similar to ecosystem management	Similar approach or framework
skepticism about new ideas	Is SHC really a new idea?
something for younger generation	Younger generation may be more likely to embrace SHC
sometimes conflicting missions with partners	FWS mission may not be compatible with mission of specific partners
standardized baseline data needed	Sound scientific data needed to support decisions
step down to local priorities	Questions about applying SHC at local scale

Table 8 (cont'd)

success leadership dependent	Successful implementation of SHC will depend on good leadership
success unlikely	Successful implementation of SHC is unlikely
supervisor supportive	Employee's supervisor seems supportive of SHC
too many chiefs	FWS has too many supervisors and needs more "leaders" in the field
too much reliance on modeling	Concern about potential over-reliance on models
training needed	Employees needs training in SHC implementation
use buzzword to get funding	Employees plan to use SHC to obtain funding
will follow leadership	Employee will do whatever supervisor/leader does

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LITERATURE CITED

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CHAPTER 4

RESULTS AND DISCUSSION

ARCHIVAL DATA

As discussed in Chapter 2, the modern-day FWS was created in 1970 when the Bureau of Commercial Fisheries was transferred from the Department of Interior (DOI) to the Department of Commerce, and the Bureau of Sport Fisheries and Wildlife became the U.S. Fish and Wildlife Service. In the 1970s and 1980s, the FWS had the enormous responsibility of implementing and enforcing far-reaching legislation passed in the late 1960s and early 1970s such as the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), and the Clean Water Act (CWA). In addition, the 1980 passage of the Alaska National Interest Lands Conservation Act (ANILCA), which created nine new Alaskan refuges and more than doubled the size (in acreage) of the refuge system, created a "formidable challenge" (Reed and Drabelle 1984:28) for the FWS to develop comprehensive management plans for all 16 Alaskan refuges by 1987 and consider oil and gas development in the plans.

Clarke and McCool (1997) describe the FWS during this time as "overcommitted" and "understaffed". The agency was also underfunded to meet all of its increased responsibilities. According to Reed and Drabelle (1984), President Reagan and Secretary of Interior James Watt were somewhat successful in the early 1980s in convincing Congress to cut DOI and FWS budgets, thus eliminating or paralyzing some programs. However in fiscal year[8] (FY) 1983, Congress overrode some of DOI's recommendations for budget cuts, and in FY 1984, conservationists' priorities were reflected in the spending bill passed by Congress (Reed and Drabelle 1984).

[8] A Federal fiscal year begins on October 1 and ends on September 30 of the following year.

My analysis of FWS annual reports since FY 1985 shows an organization with a generally increasing budget and staffing level, a consistent mission, an expanding but stable organizational structure, increasing numbers of legislation and policies, and relatively consistent conservation priorities. Many of the annual reports show that external forces such as Congressional actions, Presidential priorities, and public pressures influence the "metrics" of the FWS I review here, particularly budget, legislation, and conservation priorities. However, it is likely there are also internal factors (e.g., the FWS Director and other leaders) that affect changes in organizational structure, policy, and conservation priorities and accomplishments. The organizational change literature, which will be discussed in more detail at the end of this chapter, helps to explain these internal and external influences on organizational change.

METRICS

Budget and Staffing

The budgeting process in the Federal government is complex, and agency or bureau budget requests go through multiple levels of review before any appropriations bills are passed for a particular fiscal year. The FWS budget is influenced by internal and external actors. Internally, FWS leaders determine agency priorities and prepare budget requests accordingly. The budget request is then reviewed and may be modified by the Secretary of Interior, the Office and Management and Budget (OMB), the President, and then Congress. These external actors can make significant changes to an agency's budget depending on their own priorities.

FWS funds are divided into two categories: appropriations and permanent funds or trusts. The budget estimates reported for each FY are a combination of the appropriations requested in the President's budget and the amounts estimated to be available that FY as a result

of legislation providing permanent spending authority (i.e., permanent funds). For example, requested appropriation amounts are divided into "activities" (i.e., categories) like "Resource Management", "Construction", "Land Acquisition", and "National Wildlife Refuge Fund". Examples of permanent funds include the Migratory Bird Conservation Account, the Federal Aid in Wildlife Restoration and Sport Fish Restoration accounts, and the North American Wetlands Conservation Fund.

Overall, the annual estimated budget (appropriations requested plus permanents estimated)[9] of the FWS has increased from 1985 ($529,791,000) to 2010 ($2,639,798,000)[10] (Fig. 5). One notable exception was a decrease in estimated budget from FY 1988 ($631,792,000) to FY 1990 ($605,947,000). This decrease reflects a policy decision that was made to cap the Federal Aid in Wildlife Restoration and Sport Fish Restoration grant programs at $100,000,000 each (U.S. Department of the Interior (DOI) 1989). The budget report states that: "These constraints have been applied in order to allow the continuation of other Federal programs directly contributing to fish and wildlife improvement activities, while addressing the fiscal imperative to reduce the large Federal deficit" (DOI 1989:58). Unappropriated balances due to the caps on these two funds were allowed to grow and be available for future appropriation. There were also decreases in estimated budget from FY 1985 ($529,791,000) to

[9] I used estimated budget instead of appropriated budget because the estimated budget is the request the FWS makes to Congress based on agency needs and priorities.

[10] Equivalent to $1,302,617,000 in 1985 dollars, a 2.5-fold increase when adjusted for inflation (www.usinflationcalculator.com).

FY 1986 ($516,232,000) and FY 1994 ($1,234,890,000) and FY 1995 ($1,210,311,000). The FWS budget request topped $1 billion for the first time in FY 1992 and $2 billion in FY 2005.[11]

The actual budget (enacted appropriations plus actual permanents) also increased from 1985 ($588,233,000) to 2010 ($2,764,338,000)[12] and follows a similar trajectory as estimated budget (Fig. 5). During certain periods of time, like FY 1985-FY 1994, the actual budget was greater than the requested budget, indicating that Congress appropriated more funding to the FWS than the agency requested. During other fiscal years or periods of time, such as FY 1995-FY 1998, the actual budget was less than the requested budget.

Overall, staffing levels of the FWS increased from FY 1990[13] (6,581 full-time equivalents (FTEs)) to FY 2010 (9,400 FTEs) (Fig. 5). There was a significant decrease in the number of employees between FY 1994 and FY 1995. This decrease was largely due to a transfer of FWS employees to the National Biological Survey (NBS), which was created by Secretary of Interior Bruce Babbitt in 1993 (see Appendix B, Table 11 for a list of Secretaries of the Interior since 1985). Secretary Babbitt created the NBS to separate DOI's science programs from the regulatory programs to reduce the perception that research findings were biased. In addition, he wanted to provide a centralized resource for scientific support of DOI bureaus. However, soon after the NBS was created, a 1996 Congressional action designated the U.S.

[11] To put the FWS budget in perspective, it is less than 1% of the total Federal budget. In fact, even back in FY 1983, Reed and Drabelle (1984) indicated that the annual FWS would run the Department of Defense for only one-half of a day.

[12] Equivalent to $1,192,073,850 in 1985 dollars, a 2.3-fold increase when adjusted for inflation (www.usinflationcalculator.com).

[13] Staffing levels were not reported in the *Interior Budget in Brief* reports from FY 1985-FY 1988.

Geological Survey (USGS) as DOI's "science" agency, and funding for the NBS was merged with the earth science programs of USGS (DOI 1997).

The number of FTEs rose steadily again from FY 1995 to FY 2000, then fluctuated for a few years until reaching a high of 9,532 FTEs in FY 2005. The number of FTEs has fluctuated slightly since FY 2005. In FY 2010, there were approximately 9,400 FTEs. Increases in the number of FTEs since FY 1990 are reflective of overall increases in the FWS budget during this time period and are also likely reflective of increased expectations and responsibilities.

Mission

The mission of the FWS is broad and has remained largely unchanged over the last 25 years. In the FY 1986[14] *Interior Budget in Brief* report, the mission was stated as: "to conserve, protect, and enhance certain fish and wildlife and their habitats" (DOI 1985:21). The word "certain" only appeared in the FY 1986 and FY 1987 *Interior Budget in Brief* reports and did not appear in the mission statement in FY 1988.

My analysis of the *Annual* and *Budget in Brief* reports shows there were three expansions to the mission statement. The first occurred in FY 1994 when "for the continuing benefit of the American people" appeared in the mission statement (DOI 1994). Interestingly, the FWS mission statement appearing in Reed and Drabelle (1984), who cited the FWS Refuge Manual from 1982, already contained this phrase. It is unclear why this phrase did not appear in the mission statement in any *Annual* or *Interior Budget in Brief* reports from FY 1985-FY 1993 but then reappeared in the FY 1994 report.

"Working with others" was added to the beginning of the mission statement in FY 1997 (USFWS 1997). As the FWS Director, Jamie Rappaport Clark, explained in the 1997 annual

[14] No mission statement was included in the FY 1985 *Interior Budget in Brief* report.

report, *Shared Commitments to Conservation*, this phrase was added to the mission statement to recognize that working with others is central to fish and wildlife conservation (USFWS 1997). In fact, it is clear from the annual reports that partnerships were a priority of the FWS for many years before "working with others" was added to the mission statement. The word "partners" or "partnerships" appears in every annual report beginning in FY 1990.

Finally, in FY 1998, the word "plants" appeared in the mission statement. No explanation was given for this addition, but it likely reflects increased efforts by the FWS in plant conservation due to an increase in the number of plants listed as threatened or endangered species during the 1990s. Since FY 1998, the mission statement has remained exactly the same: "working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people" (USFWS 2010).

Organizational Structure

Organization charts are only included in the FY 1993, FY 1996 and FY 2001-2007 annual reports, so the following discussion on changes in organizational structure is based on only these nine reports, which span 15 years of the 25-year study period. Additionally, the organization structure is shown only for the Washington, D.C. office (commonly referred to as Headquarters or Region 9) level; the reports do not discuss or show how each of the Regions were organized.

As illustrated by these reports, the FWS organizational structure has gotten more complex over time. In FY 1993, the FWS was headed by a Director (see Appendix C, Table 12 for a list of FWS Directors since 1985), two Deputy Directors, and five Assistant Directors (ADs): 1) Refuges and Wildlife, 2) Fisheries, 3) Ecological Services, 4) Policy, Budget, and Administration, and 5) External Affairs. There were also eight Regions, each with a Regional

Director, a Deputy Regional Director, and five ADs. On November 12, 1993, Region 8-Research Operations was transferred to the DOI's newly established NBS, thus reducing the number of FWS Regions to seven (USFWS 1994). In FY 1996, the structure was similar, but instead of an AD for External Affairs, there was an AD for International Affairs. The External Affairs functions (i.e., Public Affairs and Congressional and Legislative Services) had been moved to a "Staff Office" level under the Director's office.

By FY 2001, several changes to the organizational structure had been made. The number of ADs had grown from five in FY 1996 to nine, and several divisions under each program had been moved around. The nine ADs (and programs) were: 1) National Wildlife Refuge System, 2) Migratory Birds and State Programs, 3) Fisheries and Habitat Conservation, 4) Endangered Species, 5) International Affairs, 6) Law Enforcement, 7) External Affairs, 8) Budget, Planning, and Human Resources, and 9) Business and Management Operations.

In FY 2003, two more ADs were added: 1) Wildlife and Sport Fish Restoration Programs and 2) Information Resources and Technology Management (CIO) for a total of 11 ADs. The Division of Federal Aid was transferred from Migratory Birds and State Programs (this became just Migratory Birds in FY 2003) to the Wildlife and Sport Fish Restoration Programs. Also in FY 2003, the Endangered Species program was split into three Divisions: 1) Conservation and Classification, 2) Consultation, Habitat Conservations Plans, Recovery, and State Grants, and 3) Partnerships and Outreach.

A new region, Region 8-California/Nevada Operations, located in Sacramento, California was created in FY 1998. FWS offices in California and Nevada were previously part of Region 1; however, given increasing complexities related to endangered species protection

and increasing development pressures in those states, a decision was made to elevate California and Nevada operations to regional status (DOI 1999).

The final major change to the organizational structure came in FY 2005 when Deputy ADs were added to eight of the 11 programs and in FY 2007, when two more Deputy ADs were added. The only program remaining without a Deputy AD is Budget, Planning, and Human Resources. The current organizational structure is shown in Fig. 7.

One major change to organizational structure at the regional level that was not included in the annual reports was the creation of Geographic Assistant Regional Directors (GARDs) and Programmatic Assistant Regional Directors (PARDs) to implement the ecosystem approach (EA) in the mid- to late-1990s. The FWS implemented a structure in each region that placed all field personnel for its three largest programs (Refuges, Ecological Services, and Fisheries) under a GARD (Danter et al. 2000). In each region, GARDs had supervisory responsibility for field personnel in a designated "ecoregion." The Southeast Region, for example, had three ecoregions and therefore three GARDs. PARDs, on the other hand, had budgetary and policy responsibility for one of the three programs (Refuges, Ecological Services, and Fisheries) in an entire region. Danter et al. (2000) found that FWS employees did not support the reorganization to the GARD and PARD structure. Despite this, the FWS Directorate retained the GARD/PARD structure for several years (D. Flemming, FWS-Ecological Services, personal communication, March 22, 2011). In 2000 or 2001, the FWS eventually eliminated the geographic supervision and returned to programmatic supervision, with ARDs overseeing field personnel, budgets and policy in their respective programs (D. Flemming, personal communication, March 22, 2011).

Legislation and Policies

Analysis of the annual reports shows that 12 important pieces of legislation were passed from 1990-2000, and 14 policies, including policies issued by the FWS Director or through Secretarial (DOI) or Presidential Executive Orders, were issued from 1989-2000 (Table 9). The legislation and policies address a wide variety of fish and wildlife conservation issues relevant to the FWS, including aquatic invasive species, wetlands and migratory bird conservation, the National Wildlife Refuge System (NWRS), Federal Aid programs, endangered species issues, international species conservation, recreational fisheries and relationships with Tribal nations.

Legislation and policies passed during this time period related to the NWRS were substantial. For example, the NWRS Improvement Act of 1997 (deemed "landmark" legislation by former FWS Director Jamie Rappaport Clark), the first true organic legislation for the NWRS, established a clear mission of wildlife conservation on NWRS lands and a comprehensive planning process. Several other NWRS-related Acts and policies followed in 1998 and 2000 (e.g., National Wildlife Refuge System Volunteer and Community Partnership Enhancement Act and National Wildlife Refuge System Centennial Act; Table 9).

In response to increasing debate about reauthorization of the Endangered Species Act of 1973, as amended (ESA) (see further discussion under Conservation Priorities and Accomplishments section, below), three new policies designed to encourage private landowners to protect and recover threatened and endangered species were issued in 1995: the "No Surprises" Policy for Habitat Conservation Plans (HCPs), the Safe Harbor Policy, and the Residential Property/Low Impact Exemption Policy (Table 9; DOI 1995).

The legislation and policies identified in the annual reports I analyzed are not a comprehensive list of all relevant policies and legislation enacted during this time period. First,

legislation and policies were only identified in reports from FY 1990-FY 2000, so simply analyzing the budget and annual reports does not provide any information on legislation or policies from FY 1985-FY 1989 or FY 2001-present. Second, even if more legislation or policies were created during FY 1990-FY 2000, the authors of the reports may have chosen to include only a few examples and not a comprehensive list. However, the legislation and policies that were identified or discussed (Table 9) do give a broad overview of important conservation policies being developed and implemented during this time frame.

Conservation Priorities

As described in the mission statement, the FWS is mandated to protect fish, wildlife, plants and their habitats. Through many federal mandates (legislation and enacting policies), FWS responsibilities and priorities include: 1) migratory birds, 2) endangered species, 3) certain marine mammals (e.g., polar bear (*Ursus maritimus*), walrus (*Odobenus rosmarus*), sea otters (*Enhydra lutris*)), 4) freshwater and anadromous fish, 5) the NWRS, and 6) wetlands. Other priorities of the FWS that are apparent in the annual reports include: partnerships, education and outreach, federal aid, wildlife law enforcement, and organizational and employee development. The following priorities emerged from the reports I analyzed (Table 10):

1) Forming partnerships (through all FWS programs),
2) Providing and increasing public outreach and education (through all FWS programs),
3) Protecting, restoring, and managing native fisheries,
4) Providing recreational fishing opportunities,
5) Recovering threatened and endangered species,
6) Restoring and protecting wetlands and aquatic habitats,

7) Conducting contaminant investigations and remediations,
8) Expanding and enhancing the NWRS,
9) Enforcing domestic and international wildlife laws,
10) Providing Federal Aid grants to states,
11) Producing and maintaining National Wetlands Inventory (NWI) maps,
12) Assessing and maintaining National Fish Hatchery System (NFHS) and NWRS facilities,
13) Protecting, enhancing, and managing marine mammal populations,
14) Protecting, enhancing, and managing migratory birds populations,
15) Controlling invasive species, and
16) Emphasizing ecosystem and habitat conservation.

This long list is indicative of the large number and diversity of responsibilities and priorities the FWS has. Forming partnerships and recovering threatened and endangered species were the two priorities that were reported in every annual report from FY 1990-FY 2007.

Most of these priorities have not changed dramatically over the study period; however, some of these priorities received more emphasis or attention at different points in time during the study period. For example, emphasis was placed on wetland protection and restoration in the early 1990s, but by the mid-1990s, with increasing public pressure, species listing actions and litigation cases, more emphasis was placed on endangered species issues (DOI 1999). With the passage of legislation in 1997, the late 1990s was a period of increased emphasis on the NWRS, particularly related to developing comprehensive conservation plans (CCPs) for each refuge and addressing maintenance issues. The early 2000s were a time of increasing attention (government-wide) on government accountability, and reporting requirements were changed to

reflect that. With the passage of the Government Results and Performance Act (GPRA) of 1993, which required each Federal agency to develop strategic plans with mission goals by September 30, 1997, increasing emphasis was placed on government performance and accountability, particularly related to financial aspects. The FWS published its first Strategic Plan in 1997, as required by GPRA.

Changes in the annual reports reflect this mandated change in Federal government reporting. Beginning with the FY 1998 annual report, priorities and accomplishments were reported under the mission goals FWS developed for its Strategic Plan. For example, the mission goals listed in the FY 1998 report are:

1) Sustainability of Fish and Wildlife Populations,
2) Habitat Conservation: A Network of Land and Waters, and
3) Public Use and Enjoyment.

In FY 2001, a fourth mission goal was added and reported: Partnerships in Natural Resources. Then, in FY 2004, the FWS began reporting priorities and accomplishments under principal mission areas that were developed for DOI's Strategic Plan for FY 2003-2008. These mission areas are:

1) Resource Protection,
2) Resource Use,
3) Recreation,
4) Serving Communities, and
5) Management Excellence.

The conservation priorities of the FWS have not changed significantly, rather the reporting requirements have. FWS priorities and accomplishments are now organized and reported under the five DOI mission areas.

Although the ecosystem management approach to conservation was formally adopted by the FWS in 1995, the only annual reports in which it was specifically mentioned were the FY 1991 and FY 1992 (prior to formal adoption) and FY 1999 and FY 2000 reports (several years after formal adoption). Ecosystem teams were only mentioned in the FY 2000 report. "Landscape approaches" to conservation were mentioned in relation to waterfowl and wetland conservation in the FY 1999-2000 reports, but no others. Climate change was mentioned in the FY 1990 and 1993 reports in relation to the Global Climate Change Research Program that was part of DOI during that time, but that program was short-lived. Although Strategic Habitat Conservation (SHC) was adopted in 2006 as the FWS's conservation approach, it was not mentioned in either the FY 2006 or FY 2007 annual reports.

The annual reports are public documents; it may be more important for the general public and Congress to know the accomplishments the FWS is achieving related to its mission and budgetary structure and less important for the public and Congress to know what kind of underlying conservation approach the FWS is taking at any point in time to meet its goals and achieve its mission. This may be why approaches likes ecosystem management and SHC are not mentioned or emphasized in the annual reports, especially since FY 1998 when reporting was organized under the FWS mission goals, and then in FY 2004, when reporting was related to DOI's mission areas. Internal FWS documents (e.g., reports, publications for employees such as *Fish and Wildlife News*, memos, meeting minutes, and e-mails) may include more discussion of conservation approaches like ecosystem management and SHC.

Annual budget requests are reflections of FWS priorities, so shifts in budget requests by program can be used as indicators of changes in agency priorities. Therefore, I performed an additional analysis using the *Budget in Brief* reports to determine how the budget requests for "activities" (i.e., categories) under the "Resource Management" appropriation for the FWS have changed from FY 1985-FY 2010. Activities under the Resource Management appropriation over the last 25 years have included the following 10 categories[15]: Endangered Species, Ecological Services, Habitat Conservation, Environmental Contaminants[16], National Wetlands Inventory (NWI), Refuges, Law Enforcement, Migratory Bird Management, Fisheries, Research and Development, and General Administration.

Results from this analysis show that budget requests for all of these activities, with the exception of Research and Development, have increased over time (Fig. 6). As discussed earlier in this chapter, the research function of the FWS was moved to USGS in FY 1994, so beginning in FY 1995 the Research and Development activity was eliminated from the budget. Not adjusting for inflation, the overall FWS budget request (including estimated permanents; see Fig. 5) has increased approximately five times and the requested Resource Management appropriation has increased 4.2 times from FY 1985-FY 2010. In comparison, the Endangered Species budget request has increased 11 times during the same period, providing further evidence of increasing emphasis on endangered species in the 1990s as observed in the annual

[15] In some fiscal years, some of these activities were subactivities under another activity in this group. For example, the National Wetlands Inventory was its own activity in the budget until FY 1993 when it was moved under the Habitat Conservation activity. The NWI budget was not itemized in the Budget in Brief reports after FY 1993, therefore, it is not included in Fig. 6 after FY 1992.

[16] Environmental contaminants and Migratory Bird Management became their own activities beginning in FY 1988. Prior to that, the budgets for these programs were included under other activities: Migratory Bird Management funding was included under the Refuges activity and Environmental Contaminants was included under the Ecological Services activity.

reports. This increase is greater than any other activity analyzed: the Migratory Bird Management budget grew 6.8 times, while all other budget categories increased 2.7-4.5 times over the last 25 years. Although the Refuges budget request is the highest percentage of the Resource Management appropriation, this request grew only 4.3 times over this period. This analysis supports the findings from the annual reports that most FWS priorities have not changed dramatically over time. The primary exceptions are Research and Development, which is no longer a function or priority of the FWS, and Endangered Species, which has become a higher priority over the last 25 years.

INSIGHTS FROM THE ORGANIZATIONAL CHANGE LITERATURE

Levy (1986) and Levy and Merry (1986) describe transformational change in organizations as reformulations or fundamental changes in an organization's mission, structure, management, and culture. The FWS annual reports do not provide evidence of any of fundamental or transformational changes in the metrics I analyzed and therefore did not show any transformational change in the FWS over the last 25 years. While these metrics may not have changed substantially over the last 25 years, some have changed minimally, which could be described as incremental or evolutionary changes.[17]

Both external and internal factors can cause organizations to change, and there are multiple organizational change theories with different perspectives on the primary drivers of change (Armenakis and Bedeian 1999, Fernandez and Rainey 2006, Greenwald 2008). In their review of the vast organizational change literature, Fernandez and Rainey (2006) organize the most prominent theoretical perspectives into six groups: rational adaptive theories, institutional

[17] One could argue the EA was a transformational change in the FWS since it involved a reorganization, but this was not mentioned or discussed in the annual reports.

theory, life cycle theories, ecological and evolutionary theories, policy diffusion and innovation models, and dialectical and conflict theories. According to rational adaptive theories and diffusion and innovation models the primary causes of change are internal; change is initiated by a manager's purposeful action (rational adaptive theories) or by elected officials and public managers adopting new policies or programs (diffusion and innovation theories). Therefore, these two theories treat managers as agents of change (Fernandez and Rainey 2006). Life cycle theories similarly view the causes of organizational change as internal; however, it is not the manager initiating change. Rather, life cycle theories describe change as natural and spontaneous, occurring as organizations move through various phases in their development (Downs 1967, Quinn and Cameron 1983, Van de Ven and Poole 1995). In contrast to rational adaptive, diffusion and innovation, and life cycle theories, the institutional and ecological and evolutionary theories emphasize external influences on change, all encompassed within the larger environmental context of which organizations are a part (Fernandez and Rainey 2006). Finally, dialectical and conflict theories of change (e.g., Kaufman 1969, Benson 1977, Wise 2002) view an organization as an entity that exists in a world of conflicting events, ideas, and values that compete with each other. These conflicts, which influence change, may be either internal or external to the organization.

Each theory offers insight into organizational change but the disparate perspectives on the primary causes of change can make it difficult to determine which is most applicable to the FWS. Considering several theories in more detail will help identify the most useful perspectives for understanding the patterns found in the annual reports and facilitate connections between my findings here and the interview results presented in Chapter 5.

Rational adaptive theories, which include contingency theory (Lawrence and Lorsch 1967, Thompson 1967), resource dependence theory (Pfeffer and Salancik 1978), and organizational learning theory (e.g., March and Simon 1958, Cyert and March 1963), emphasize managers or leaders as agents of organizational change. According to these theories, the external environment plays a role in change but through the actions of managers or leaders: managers analyze their organization's environment and adapt the organization to ensure survival in response to environmental changes, threats, or opportunities (Fernandez and Rainey 2006).

Contingency theory is a class of behavioral theory that argues there is no one best way of organizing—the appropriate organizational form is dependent on the task or environment. Lawrence and Lorsch's (1967) structural contingency theory emphasizes the need for structural changes that match organizational structures to the environment (Hannan and Freeman 1984). Managers, therefore, adapt their organizations to fit their environment.

Resource dependence theory (Thompson 1967, Pfeffer and Salancik 1978) emphasizes the dependence of organizations on resources (e.g., financial), which are a source of power for organizations. Financial resources are necessary for organizational growth and development, and acquisition of resources helps organizations reduce uncertainty and dependence on external actors (Thompson 1967, Greiner 1972, Pfeffer and Salancik 1978). In their study of superintendents of public schools in Texas, Fernandez and Pitts (2007) provided empirical evidence that public managers with more financial resources are more likely to favor change than managers with less financial resources. Similarly, Cyert and March (1963) indicated that slack resources create opportunities for managers to innovate and invest in strategies and technologies that provide long-term benefit. Fernandez and Pitts (2007) did note, however, that some theory

suggests that managers in organizations with fewer resources may be more likely to favor and initiate change to secure additional resources.

Finally, organizational learning theories, originating from the early work of March and Simon (1958) and Cyert and March (1963), describe the process by which organizations learn and adapt to their internal and external environments. Argyris (1977) describes organizational learning as the process of "detection and correction of errors." In his view, individuals act as the agents through which organizations learn. In his discussion of a "learning organization", Senge (1990) asserts that the leader's role is that of a designer and teacher who can build a shared vision and challenge prevailing mental models. Therefore, leaders are the ones who help facilitate organizational learning.

Similar to rational adaptive theories, in policy diffusion and innovation models of change (Walker 1969, Glick and Hays 1991, Berry and Berry 1999), elected officials and managers are considered the primary causes of change. These models portray elected officials and public managers as rational actors who adopt new policies or programs to survive or thrive politically and make their agencies more effective at achieving their goals or mission. In their literature review of policy diffusion, Berry and Berry (1999) found that public officials tend to adopt successful practices of their peers. In addition, several authors have shown that political culture, resources, and local economic conditions influence public officials in their adoption of new policies or programs (Walker 1969, Glick and Hays 1991, Berry and Berry 1999).

In contrast to the other theories, life cycle theories view organizational change as natural and spontaneous (Downs 1967, Quinn and Cameron 1983, Van de Ven and Poole 1995). In life cycle theories, change is imminent and inherent. "The developing entity has within it an underlying form, logic, program or code that regulates the process of change" (Van de Ven and

Poole 1995: 515), much like DNA does in living organisms. Driven by its underlying code, an organization typically moves through a linear sequence of stages or events in its development to reach some prefigured state. From the perspective of most life cycle theories, managers are seen as irrelevant or very limited in their ability to influence change. However, Quinn and Cameron (1983) argue that organizational members (including managers) may attempt to find ways of adapting the organization.

According to dialectical and conflict theories of change (e.g., Kaufman 1969, Benson 1977, Wise 2002), change occurs when opposing events, ideas, and values confront each other, engaging the status quo (Van de Ven and Poole 1995). Van de Ven and Poole (1995:517) describe it this way: "an entity subscribing to a thesis (A) may be challenged by an opposing entity with an antithesis (Not-A), and the resolution of the conflict produces a synthesis…[which] can become the new thesis." There may not always be a creative synthesis, however; the thesis may be replaced by the antithesis (Neal and Northcraft 1991). Therefore, change occurs when either a synthesis or an antithesis replaces the status quo. The actors with the most power, which may or may not be the managers, are usually the ones who have the most influence on whether or not change occurs (Benson 1977).

Institutional and neo-institutional theories see change as external in origin; the environment exerts pressure on the organization (Aldrich 1999), thereby limiting of the ability of managers to manage change (Fernandez and Rainey 2006). Conformity to norms, values, and rules drives organizations to change to increase legitimacy and improve survival (Powell and DiMaggio 1991, Scott and Davis 2007). Neo-institutional theorists contend that regularized organizational behaviors are the product of ideas, values, and beliefs that originate in the institutional context (Meyer and Rowan 1977, Zucker 1983). According to neo-institutional

theory, organizational behaviors are responses to sectoral and institutional pressures (i.e., pressures from regulatory agencies, shifts in general social expectations, and the actions of leading organizations) (Greenwood and Hinings 1996). Institutional pressures lead organizations to adopt the same organizational form and provide templates for organizing (DiMaggio and Powell 1983, 1991). For example, existing successful nonprofit organizations provide a template to newly forming nonprofits on how to organize to appear legitimate to funders. The new nonprofits will adopt the familiar organizational structure of nonprofits (e.g., president, vice president, secretary, treasurer and board of directors) to facilitate interactions with their funding sources. Similarly, to maintain their legitimacy, most of the organizations in a given sector will begin to resemble each other over time.

Theorists suggest that organizations acquire similar forms and methods due to the influence of organizational fields, a set of organizations involved in a particular activity (e.g., education, government, automobile industry, religious organizations, fast food industry, movie studios, etc.). The organizational field acts as a homogenizing influence on the organizations belonging to it (Greenwald 2008). DiMaggio and Powell (1983, 1991) described the convergence of organizations, or institutional isomorphism, as a tendency of organizations in similar economic sectors to appear similar. They stress that institutional isomorphism occurs so organizations can gain legitimacy and increase their probability of survival. Given the tendency for organizations to become isomorphic, institutional theorists stress the stability of organizational templates and resistance to change and emphasize the exogenous nature of change, such as changes in the legal environment, the economic system, politics, and public opinion. Institutional perspectives assume that choice is possible within the constraints of the

external environment, but there is a focus on conformity rather than resistance to external pressures (Oliver 1991).

According to ecological and evolutionary theories, which include population ecology (e.g., Hannan and Freeman 1977, 1984) and Weick's (1979) social psychological models, change within populations of organizations occurs through a process of selection: "organizations survive when they 'fit' their environment and succeed at competing for resources; those that do not fit lose out in the selection process and perish" (Fernandez and Rainey 2006:4). Managers develop strategies and decisions to adapt to the environment, but Hannan and Freeman (1984) argue that this may be less likely or less effective in large, complex organizations. Complex organizations take longer to implement change, and by the time a change has been implemented, the environment itself may have changed.

So how do these theories apply to change in the FWS over the last 25 years? I believe organizational change in the FWS is best viewed through the lens of multiple theories. As described above, some organizational change theories emphasize managers or leaders as change agents, while other theories focus on the external influences on change. Given their emphasis on the role of leaders as agents of change, rational adaptive theories and policy and diffusion models of change are most relevant to change in the FWS. As laid out in the FWS Manual, Part 022 (1998), FWS leaders like the Director, Deputy Directors and Assistant Directors have responsibility for the agency's budget, structure, policies, and conservation priorities. FWS leaders play an important role in setting agency priorities and developing budget requests based on those priorities; they have implemented some changes in organizational structure as the responsibilities of the FWS have increased over time and become more complex; they have also developed and implemented internal policies to help fulfill the agency's mission.

However, the FWS does not operate in a vacuum and is influenced by its environment. Institutional (Selznick 1943, 1948, 1957, 1965; Dimaggio and Powell 1983; Zucker 1987, Powell and Dimaggio 1991) and ecological (Hannan and Freeman 1977, 1984; Weick 1979; Aldrich 1999) theories of organizational change are applicable here. Institutional theories of change point to normative and regulatory pressures in the environment as motivators of change, while ecological theories argue that change occurs as a result of selection in the environment. The FWS is clearly influenced by external forces of its environment. As discussed earlier, the Secretary of Interior, President, and Congress, as well as the general public the FWS serves, have all influenced changes, however small, in agency budget, legislation, and conservation priorities.

Tipple and Wellman (1991) indicate that over the last several decades, federal public administrators have become increasingly subject to external forces as agency policymaking has been "opened up" to more political and legal forces. According to Wilson (1989), one mechanism has been through the judicial system, where a wider range of interests have been granted standing to sue federal agencies. Koontz (2007) provides evidence in support of this claim for the U.S. Forest Service (USFS). He describes a long list of federal regulations passed in the 1960s and 1970s (e.g., NEPA, the National Forest Management Act of 1976) that require comprehensive planning of and extensive public involvement in agency activities. These regulations have provided "fertile ground for citizens using appeal and lawsuits to block—or at least delay—such activities" (Koontz 2007:153). The FWS, as a federal agency, is also subject to many of the same environmental laws (e.g., NEPA, ESA) as the USFS, laws that have been used as a mechanism to litigate agency actions, particularly in the case of endangered species. Therefore, although not described in the annual reports, judicial review of agency actions is an additional external influence on the FWS.

Since the FWS is influenced both by internal actions of leaders and environmental pressures from the political environment and public constituents, a question that arises is do internal or external factors a have stronger influence on organizational change in the FWS? This study does not attempt to answer that question but it may be an important avenue of future research.

LIMITATIONS OF ANNUAL REPORTS

As discussed previously, analyzing just annual reports poses limitations to fully understanding changes that have occurred in the FWS and factors influencing those changes. Because some of the metrics I focused on (e.g., organizational structure) were not consistently reported in all annual reports, it is difficult to say with certainty exactly how some metrics changed over time. Annual reports also do not provide insight into the process of change, how decisions were made within the agency, or whether or not decisions were guided by ideas from leaders or middle managers versus subordinates. However, a strength in using annual reports is they represent what the FWS believes is important to communicate to external audiences. In addition, the annual reports provide a context for my interviews with FWS employees on their attitudes and perceptions about SHC implementation. Individual attitudes and perceptions are an important internal factor influencing organizational change, but the role that attitudes and perceptions of individuals play in change are not adequately addressed in broad organizational change theories. Employee attitudes about and perceptions of SHC implementation and relevant literature are discussed in Chapter 5.

APPENDIX A

TABLES AND FIGURES

Table 9. "New" Federal legislation passed or policies issued as mentioned in the FWS Annual Reports, FY1990-2000.

Legislation or Policy	Year Enacted
LEGISLATION	
North American Wetlands Conservation Act	1989
Oil Pollution Control Act of 1990	1990
Non-indigenous Aquatic Nuisance Prevention and Control Act	1990
Arizona Desert Wilderness Act	1990
Coastal Barrier Improvement Act	1990
Wild Bird Conservation Act	1992
National Invasive Species Act	1996
National Wildlife Refuge System Improvement Act	1997
Asian Elephant Conservation Act	1997
National Wildlife Refuge System Volunteer and Community Partnership Enhancement Act	1998
National Wildlife Refuge System Centennial Act	2000
Great Ape Conservation Act	2000
Federal Aid Improvement Act	2000
POLICIES	
Fisheries USA: Service Recreational Fisheries Policy (National Policy Issuance (NPI) #89-25)	1989
Wetlands "No Net Loss" Policy	1989
Native American Fish and Wildlife Policy (National Policy Issuance (NPI) #94-10)	1994
"No Surprises" Policy (ESA)	1995

Table 9 (cont'd)

Safe Harbor Policy (ESA)	1995
Residential Property/Low Impact Exemption Policy (ESA)	1995
Executive Order 12962 on Recreational Fisheries	1995
Executive Order 12996 on Management and General Public Use of the National Wildlife Refuge System	1996
Secretarial Order 3206 American Indian Tribal Rights, Federal-Tribal Trust Responsibilities and the Endangered Species Act	1997
Candidate Conservation Agreement Policy	1998
Executive Order 13112 to Battle Invasive Species	1999
Proposed Policy on General Conservation Permits	2000
Final Compatibility Regulations and Policy for the National Wildlife Refuge System	2000
Final Refuge Planning Policy	2000

Table 10. FWS priorities as coded in the FY 1990-FY 2007 annual reports. An "X" indicates that that priority was reported in that year.

Priorities	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07
Forming partnerships	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Providing and increasing public outreach and education	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X
Protecting, restoring, and managing native fisheries	X	X	X	X	X	X	X	X	X	X	X	X						
Providing recreational fishing opportunities	X	X	X	X	X	X	X	X	X	X	X	X						X
Recovering threatened and endangered species	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Restoring and protecting wetlands and aquatic habitats	X	X	X	X			X	X	X	X	X	X						
Conducting contaminant investigations and remediations	X	X	X	X			X	X	X	X	X	X						
Expanding and enhancing the NWRS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
Enforcing domestic and international wildlife laws	X	X	X	X	X	X	X	X	X	X	X	X						
Providing Federal Aid grants to states	X	X	X		X		X	X		X		X						
Producing and maintaining NWI maps	X	X	X	X			X	X			X	X						
Assessing and maintaining NFHS and NWRS facilities										X	X	X			X	X	X	

Table 10 (cont'd)

Priorities	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07
Protecting, enhancing, and managing marine mammal populations	X	X	X	X			X	X	X	X	X	X						
Protecting, enhancing, and managing migratory bird populations	X	X	X	X			X	X	X	X	X	X						
Controlling invasive species	X	X	X	X		X	X	X		X	X	X						X
Emphasizing ecosystem and habitat conservation	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X

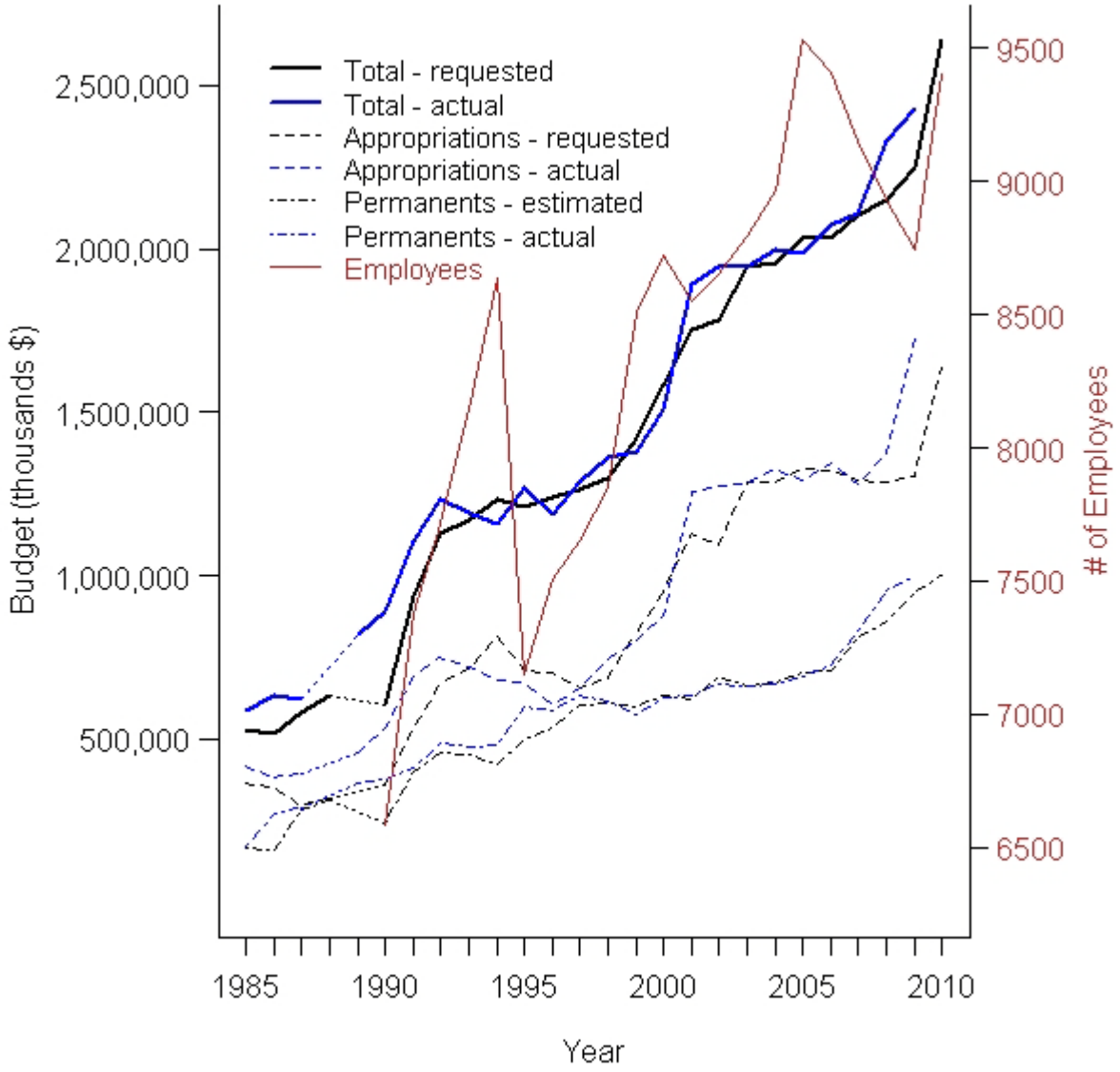

Figure 5. Annual budget requests, actual (enacted) appropriations and permanents, estimated permanents, and staffing levels (i.e., full-time equivalents (FTEs)) for the FWS, FY 1985-2010. (Source: *The Interior Budget in Brief*, U.S. Department of the Interior (DOI)) Note: 1988 data for actual appropriations and permanents and 1989 data for budget request and estimated permanents are missing because no *Budget in Brief* report could be located for FY 1989 (G. Franchois, DOI Library, personal communication, 2010).

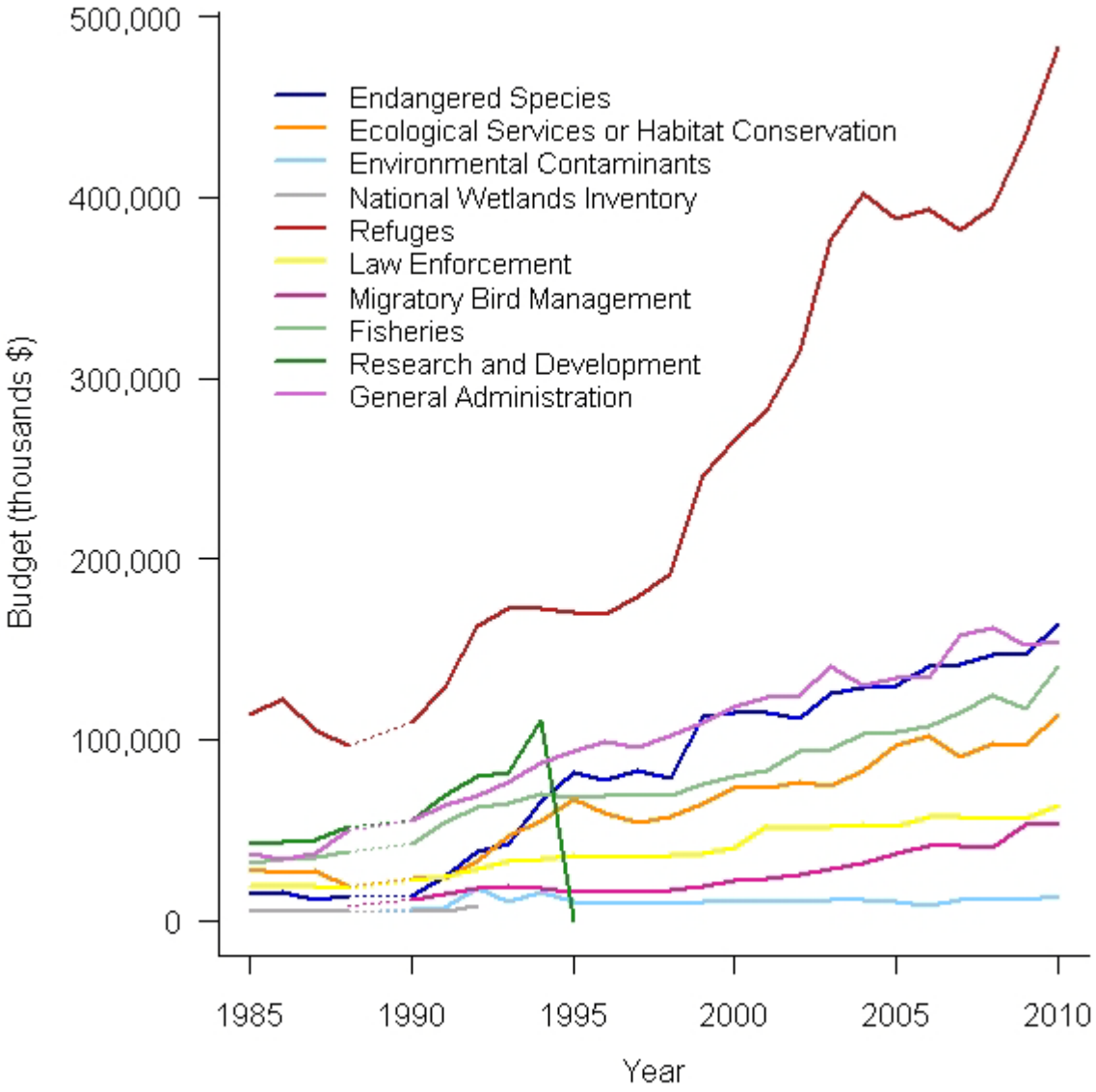

Figure 6. Annual budget estimates for "Activities" under the Resource Management appropriation for the FWS, 1985-2010. (Source: *The Interior Budget in Brief*, U.S. Department of the Interior (DOI)) Note: 1989 data are missing because no *Budget in Brief* report could be located for this year (G. Franchois, DOI Library, personal communication, 2010).

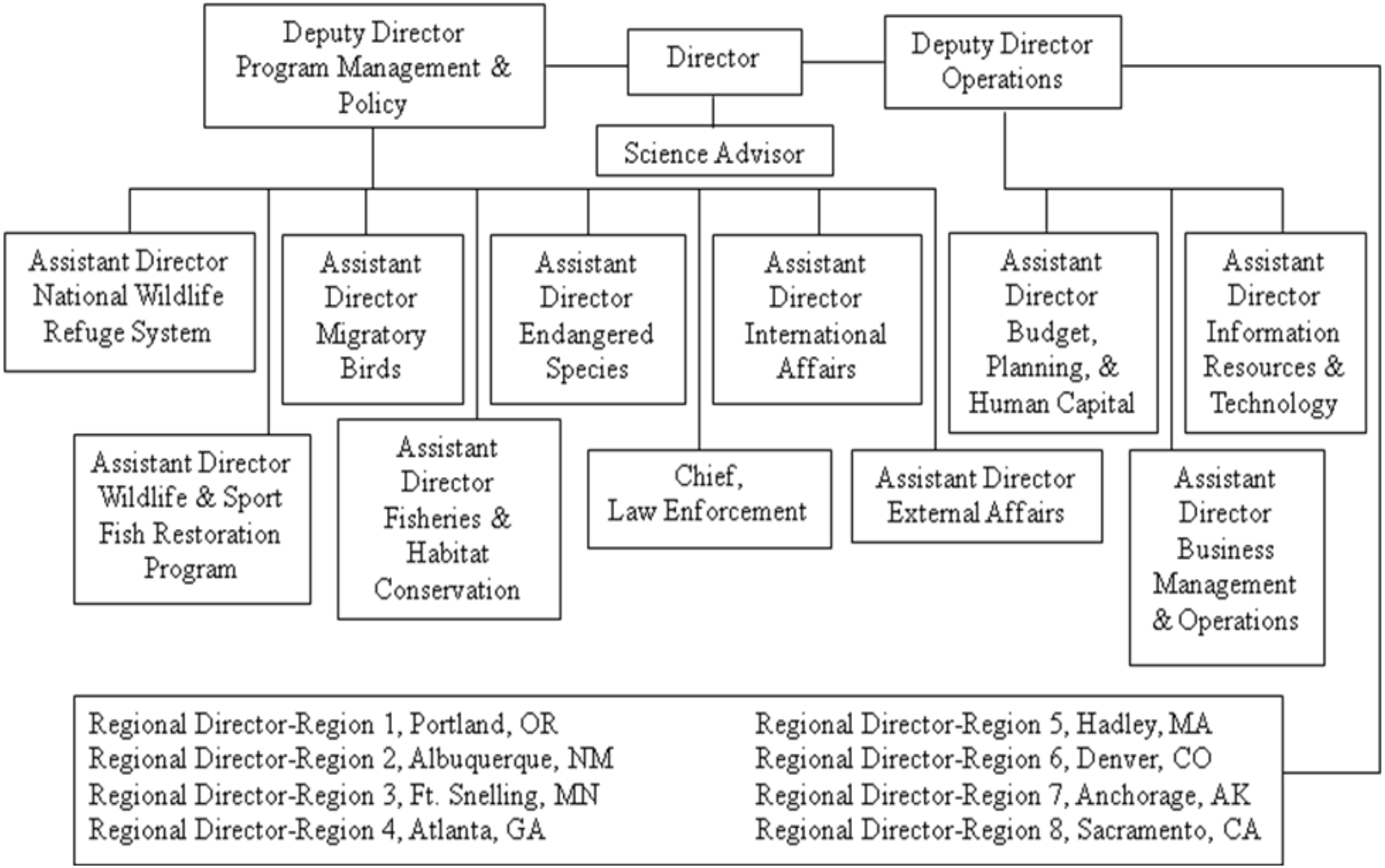

Figure 7. Current organizational structure of the FWS at the national level. (Chart adapted from www.fws.gov/offices/orgcht.html)

APPENDIX B

SECRETARIES OF THE DEPARTMENT OF THE INTERIOR

Table 11. Secretaries of the Department of the Interior, 1985-2010 (USFWS 2010).

Secretary	Period of Service
Donald P. Hodel	1985-1989
Manuel Lujan, Jr.	1989-1993
Bruce Babbitt	1993-2001
Gale A. Norton	2001-2006
Dirk Kempthorne	2006-2009
Ken Salazar	2009-present

APPENDIX C

DIRECTORS OF THE U.S. FISH AND WILDLIFE SERVICE

Table 12. FWS Directors, 1985-2010 (USFWS 2010).

Director	Period of Service
Robert A. Jantzen	1981-1985
Frank H. Dunkle	1986-1989
John F. Turner	1989-1993
Mollie H. Beattie*	1993-1996
Jamie R. Clark	1997-2001
Steven A. Williams	2002-2005
H. Dale Hall	2005-2009
Sam D. Hamilton*	2009-2010

*passed away while in office

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CHAPTER 5

RESULTS AND DISCUSSION

INTERVIEWS

DESCRIPTION OF PARTICIPANTS

I analyzed 45 interviews for this study. Overall, most participants were male (71%, n = 32); across eco-teams, females comprised only 20-33% of the participants (Table 13). The overall percentages of supervisors and non-supervisors were similar, with supervisors comprising 53% (n = 24) of the participants (Table 13). Across eco-teams, the percentage of supervisors and non-supervisors ranged from 40-77% and 23-60%, respectively.

A majority of the participants work for Refuges (64%, n = 29), while 27% (n = 12), 7% (n = 3), and 2% (n = 1) work for Ecological Services, Fisheries, and Migratory Birds, respectively (Table 13). This sample is representative of the percentages of employees who work in each of these programs in the Southeast Region as a whole: 54% Refuges, 25% Ecological Services, 9% Fisheries, and 2% Migratory Birds (D. McElwee, FWS Southeast Region Budget Office, personal communication, November 4, 2010). Percentages of participants from Refuges ranged from 50-80% across eco-teams, while percentages from Ecological Services, Fisheries, and Migratory Birds ranged from 20-33%, 0-20%, and 0-10%, respectively.

All participants (n = 45) have a post-secondary degree: 42% percent (n = 19) earned a Bachelor's degree, 53% (n = 24) obtained a Master's degree, and 4% have a Doctorate (n = 2) (Table 13). Majors or disciplines for these degrees were diverse and included the following: biology, marine biology, fisheries, wildlife, fisheries and wildlife (biology, ecology or management), natural resource management, urban planning, geography, ecology, zoology,

environmental science, forestry, psychology, sociology, chemistry, pre-med, political science, aquaculture, art, history of science, environmental education, elementary education, criminal justice, outdoor recreation, natural and cultural resource recreation, and math. The average number of years each participant worked for the FWS was 14.1, ranging from 8 months to 32 years (Table 14). The average range across eco-teams was 10.3-16.2 years.

INTERVIEW RESPONSES

I identified five main themes through content analysis of the interviews: 1) leaders and their actions, 2) partnerships and coordination, 3) cynicism and distrust, 4) reactions to change, and 5) agency history and culture (Table 15). Within each of these themes, I identified several sub-themes, which are described in the following sections for each theme.

Theme 1: Leaders and Their Actions

All (100%, n = 45) of the participants referred to or discussed leaders (i.e., either their direct supervisors, regional, or national level leaders) in their responses to questions about communication about SHC and the role of managers in and barriers to implementing SHC. Overall, participants tended to have either negative or non-evaluative (i.e., neither positive nor negative) responses regarding their leaders' actions related to SHC. Only 13% (6 of 45) of participants had positive comments to share about their leaders' actions (e.g., talking about SHC or taking actions to implement SHC); half of these participants referred specifically to the Regional Director and said only positive things about him, talking about their respect for him and their faith in his ability to "make this [SHC] work".

In discussing leaders, most participants referred to their direct supervisors. However, 13 participants referenced leadership at regional and national levels versus leadership from their

direct supervisors. Six of these responses were negative, four were positive, and three were neutral. As described below, the participants who were positive spoke largely about the Regional Director. The participants who were negative thought that regional and national level leaders were not providing the guidance or tools the participants needed to implement SHC and felt that SHC was being pushed down on them from these higher levels. They felt as though they were being told what to do without being given adequate direction or details. These participants expressed a desire for more specific guidance but less mandates. In other words, they wanted specific guidance or guidelines on how to implement specific aspects of SHC (e.g., biological planning) in their projects.

Under this main theme, three sub-themes emerged: 1) leaders are supportive of SHC, 2) leaders show lack of leadership in guiding and endorsing SHC, and 3) leaders are pushing SHC on employees (Table 16). The responses from 12 of the participants who referred to leaders encompassed two of the leadership sub-themes in their responses, but no participants' responses contained all three sub-themes.

Sub-theme 1: Leaders are supportive of SHC

Over half (64.4%, n = 29) of the participants who referred to leaders in their responses said they thought their supervisors generally seemed supportive of SHC. For most participants, support of SHC primarily meant leaders were talking about SHC in neutral or positive terms, but a few said their leaders made implementation of SHC a priority in their (the leaders) work or were developing funding requests for projects that incorporate SHC concepts. John[18] went as

[18] To preserve confidentiality, names of participants have been changed.

far as to say his supervisor "is a big Kool-Aid drinker"[19] when it comes to new ideas or changes like SHC. Other participants indicated that their supervisors are "pretty supportive" or "very supportive." For instance, Mark said:

> "I think they're very supportive of it, and they do talk about it a lot from [the Regional Office] to the field…I think we hear about it continuously, and it's definitely on the forefront of everything that they're talking about, so I think they're very committed to it."

Melissa said managers are supportive of SHC "no matter how it's packaged and delivered because they know it's the right thing for what we're trying to do, for the habitat and the species." For many participants, support meant leaders were talking about SHC, but not taking any tangible actions related to incorporating or implementing SHC in their work. For example, Gary simply said, "They're talking about it [SHC]." Interestingly, these participants did not attribute negative or positive feelings to their supervisors being supportive of SHC. They reported "facts" about their leaders' support, but did not express opinions about their leaders' support. Chris was one of few exceptions saying, "I like what they've done in terms of having these national and regional teams trying to…break it down into some useful guidance on what this means for our day-to-day work."

Of the 29 participants who said their supervisors seemed supportive of SHC, two added the caveat that leaders seemed supportive of SHC only because they (the leaders) do what they are told or asked to do by their (the leaders') supervisors. Bill described it this way: "…everybody, is, you know, soldiers here, so you might as well follow orders…" while Joe simply said, "I don't think that they have a choice." These participants gave the impression that

[19] This phrase has become synonymous with "becoming a firm believer" and refers to the 1978 Jonestown Massacre where followers of Jim Jones committed suicide by drinking Kool-Aid (later confirmed to be Flavor Aid) laced with cyanide.

they thought their supervisors would support any kind of organizational change or "initiative" if they were asked or "told" to by their supervisors.

Anne indicated that her supervisor seemed supportive of SHC and even allowed her to dedicate time to SHC teams but had reservations and questions about the potential benefits of SHC that he shared with her:

> "He's been really supportive of being part of these [SHC-related] teams. He still--I think he still has some reservations on how, how this will benefit what we do because he feels pretty strongly, I think, that we're doing the right things already…he's been really supportive, and if he wasn't behind it, he wouldn't feel any sense of spending much of my time on it. And I've spent a lot of time on it."

Although many people thought their supervisors were supportive of SHC, two respondents perceived negative attitudes about SHC from their supervisors. For example, Mary said, "We kind of heard my project leader griping about it" and "I don't know anybody [in this office] that is positive" about SHC.

Sub-theme 2: Leaders show lack of leadership in guiding and endorsing SHC

Twenty-seven participants (60.0%) indicated that leaders have been showing a lack of leadership in endorsing or guiding implementation of SHC. According to respondents, lack of leadership has manifested itself in three different ways: 1) lack of detailed guidance on implementing SHC, 2) lack of discussion about SHC, and 3) lack of leaders at the field office level. In addition, some of the participants who referred to lack of leadership talked more specifically about what leaders should or need to be doing to make SHC successful.

Ten of the participants who referred to lack of leadership indicated that leaders provide insufficient details on how they (participants) can implement SHC in the field. There was a

sense of frustration and concern expressed by participants who talked about a lack of guidance from the upper level (i.e., regional or national) leadership: "it is kind of like, here's the new business model, we really don't know how's it going to work, we think it's going to be good, we [are] going to do it, but…then you're kind of left to…figure out how to apply it." Gary said there is a "disconnect from talking about these things to putting it in action in the field", and posed the question: "How do we take this from an intellectual white paper to an actual accomplishment on the ground?" Similarly, Robert talked about lack of direction from the region to the field saying, "I guess I'm concerned that there's a disconnect with the field and the region."

Of the 27 participants discussing lack of leadership, four said their leaders have not talked about or mentioned SHC in their presence. It's just "not something that comes up on its own," said David. However, none of these participants expressed disappointment or concern about the lack of discussion about SHC by their leaders, possibly because these participants had negative opinions about SHC themselves and did not seem to care if their supervisors talked about SHC. Interestingly, these participants all work for the same program, although they are located at different offices.

Three of the participants who referred to lack of leadership said more leadership was needed at the field level (e.g., Ecological Services field offices, Refuges) and not from the top-down. For instance, Mike said, "the gap that needs to be filled is leaders in the field." Luke shared a similar sentiment: "the real leadership, because we're field-oriented, comes from the field. It doesn't come from the top." These participants seemed to have the perception that the "real" work (i.e., on-the-ground conservation) of the FWS is accomplished in the field and therefore, more leadership is needed in the field.

Finally, six participants expressed opinions about what they thought leaders should be doing for SHC. They believe that SHC will not be successful if their leaders do not endorse or provide guidance for SHC. In their view, the success of SHC is "dependent upon leadership of those implementing SHC" and not just leadership, but "strong leadership," although strong leadership was not more specifically defined. Natalie indicated that she typically modeled her attitude after her leader's: "If leadership really goes for something…for the most part…I will…" Carol even talked about future leaders, saying: "I think it really is an opportunity for the Service to instill this as a way of doing business from now on, but it's going to take that buy-in from each new generation of leaders." Steve said he thought the biggest barrier to successfully implementing SHC is "top down leadership endorsement…everyone down the line…We need absolute unfailing endorsement from leadership. Number one. And then if they don't, get rid of them." Steve's sentiment echoes Mullins et al. (1998) in their assessment of EA in which they recommend that leaders who do not embrace the EA philosophy step aside or be encouraged to do so by the FWS Directorate. Sean predicted what he thought would happen if leaders didn't endorse SHC: "I think it's [SHC] gonna fade away…if leadership…doesn't provide guidance."

Ten of the participants referring to lack of leadership (sub-theme 2) also referred to either their leaders' support of SHC (sub-theme 1, n = 8) or how leaders are pushing SHC on them (sub-theme 3, n = 2). Participants who thought there is a lack of leadership varied in their responses about their supervisors' support of SHC: three of these participants were positive about their supervisors' support and five were neutral. These participants tended to attribute lack of leadership to regional or national level leaders and not their direct supervisors.

Sub-theme 3: Leaders are pushing SHC on employees

Eleven participants (24.4%) said they felt that SHC was being mandated or "pushed" from the top levels of management down to them in the field. All of these participants expressed negative attitudes and even some resentment toward the "top-down" feel that "staff are very wary of" and Nic said, "…it's comin' from the top down tryin' to teach us." Nic was also particularly concerned about "getting set up to have other people tell us what to do." William said, "I just sorta feel like it's just another one of those efforts or concepts that kinda gets pushed on us as sort of a new way of doing business…" Finally, Jerry expressed his frustration this way: "We know what we're doing; they don't need to tell us." He went further, saying that "my supervisors have been doing this [SHC]; they started this stuff a long time ago."

Four of these participants' responses contained references to one of the other sub-themes. For example, Mike, who said his "staff are very wary of the top-down feel" also said "the gap that needs to be filled is leaders in the field" (lack of leadership sub-theme). If there were more leaders or leadership in the field, Mike's staff might feel less like there was a top-down approach to SHC.

Theme 2: Partnerships and coordination

In responses to questions about what groups or organizations they work with, all (n = 45; 100%) participants discussed external partnerships and coordination in their responses. Participants were asked about their partnerships because partnerships are considered essential to accomplishing the functional elements (see Chapter 2) of the SHC framework (FWS 2006). Participants were overwhelmingly positive (n = 39) about the strength and effectiveness of their partnerships (as discussed below under sub-theme 1). In discussing external partnerships, participants talked about the numbers of partners, saying they have a "tremendous number",

"lots", a "bunch" of, or "many" partners. David summed it up by saying, "Integrated cooperation in management is here in spades."

All participants (n = 45) listed specific partners, which included state conservation agencies, other Federal agencies (e.g., Army Corps of Engineers (ACOE), U.S. Geological Survey (USGS), National Park Service (NPS), local and national non-governmental organizations (NGOs) (e.g., The Nature Conservancy (TNC)), local and county governments, universities and private landowners. In addition to naming specific partners, participants often talked about the goals of their partnerships and which species or habitats the partnerships are intended to benefit.

Four sub-themes emerged under this theme: 1) external partnerships are strong and effective, 2) external partnerships are necessary to accomplish the FWS mission, 3) need to communicate with partners about SHC, and 4) internal coordination needs improvement (Table 17). Responses from 20 of the participants contained more than one of these sub-themes.

Sub-theme 1: External partnerships are strong and effective

Nearly all (n = 40) of the participants indicated their external partnerships are strong and effective. Exemplifying the sentiments of other participants, Ben said, "I think the partnerships…they're all pretty effective", while Greg similarly said of his partnerships: "I think they're real strong." Other participants characterized their relationships with their partners as "very good", "pretty good", "real strong", "strong and effective", and "very effective". When asked how often she works with her partners, Melissa replied, "All the time", later adding that partnerships "are, by nature, what we [FWS] do." Matt was the only participant who expressed a negative opinion about partnerships, indicating that he perceives an "outside opposition to

partnering with FWS", but not elaborating further on why partners might be reluctant to work with the FWS.

Nine participants thought that although their partnerships were good or strong, existing partnerships could be improved or "grown" or new ones could be developed. Tim spoke about it this way:

> "I'm not convinced that the refuge has a great relationship with its neighbors, it appears to me that it's…perhaps a tension or some strife, or some history associated with the refuge that has made being a good neighbor somewhat of a challenge, so there's a lot of room for improvement with our neighbors…given the right opportunities and the right approach, they'd be really good partners, but it's going to require some flexibility from what's within the refuge, to a little bit of give and take."

Five participants identified various partners with whom they believed relationships could be better. For example, three participants specifically pointed to the need to strengthen their partnerships with state conservation agencies, whereas two others felt their partnerships with the state were the strongest. Two others pointed to a need to work better with NGOs and private landowners. Mark expressed concern about how the lack of staff was limiting his office's ability to form and nurture partnership: "We've had to kind of look inward and as we've lost staff, we've had to crawl into a shell a little bit. I think if we can rebuild our staff so that we have more resources here on the ground, well, then our refuge managers and our project managers can definitely nurture those partnerships a lot better."

Three participants indicated that their partnerships were "well established." For instance, Robert said the partnerships his office formed had been in existence for "15 to 18 years", while

Paul shared, "working with partners again is something I think most refuges are already doing and have been for a long time."

Sub-theme 2: External partnerships are necessary to accomplish the FWS mission

Eighteen participants (40%) spoke about how integral external partnerships were to accomplishing the mission of the FWS. Gary summed it nicely: "in the last 15 years, people have realized in order for conservation to be successful, we have to work together." David echoes: "each [partner] recognizes much less success…if [they] don't work together."

According to Ben, insufficient funding limits the ability of the FWS to accomplish its mission singlehandedly: "I think just the budgetary constraints or resource availability almost requires there to be a partnership at some level." Similarly, Fred said, "none of us [has] enough resources to do what we need to do. The only way we can try to keep the boat from sinking is to bail together…There's no way we could satisfy the mission by ourselves." According to participants, partners are needed for in-kind services and applying for and receiving grants. A partnership "gives you more leverage on getting a grant", says Nic.

In addition to providing additional funding or leveraging funds or in-kind services, partners also help the FWS with planning, research, and monitoring—facets of conservation and the SHC framework for which the FWS has less expertise or financial resources. Paul provides an example: "Research is something that we don't have the staff to do ourselves in house so we rely on partners…primarily USGS."[20]

On the other hand, five participants indicated that slightly different missions or agendas between the FWS and its partners can pose challenges. Ben suggests that when this happens, the FWS needs to "see where their agendas overlap and can provide an overall goal." In addition, all

[20] Recall from Chapter 4, the research staff from FWS and other DOI agencies were transferred to the National Biological Survey in 1993 and later became part of USGS.

participants whose responses included this sub-theme (n = 18) also talked about their external partnerships being strong and effective (sub-theme 1).

Sub-theme 3: Need to communicate with partners about SHC

Eleven (24.4%) participants discussed communication with partners about SHC. Of those, six indicated that there was a need to communicate with partners and educate them about or "sell" the concept of SHC. Steve was the most emphatic in his response:

> "…my partners need to buy it [SHC]…and we have to see how it's going to work. We have to be able to provide visions for where it will work and how it will work and where certain things won't work and where we need to maybe alter things…And so in the selling of this concept, we have to justify and convince all of our partners, especially our state partners, that here is a strategy that if embodied by all natural resource agencies can work together to provide CPR (conservation, preservation and restoration)."

Steve later added this caveat: "If you can't sell it to yourself, forget about your partners."

Kevin provided a few words of caution: "You've gotta be a little bit careful about saying 'we need you folks to buy into our plan and buy into our vision for the world' because they got their own. And they might want us to buy into their vision of the world." In other words, the FWS needs to talk to partners about SHC but be cautious about telling them they should adopt SHC as a conservation approach.

Only one participant, Chris, indicated that his office and eco-team had already been talking to partners about SHC, and referring to his partners, said "they're all recognizing a need to move in this sort [SHC] of direction." Two participants said that although they had not talked to their partners about SHC, it will be important to have meetings and trainings with them about

SHC in the near future, with the goal of having the partners understand what SHC is and discuss how they could be involved.

Three other participants expressed concern about achieving buy-in from partners. In particular, Ed predicted that in selling the concept of SHC to partners, "they [will] all kinda just say, 'isn't that what we're already doin'?"[21]

Theme 3: Cynicism and distrust

In response to questions about their understanding of SHC, barriers to implementing SHC, and the potential success of SHC, 82% (n = 37) of participants expressed cynicism and distrust. Sixteen participants used words or phrases like "buzzword", "initiative", "passing fad", "flavor of the month", "trendy", "just another acronym", "the latest and greatest" or "another exercise" to describe SHC. SHC was compared to the ecosystem management approach by 14 participants. As discussed below, many (n = 8) of these participants thought that SHC is just a new name for ecosystem management.

Emergent sub-themes under this main theme are: 1) SHC is another buzzword or initiative that will evolve into something else over time, 2) SHC is a new name for something employees are already doing, and 3) distrust of new ideas or initiatives (Table 18) Over half (n = 21) of the participant interviews encompassed more than one of these sub-themes.

Sub-theme 1: SHC is another buzzword or initiative that will evolve into something else over time

Twenty-nine participants referred to SHC as a "buzzword" or "initiative" that they believe will evolve into a different concept or will be "repackaged" and given a new name over time; they have seen it or heard about it happening with previous "initiatives" like ecosystem

[21] This sentiment is similar to those expressed by many respondents in this study and is discussed further under the cynicism and distrust theme.

management and believe the fate of SHC is likely to follow the same path. The following excerpts from Chris, Ben, and Billy, respectively, illustrate this sub-theme well:

> "So you're overcoming…internally that's one of the biggest barriers, is just the flavor of the month, you know. This is just the next thing and it will pass. That's probably one of the biggest barriers right now, is that we've seen it before. And before ecosystem management it was, you name it. It was TQM [total quality management]. I mean it was Cosmos, or…it's been a raft of these initiatives…and this will go away. So if you're old, some of these old, gray haired fat guys like me, it's really easy for those guys to just, I'm just going to ride this one out….Ultimately, there will be something else that's called something different."

> "There's always a certain amount of skepticism that comes with anything that's new or presented as new…it's just waiting for the next thing to come along and to prove their point that this thing is so cyclical that…there's no reason to start it because there's going to be something else in six months or six years. It's just going to be you know evolve into something very different and it's not going to matter."

> "Some of the old timers say this is just the latest thing, this kind of thing has come up before, and it's the latest and greatest, and after a while it kind of fades until the next concept comes up…so I don't know. It could fade away or it could become…everything we do has to be tied in to SHC."

These sentiments were not exclusively attributed to the "old timers", as Chris and Billy referenced above. For example, Mary, who has worked for the FWS less than 10 years, talked

about what the “older people” say, which seems to have influenced her attitude about SHC: “As soon as the administration changes over, they will…come up with something else” and “It’s the same crap we’ve been doing all these years.”

Four participants expressed uncertainty about whether or not SHC is likely to succeed due to cynicism of employees caused by an agency history of “fads” or “initiatives” failing or morphing into something new. For instance, Alan stated: “I think it’s got a lot of great potential to be successful. I think it’s got a significant probability of not being successful, too, but I think the main reasons it would not be successful [is] it’s really not embraced by the administration or maybe this is just a passing fad…” Two participants, on the other hand, said that despite SHC’s stigma as a buzzword, they believed the SHC concept is the “right way to do conservation” and hoped that employees could focus on the concept and move past the name or acronym.

Sub-theme 2: SHC is a new name for something employees are already doing

Twenty-five participants indicated that SHC is just a new name for something they are already doing, and in many cases, have been doing for a long time. Eight of these participants said they thought SHC was just a new name for the ecosystem management approach of the 1990s. “When it first came out, I kind of thought this is just another way to say ecosystem management, or adaptive management…” said Carol. Similarly, Chris said, "Folks still are trying to figure out, internally and externally, how is this different from ecosystem management?"

The other seventeen participants did not specifically refer to ecosystem management, but indicated they thought SHC is something they are already doing in their every-day jobs. Gretchen stated: "It, in my mind, it's another, it's just another approach. But it's not any different than anything that we already do." David went further and suggested SHC was a repackaging of

old ideas, saying he is "not entirely clear on how it [SHC] is substantially different than what we've been doing all along…seems like a packaging of ideals and goals we've had all along." Bill shared David's opinion:

> "I mean in a lot of ways I think it is a rehash of old ideas or old terminology…but a heavier twist on monitoring…It's almost a repackaging and reterminology. New terminology for the same strategy, the ecosystem [approach]. Which is a darn good thing, you know, a darn good thing to be doing."

Sub-theme 3: Distrust of new ideas or initiatives

A general distrust of new ideas or initiatives was expressed by eight of the participants. John believes that SHC is "camouflage for keeping us from doing what we're supposed to be doing" and "there's a lot of politics that goes on with this foolishness", indicating his lack of trust of new ideas and the people that endorse or support them. Jerry expressed concern about "getting set up to have other people tell us what to do" while Bob talked about his specific distrust of SHC: "There's always a concern when you have new initiatives that are generated that they're going to steal resources." This statement is reminiscent of the "kingdom" mindset described later under the agency culture and history theme.

To help employees overcome their distrust of new ideas, Anne suggested the following:

> " I think it's going to take colleague-to-colleague discussions and seeing other folks doing it that they trust and hearing that it's helping the Service to do our joint, our collective mission. I think it's going to take building up that trust, which we all know that takes a long time. Especially person-to-person takes a long time but agency, whew, that takes a long time."

Alan shared a similar recommendation: "They need…some guy like [Joe Smith] to come down here and say 'We're being honest with you'…somebody has to be trusted, not just a flashy suit, and then we'd say 'okay'…but we don't have that yet." Employees need to hear people they trust talking about SHC and the reasons why they should embrace it.

Theme 4: Reactions to change

In response to questions related to thoughts about and understanding of the concept of SHC as well as questions about barriers to implementing SHC, reactions to change surfaced in about half (n = 23, 51.1%) of the participant interviews. Only six participants talked about their own reactions to change. For example, John said, "I don't give a damn what they do", referring to what the FWS does in the near future since he is retiring soon. The other 17 participants talked exclusively about what they thought were other employees' general reactions to change. For instance, Barb said, "I think people that have been with the Fish and Wildlife Service for a while…everybody kinda, before they embrace it [SHC], they kinda hang back and see if it's gonna stick." Anne said, "I [have] been hearing so many comments about SHC and so many misconceptions in the field and folks just were resistant to its building." [More supporting quotes are included in the discussion under the sub-themes.]

The following sub-themes emerged under this theme: 1) resistance to or fear of change, 2) employees want to keep doing their jobs as they always have, and 3) organizational change is needed (Table 19). Only two participant responses encompassed two sub-themes; the rest contained only one sub-theme.

Sub-theme 1: Resistance to or fear of change

Resistance to or fear of change was mentioned by 13 (56.5%) participants. Four of these participants offered reasons for resistance to or fear of change. Dawn said that people were

afraid that “they’re going to be stuck behind a desk writing SHC plans” rather than going out and “doing their jobs”. Similarly, Erica was concerned that “with all these kinds of big changes…the resource doesn’t get its fair shake. Instead you get caught up in the administrative burden and training…” Nate indicated that resistance at the staff level exists because “there’s been enough failed planning types of efforts” causing employees to become jaded and resistant to changes like SHC. Joe thought there was a broader problem: “people…they get settled in their ways…so it is hard to change the way you do business.”

Resistance to or fear of change does not seem to be limited to field-level employees. Two participants talked about managers being reluctant to change. Hank went as far as saying he thought “management” was “refusing” to change.

Sub-theme 2: Employees want to keep doing their jobs as they always have

Eight (34.8%) participants said they want to keep doing what they always have, thus maintaining the status quo or taking a “business as usual” approach. For five of these participants, this meant they were taking a “wait and see” approach. For example, Ron said, “we’ll wait until we get the official email”, indicating he wasn’t going to change the way he was doing his job until he was officially told to. Alan talked about the tendency in the FWS to “do what we’ve always done.”

Sub-theme 3: Organizational change is needed

Rather than discussing resistance to or fear of change, five (21.7%) participants indicated they believed an organizational change was needed within the FWS to adopt and implement SHC. Chris described the need for change this way:

> “I think it's [implementing SHC] essential because if we don't build some of these thought processes and concepts and tools into the way we do things as an organization

and really make it a part of the culture, then we're going to become increasingly irrelevant because these other agencies are all out there and NGOs are all out there doing it."

Ben was hopeful and thought change is slowly occurring, but is hindered by the "institutional foundation" or the old ways of doing business that managers have learned:

"And that's going to be hardest part in my opinion…that is the hardest part of change because you're not only changing this institutional foundation…the people that are at the decision level are often the ones that benefitted from that institutional foundation. That's how they've gotten there, it's instilled in them that that works and it's not to say it doesn't work but it may no longer work...It takes recognition at all levels that there is going to be changes in their approach. And we're starting to see it, it comes slowly…how we approach business in general is all changing. It's a slow change…some respond more quickly that others."

Like Ben, Fran felt there is a "glimmer of hope that things will change."

Theme 5: Agency culture and history

Only 15.6% (n = 7) of participants discussed the culture and history of the FWS in their responses. In particular, these participants referred to traditional mindsets of employees in the FWS (sub-theme 1) and the tendency for the agency and its employees to follow old patterns or trends (sub-theme 2) (Table 20). Only one participant's response contained both sub-themes.

Sub-theme 1: Traditional mindsets

Traditional mindsets of FWS employees were referenced by five (71.4%) participants, all of whom work for Refuges. All of these participants referred specifically to the mindset that every region or refuge is a "kingdom". Luke summarized it this way and indicated that this mindset has been changing:

"Well we're not really [one] ‘Service’ because we never have been. It's always been these nine separate regions and so you have to live within the culture. It's always been a field-oriented organization…in the battle days every refuge was a kingdom, every ES office was a kingdom…we've come a long way from those days."

Paul offered an explanation for why Refuges in particular are susceptible to the “kingdom” mindset:

"I think more refuges are reaching beyond their boundaries, but I think historically our focus has been within our boundaries…our jurisdiction is defined by our boundaries, and so where we work beyond our boundaries it's not a situation where we can determine what happens beyond our boundaries. That's more the case where we can influence what happens…going from a management focus on actually controlling what happens within the boundaries to a management focus of you being a contributor to something beyond your boundaries is a bit of jump because it's not something that we are mandated to do..."

This mindset has not changed for everyone, however, as Tim illustrates: "It's my supervisor's opinion that my time needs to be 100% on the refuge, whereas, strategic habitat conservation doesn't know the refuge boundaries."

Sub-theme 2: Tendency to follow old patterns

Three participants referred to the agency’s tendency to repeat history, following old patterns and “historical trends” and offered specific examples. Carol shared this: “You know we always talk about doing more with less, and we continue to do the same things we’ve been doing forever…So I think it is somewhat that we’re stuck in our old patterns.” Greg offered this example: "So many times in the Fish and Wildlife Service…I've seen things that are extremely

important and top priority, and then a pot of money comes in and immediately we drop everything to get that money spent and that becomes the new priority."

DISCUSSION

In this section, I will review the literature on leadership, partnerships, employee cynicism, resistance to change, and organizational culture as it applies to my findings from interviews with FWS employees. A synthesis of the findings presented in this chapter and in Chapter 4 will be presented in the following chapter. In addition, implications of these findings will be discussed along with recommendations for the FWS on how to address and overcome barriers to change (e.g., lack of leadership, employee cynicism, and resistance to change) discussed in this chapter.

Leadership

Rational adaptive theories and policy diffusion and innovation models of change (e.g., Cyert and March 1963, Lawrence and Lorsch 1967, Pfeffer and Salancik 1978, Glick and Hays 1991) identify leaders as key agents of change. According to these theories, agents of change deliberately plan and manage change. The majority of FWS participants in this study who thought their leaders were supportive of SHC perceived leaders as only talking about SHC, not taking tangible actions. In other words, FWS employees did not think their leaders were actively planning, implementing or managing the changes needed to implement SHC, even if their leaders seemed supportive of SHC. Therefore, FWS participants do not perceive their leaders acting as true change agents.

As discussed in Chapter 4, FWS leaders set agency budget requests and priorities and can and do change hierarchical structure to reflect increasing complexities in workload. However, as described by rational adaptive theories of organizational change, leaders and their actions are

also subject to constraints in their environment (Van de Van and Poole 1995, Fernandez and Rainey 2006). In the case of a federal bureaucratic agency like the FWS, the political environment can have a substantial impact on the ability to implement real change. Several studies have found that change in public programs and organizations require support from political overseers (Berry et al. 1999) and other key external stakeholders such as interest groups (Thompson and Fulla 2001). Political overseers have the authority to pass legislation or policies that mandate change and control the flow of resources (Fernandez and Pitts 2007). However, Borins (2000) found a positive correlation between the incidence of innovation and the level of support from political overseers. Given the relative lack of change in most of the metrics I evaluated in Chapter 4, it is possible that agency leaders have not been true change agents because they may be too constrained by their external environment. Attempts have been made at transformational change in the FWS in the last 25 years, however, with the ecosystem approach serving as the most recent example prior to SHC.

In their 1997 assessment of FWS's ecosystem approach (EA), Danter et al. (2000) found that employees thought that leadership in guiding and implementing an organizational change (i.e., the EA) was lacking. One of their recommendations for improving implementation of the EA was that leaders should be "visible proponents" of EA (Mullins et al. 1998, Danter et al. 2000). In the case of SHC implementation, FWS employees hear their leaders talking about SHC, but with few exceptions, their leaders do not seem to be visible proponents (i.e., talking positively about the need for or value of SHC) of SHC. Employees do not see their leaders creating conditions that support implementation of SHC; leaders are just talking about SHC and not always in positive terms.

Bass (1990) and Niehoff et al. (1990) indicate that modeling of personal commitment to an organizational change by leaders is an important determinant of successful organizational change. Similarly, in their study of ecosystem management implementation in the U.S. Forest Service, Butler and Koontz (2005) linked the commitment of leaders to successful implementation of change Leaders can model commitment to change by communicating the vision and need for change and taking actions necessary to implement the desired change (Niehoff et al. 1990, Kotter 1995). Kotter (1995) indicated that creating and communicating a vision for the future state of an organization is critical to successful change. Continuous reinforcement of messages is critical and internal communication cannot be limited to written media (Danter et al. 2000).

Even though FWS employees perceived lack of leadership in implementing SHC, this may not match with what has been occurring in reality. During the period covering my interviews (2008-2009), the FWS Director and Regional Director for Region 4 sent a number of emails to employees about SHC. Included in these emails where reasons why the FWS was adopting this approach to conservation and encouragement for employees to talk about it and understand the approach. FWS employees I interviewed often mentioned how they were bombarded with emails and deleted emails about SHC because they either did not have the time or interest in reading them. In 2008, there was a Regional Biologists' Conference in Region 4, the focus of which was understanding and discussing how to implement SHC in the region. Clearly, leaders were making efforts to communicate with employees about SHC, but for some reason, employees still had the perception that leadership in SHC was lacking. Messages were getting communicated, but maybe not in the most effective way and according to FWS employees, leaders were talking about SHC but not really taking any tangible actions to show

their commitment to SHC. Danter et al. (2000) indicated that communication with the FWS to support the change effort for the EA was not "impactful." This may be the same problem with communication efforts about SHC. As Bass (1990) and Niehoff et al. (1990) indicate, modeling of personal commitment by leaders is important to achieving change. This does not seem to be occurring in the FWS, which is creating a barrier to successfully implementing change.

Approximately a quarter (24%) of FWS employees in this study cited the need for less top-down control. In discussing organizational changes that support ecosystem management, Yaffee (1996) suggested that natural resource agencies needed to evolve from top-down control to field-level empowerment. Similarly, Knight and Meffe (1997) suggested that "ecosystem management requires a change from the traditional top-down, hierarchical, risk-averse, boundary-oriented command and control approach." Ecosystem management requires interdisciplinary collaboration, risk taking, provisional decision making, experimentation, and flexibility; its process is therefore nonlinear and anathema to the traditional management of government bureaucracies that tend to compartmentalize information along disciplinary lines and emphasize predictability and stability (Grumbine 1994, Yaffee 1996, Grumbine 1997, Knight and Meffe 1997, Yaffee 1997). Therefore, top-down control, which is typical of bureaucratic organizations like the FWS, may not have been conducive to meeting the objectives of ecosystem management. SHC is described as an iterative, adaptive framework applied at the landscape scale. Like ecosystem management, the framework for SHC is nonlinear and dynamic (see Chapter 2 for detailed discussion of SHC as presented in the NEAT report) and therefore requires working across ecological and organizational boundaries to accomplish its objectives.

Organizational change scholars who have focused on the process of implementing planned change suggest many factors that are critical to successful organizational change

(Armenakis and Bedian 1999, Fernandez and Rainey 2006). These factors include: establishing a sense of urgency or need for change, creating and communicating a vision, building internal support and reducing resistance to change, and empowering others to act on the vision (e.g., Bass 1990, Kotter 1995, Armenakis et al. 1999). Given that 60% of FWS employees interviewed cited lack of leadership in guiding and endorsing SHC, it appears that FWS leaders are not adequately addressing the factors contributing to changes needed to implement SHC. FWS employees feel they are not being given the guidance and tools they need to feel empowered to act and implement SHC. Those leaders who are not talking about SHC are not establishing a sense of urgency for SHC or building support among their employees. These results are strangely familiar; Danter et al. (2000) found that FWS employees were uncomfortable with the lack of direction from supervisors in how to implement ecosystem management.

Partnerships

Partnerships or collaborations have become common solutions to addressing shared problems in many types of organizations such as business, government, and education (Gray 1989, Wondolleck and Yaffee 2000, Bender 2004). Collaborative approaches, in which diverse stakeholders work together to address problems and make decisions, have been proliferating over the last few decades, particularly in the management of natural resources (Coughlin et al. 1999) and most recently in the application of the ecosystem management approach (Yaffee 1996, 1997, Wondolleck and Yaffee 2000). In addition to shared problems, resource issues, such as lack of funding, are a motivator for the development of partnerships (Lowndes and Skelcher 1998). This was cited by many FWS employees I interviewed as a reason for forming partnerships.

In their assessment of the ecosystem approach, Mullins et al. (1998) found that only 26% of FWS employees believed that more attention was placed on external partnerships than before

the EA was formally adopted, and that partnerships were improving in quality and quantity. Employees also reported their own lack of skill in creating partnerships. It appears from the results of my study, with 90% of employees indicating that their partnerships are strong and effective, that at least FWS in Region 4 has come a long way in forming and strengthening external partnerships.

Employees' opinions about the need to form partnerships do not appear to have changed much since the ecosystem approach of the 1990s. During the 1990s, FWS employees talked about the need to develop partnerships to leverage funds for conservation efforts (Mullins et al. 1998). FWS personnel continue to believe partnerships are vital to supporting and accomplishing their mission. Lowndes and Skelcher (1998) indicate that partnerships enable the leveraging of resources and may foster innovation and synergy in both the public and private sectors. In addition, the growth of partnerships in public and private sectors reflects the increasing complexity of issues that cross organizational boundaries. The importance and need for partnerships in the FWS was clearly expressed by employees in this study.

Cynicism

Employee cynicism has been cited as a reason for resistance to change (Stanley et al. 2005). Cynicism is broadly defined as a negative attitude that can be both broad and specific in focus with cognitive, affective, and behavioral components (Stanley et al. 2005). Abraham (2000) defined "organizational change cynicism" as "a reaction to failed change efforts, consisting of pessimism about the success of future efforts and the belief that change agents are lazy and incompetent." Similarly, Reichers et al. (1997) described "cynicism about change" which "involves a real loss of faith in leaders of change and is a response to a history of change attempts that are not entirely or clearly successful." Based on interviews, FWS employees in this

study seem to be cynical about organizational change, which has likely influenced their resistance to change. Indeed, Bommer et al. (2005) indicate that cynicism is a common employee attitude that can prove detrimental to organizations. Employee cynicism also contributes to resistance to change, which is discussed below.

Addressing and overcoming employee cynicism can come down to leadership and changing workplace culture. Kotter (1995) stressed the need for leaders to reduce employee cynicism about organizational change if they truly want to change their organizations. Therefore, it seems employee cynicism is an obstacle or barrier to change that leaders of the FWS need to address if they want to implement SHC successfully. Bass (1990) and Bommer et al. (2005) suggest change implementers (or leaders) engage in transformational leadership behavior (TLB) to reduce employee cynicism about organizational change. TLB includes providing and communicating a vision, providing intellectual stimulation, modeling appropriate behavior and displaying supportive behavior and will be discussed in more detail in Chapter 6.

Resistance to change

Several authors (Reichers et al. 1997, Abraham 2000, Stanley et al. 2005) have found empirical evidence for a positive relationship between employee cynicism and resistance to change, indicating that these two constructs are intricately linked. Resistance to change has been cited in the literature as a barrier to change, particularly to implementing ecosystem and adaptive management in Federal government agencies (Holling and Meffe 1996, Knight and Meffe 1997, Danter et al. 2000). For instance, Koontz and Bodine (2008) reported resistance to change as a cultural barrier to implementing ecosystem management in the Bureau of Land Management (BLM). In their survey of 263 BLM employees, cultural barriers were the second most frequently cited after political barriers. Cultural barriers included resistance to change, risk

taking and experimentation. The authors noted that cultural barriers arise partly from internal choices and agency traditions. Jacobsen (2006) argue that decentralization and more participatory decision making in government agencies can help address the kind of cultural barriers identified in Koontz and Bodine's (2008) study.

Similarly, a study by Bovey and Hede (2001) found that among 500 large Australian organizations, employee resistance to change was the most common problem in successfully implementing change. Employee cynicism has been cited by many authors as a potential reason for resistance to change (Reichers et al. 1997, Abraham 2000, Stanley et al. 2006). Similar to overcoming employee cynicism, TLB has been suggested by many authors as a key to addressing or overcoming resistance to change (Bass 1990, Niehoff et al. 1990, Bommer et al. 2005). TLB will be discussed in Chapter 6 as a potential key in overcoming resistance to change while still fostering bottom-up for field level empowerment, which is what FWS employees seem to want.

Agency culture

Organizational or agency culture consists of assumptions, values and artifacts (Jones et al. 2005). Assumptions are taken-for-granted beliefs about human nature and organizational environment. Values are shared beliefs and rules that govern attitudes and behaviors of employees. Artifacts are visible language, behavior and material symbols that exist in an organization. In a study evaluating the implementation of ecosystem management, Yaffee (1996) reported problems with agency cultures and procedures as the third most frequently cited obstacle to successful implementation. Jones et al. (2005) suggest that organizational culture impacts employee and organizational readiness for change. In their study, Jones et al. (2005) found that employees who received high-quality information about impending changes reported

high levels of readiness for change. As discussed earlier, many FWS employees expressed resistance to or fear of change related to SHC implementation, and for some employees their resistance to change may be influenced by the FWS culture and history of what they perceive as failed attempts at change.

The traditional mindsets still present in the FWS as well as the tendency to follow old patterns may be hindering successful implementation of SHC. Similar to rational adaptive and policy diffusion and innovation models of change, Yaffee (1996) suggested leadership as the key for overcoming cultural barriers to implementing change.

APPENDIX

TABLES AND FIGURES

Table 13. Demographic variables of FWS interview participants by eco-team[1].

Variable	Team 1	Team 2	Team 3	Team 4	TOTAL
Total # of interview participants	12	13	10	10	45
Gender					
Female	4	4	3	2	13
Male	8	9	7	8	32
Highest degree obtained					
B.A. or B.S.	4	7	4	4	19
M.S.	7	5	6	6	24
Ph.D.	1	1	0	0	2
Job Rank					
Supervisor	5	10	4	5	24
Non-supervisor	7	3	6	5	21
FWS program represented					
Refuges	7	9	5	8	29
Ecological Services	4	3	3	2	12
Migratory Birds	1	0	0	0	1
Fisheries	0	1	2	0	3

[1] Eco-team names have been changed to preserve anonymity of the teams.

Table 14. Number of years interview participants have worked for the FWS.

Number of years worked for the FWS	Number of participants
<5	4
5-10	10
11-15	13
16-20	12
21-25	2
26-30	3
>30	1

Table 15. Description of main themes that emerged from interviews with FWS employees about SHC, including example quotations, number (*n*), and percent (%) of interviews.

Theme	Description	Example Quotation	*n*	%
Leaders and their actions	Direct supervisors and other mid- and upper level managers and their actions and attitudes (both positive and negative) related to SHC	*"I think they're very supportive of it [SHC], and they do talk about it a lot from [the Regional Office] to the field…I think we hear about it continuously, and it's definitely on the forefront of everything that they're talking about, so I think they're very committed to it."*	45	100
Partnerships and coordination	Quality and strength of external partnerships, communication with partners about SHC, and internal agency coordination	*"We've got great partners…They're all awesome, and they're all working on the same kind of thing. We are all in the same seat."*	45	100
Cynicism and distrust	SHC as a buzzword that will turn into something else or a new name for what employees are already doing; general distrust of new ideas or initiatives	*"SHC is the buzzword of this couple of years, and when we go into the next decade, we'll have something else—the next new thing."*	37	82.2
Reactions to change	Resistance to or fear of change, need for change, and employees maintaining the status quo	*"I'm just going to keep doing exactly what I'm doing and this will all just go away."*	23	51.1
Agency culture and history	Traditional mindsets and tendency to follow old patterns	*"I just think people's mindsets are still stuck in the old ways."*	7	15.6

Table 16. Leadership theme and sub-themes identified through coding of interviews with FWS employees about SHC. Some participants referred to more than one sub-theme during the course of their interviews.

		Number of participants	Percent (%) of participants[1]
Theme 1: Leaders and their actions		45	100
1	Leaders are supportive of SHC	29	64.4
2	Leaders show lack of leadership in guiding and endorsing SHC	27	60.0
3	Leaders are pushing SHC on employees	11	24.4

[1] The percent of participants for the main theme is based on the number of interviews that were coded (n = 45); the percent of participants for each sub-theme is based on the number of participants who referred to the main theme (n = 45).

Table 17. Partnerships and coordination sub-themes identified through coding of interviews with FWS employees about SHC. Some participant responses contained more than one sub-theme.

		Number of participants	Percent (%) of participants[1]
Theme 2: Partnerships and coordination		45	100
1	External partnerships are strong and effective	40	88.9
2	External partnerships are necessary to accomplish the FWS mission	18	40.0
3	Communication with partners about SHC	11	24.4

[1] The percent of participants for the main theme is based on the number of interviews that were coded (n = 45); the percent of participants for each sub-theme is based on the number of participants who referred to the main theme (n = 44).

Table 18. Cynicism and distrust sub-themes identified through coding of interviews with FWS employees. Some participant responses contained more than one sub-theme.

		Number of participants	Percent (%) of participants[1]
Theme 3: Cynicism and distrust		37	82.2
1	SHC is another buzzword or initiative that will evolve into something else over time	29	78.4
2	SHC is a new name for something employees are already doing	25	67.6
3	Distrust of new ideas or initiatives	8	21.6

[1]The percent of participants for the main theme is based on the number of interviews that were coded (n = 45); the percent of participants for each sub-theme is based on the number of participants who referred to the main theme (n = 37).

Table 19. Reactions to change sub-themes identified through coding of interviews with FWS employees. Some participant responses contained more than one sub-theme.

		Number of participants	Percent (%) of participants[1]
Theme 4: Reactions to change		23	51.1
1	Resistance to or fear of change	13	56.5
2	Employees want to keep doing their jobs as they always have	8	34.8
3	Organizational change is needed	5	21.7

[1] The percent of participants for the main theme is based on the number of interviews that were coded (n = 45); the percent of participants for each sub-theme is based on the number of participants who referred to the main theme (n = 23).

Table 20. Agency culture and history sub-themes identified through coding of interviews with FWS employees. Some participant responses contained more than one sub-theme.

		Number of participants	Percent (%) of participants[1]
Theme 5: Agency culture and history		7	15.6
1	Traditional mindsets	5	71.4
2	Tendency to follow old patterns	3	42.9

[1] The percent of participants for the main theme is based on the number of interviews that were coded (n = 45); the percent of participants for each sub-theme is based on the number of participants who referred to the main theme (n = 7).

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CHAPTER 6

SYNTHESIS AND RECOMMENDATIONS

This study provides answers to the following research questions:

1. How have the budget, organizational structure, mission, legislation and policy, and conservation priorities of the FWS changed over the last 25 years, and what factors may have influenced those changes?

2. Among existing ecosystem teams, what factors inhibit or facilitate implementation of SHC?

3. Among existing ecosystem teams, what are employees' experiences with and attitudes about implementation of SHC?

In this chapter, I first summarize my findings relevant to each of these three research questions. Following these summaries, I synthesize and discuss results from Chapters 4 and 5 and the relationship of broad theories of organizational change with the literature on individual reactions to change and the role of leadership in change. Then I provide recommendations for the FWS on how to better implement SHC and achieve successful organizational change. This includes a discussion of change implementation models and the role of leadership. Finally, I have included an epilogue in which I discuss events that have happened in the FWS relevant to SHC since interviews for this study ended in 2009.

RESEARCH QUESTION 1

None of the metrics I analyzed from the FWS annual reports have changed substantially over the last 25 years. For example, the mission of the FWS has expanded, but the central focus or intent has been preserved. The mission statement in FY 1986 was:

> "*to conserve, protect, and enhance certain fish and wildlife and their habitats.*" (DOI 1985:21)

Several additions were made to the mission statement from FY 1986 to FY 1998, and since FY 1998 the mission statement has remained exactly the same:

> *"working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people."* (DOI 2010:BH-53)

The goal of conserving, protecting and enhancing fish, wildlife, and their habitats has not changed, but the mission has been expanded to reflect the importance of partnerships[22] (i.e., "working with others") in helping the FWS achieve its mission as well as including conservation of plants. The organizational structure (i.e., hierarchy) of the FWS has expanded horizontally several times since FY 1993[23] either through the addition of more divisions or by splitting existing divisions under the Director. The addition of Deputy Assistant Directors (ADs) in FY 2005 was the only "vertical" change to the organizational hierarchy shown in the annual reports. Therefore, the FWS appears to have had a relatively stable organizational structure over the last 25 years.

The FWS annual estimated budget increased from $529,791,000 in FY 1985 to $2,639,798,000 in FY 2010, a 2.5-fold increase when adjusted for inflation. Although the budget

[22] This conclusion is corroborated by the appearance of the word partnerships or discussion of partnerships in every annual report I analyzed (see Table 2 in Chapter 4).

[23] The first year in which the FWS organizational structure was included in the annual reports.

has increased over the last 25 years, it is arguable whether the available financial resources are adequate for the FWS to accomplish its mission and priorities (Clarke and McCool 1997). Clarke and McCool (1997) indicated the FWS was "underfunded" and "understaffed" to meet its increased responsibilities in the 1970s and 1980s and this lack of resources is an on-going issue for the FWS. In fact, 84% of the FWS employees I interviewed for this research indicated they did not have enough funding or staff to accomplish their office or refuge priorities, often leading to feelings of being overwhelmed. Employee perceptions of lack of funding seem to reflect reality. For example, there is insufficient funding to recover all 1,372 listed species in the U.S. as well as a back-log of species petitioned to be listed (Woody 2011; N. Lamp, personal observation). Since 2007, environmental groups have petitioned the FWS to list 1,230 species as threatened or endangered. Overwhelmed by this workload, in March 2011 the FWS asked Congress to place a cap on the amount of money the agency can spend on processing listing petitions. As detailed in Chapter 4, listing and recovering endangered species is only one of the agency's myriad responsibilities and priorities. Therefore, financial resources seem to be insufficient to accomplish all of the agency's priorities.

My analysis of the annual reports also showed an increase in the number of policies (n = 14) and pieces of legislation (n = 12) enacted from FY 1989-FY 2000. These policies and legislation focused on a variety of FWS priorities, but there were a number of them that focused specifically on the National Wildlife Refuge System (NWRS) and endangered species, which is reflective of the increased emphasis on endangered species issues in the mid- to late-1990s and the NWRS in the late-1990s and early 2000s. Finally, FWS priorities have not changed dramatically over the last 25 years, but certain priorities have garnered more attention or emphasis at different times (e.g., endangered species issues in the mid 1990s). Changing

emphasis on priorities over time is linked to legislation and policy as these are mandated responsibilities. Therefore, increasing numbers of legislation and policies increases the responsibilities of the FWS, thereby increasing the workload of FWS employees.

Although no dramatic (i.e., transformational) changes in the metrics just described (e.g., mission, structure, etc.) have occurred over the last 25 years, small changes like modifications to the organizational hierarchy have. Both internal and external factors have influenced these small changes. Internal influences on change include actions of agency managers or leaders (which may be influenced by employees in some cases, but this is not reflected in annual reports). Specifically, agency leaders set internal policies and priorities and base agency budget requests on their priorities. However, since the FWS is a federal government agency, it is also influenced by its external environment, and key actors such as the U.S. Congress, the President and his administration, external partners, the judicial system and the general public can cause changes in the agency. For example, although the agency makes specific budget requests, Congress makes the final appropriations, which influences the ability of the FWS to achieve its goals and mission. As described in Chapter 4, more legislation passed in the last 20-25 years has allowed greater influence of the general public and interest groups on decisions made by the FWS.

Since the FWS is influenced both by internal actions of leaders and environmental pressures from its political environment and public constituents, a question that arises is do internal or external factors a have stronger influence on organizational change in the FWS? Annual reports provide a sanitized view of the FWS. They are produced for the public, are broad in scope, and do not discuss or reflect internal organizational processes that lead to change. To determine more specific causes of change, future research should include analysis of other types of documents such as transcripts of Congressional appropriations hearings or floor debates on

FWS-related legislation, FWS-related litigation and appeals, surveys of partners, surveys or interviews of FWS leaders from the past 25 years, or internal memos and correspondence (e.g., emails, meeting notes). Interactions among internal and external factors are complex and it may be difficult to parse out or quantify whether internal or external factors have a greater influence on specific changes in the FWS.

In summary, the FWS has not changed dramatically over the last 25 years for the metrics I evaluated. The agency attempted a transformational change when it adopted and began implementing the ecosystem management approach (EA) in 1995, but this approach was largely unsuccessful (Danter et al. 2000). Although small, incremental changes have occurred and were likely influenced by internal and external factors, the agency is constrained by the immense regulatory responsibilities it has acquired over time. This is one of the primary reasons Clarke and McCool (1997) characterized the FWS as "muddling through"[24].

RESEARCH QUESTIONS 2 AND 3

From my interviews with FWS employees in four different eco-teams, I determined that many factors influence SHC implementation. Interviews revealed that employee cynicism and distrust, resistance to change, agency culture, and leadership (lack of) seem to inhibit SHC

[24] Clarke and McCool (1997) borrowed this term from Lindblom. Lindblom's (1959, 1979) theory of incrementalism in policy and decision-making describes policy change as evolutionary rather than evolutionary, occurring in incremental steps. Lindblom described this type of behavior as "muddling through" and indicated it was a common bureaucratic behavior.

implementation. It is unclear from my results whether or not partnerships inhibit or facilitate SHC implementation[25].

Depending on the strength and effectiveness of partnerships or the opinion of partners about SHC, partnerships may either inhibit or facilitate SHC implementation. Although over 90% of interview participants described their partnerships as strong and effective, most of them did not specifically talk about partnerships as they relate to SHC. However, 24% of FWS employees interviewed did express that there is a need to communicate with their partners about SHC, indicating that their partners had not yet been included in discussions of SHC. For instance, one participant said, "My partners need to buy it [SHC]…and we have to see how it's going to work. We have to be able to provide visions for where it will work and how it will work…And so in the selling of this concept, we have to justify and convince all of our partners, especially our state partners." Only one participant said his office and eco-team had already been talking to partners about SHC.

One of the guiding principles of SHC, as described in the 2006 NEAT Report, is that "partnerships are essential" (USFWS 2006:12). Partnerships are described as an important component of SHC; however, at the time of this study, it does not seem as though partners were being included in SHC discussions at the field level. I think one of the main reasons partners were not being included in discussions of SHC during the time of my interviews was because FWS leaders and employees were still trying to figure out how to implement SHC internally and were afraid of getting partners involved too early in the process. In addition, employees who had negative feelings about SHC likely did not want to involve their partners. Some participants also

[25] This is a limitation of the questions I asked participants about partnerships. I did not specifically ask participants about the role of partners in SHC, rather I asked them to describe the nature of their partnerships to see if anything emerged in their responses related to SHC.

had a fear of being perceived by their partners as "telling" them (partners) to "buy into our [the FWS] vision of the world". More efforts to involve partners in SHC implementation have been made since my interviews ended (see further discussion in the Epilogue).

As discussed in Chapter 5, FWS interview participants shared a variety of experiences with and attitudes about SHC, including thoughts and opinions about leaders, partnerships, individual reactions to change, cynicism and distrust, and agency culture and history. Although many participants (64%; 29 of 45) felt that their leaders were generally supportive of SHC, participants also shared concerns that leaders were not providing enough guidance to the field in how to implement SHC (60%; 27 of 45). For example, participants said things like: "How do we take this from an intellectual white paper to an actual accomplishment on the ground?" and "It's kind of like, here's the new business model. We really don't know how it's going to work, we think it's going to be good, we [are] going to do it, but…then you're kind of left to…figure out how to apply it." A number of participants (24.4%; 11 of 45) also felt that leaders were pushing SHC on them in a top-down approach rather than empowering employees in the process of implementing SHC: "I just sorta feel like it just another one of those concepts that kinda gets pushed on us as sort of a new way of doing business."

A majority of interview participants (89%) felt that external partnerships are generally strong and effective, while 40% expressed the sentiment that partnerships are necessary to accomplish the FWS mission. For example, one participant shared this: "None of us [has] enough resources to do what we need to do. The only way we can keep the boat from sinking is to bail together…There's no way we could satisfy the mission by ourselves." When discussing partnerships, 24% of participants indicated they thought that communication with partners about SHC is needed.

About half (51.1%; 23 of 45) of the interview participants shared their own reactions to change or discussed other employees' reactions to change. Half of these participants (13 of 23) expressed a resistance to or fear of change in general as a reason for not embracing or implementing SHC. Similarly, eight participants said that they thought employees just want to keep doing their jobs as they always have. One participant shared this: "I'm just going to keep doing exactly what I'm doing and this will all just go away." Only five participants felt that organizational change is needed and seemed to view change positively.

Closely related to resistance to change, cynicism and distrust surfaced as common attitudes toward change and SHC, with over 80% (37 of 45) of participants sharing cynical responses or comments expressing distrust of new ideas or initiatives. In general, participants felt that SHC is just another buzzword for something employees are already doing and will fade away or evolve into something else over time. For example, one stated: "There's always a certain amount of skepticism that comes with anything that's new or presented as new…it's just waiting for the next thing to come along and to prove their point that this thing is so cyclical that…there's no reason to start it because there's going to be something else in six months or six years. It's just going to you know evolve into something very different, and it's not going to matter." Eight participants specifically stated that they thought SHC is just a new name for the ecosystem management approach of the 1990s. One participant said, "Folks are still trying to figure out, internally and externally, how is this different from ecosystem management?" Finally, agency culture and history was discussed by about 15% (7 of 45) of participants. These participants felt that traditional mindsets (e.g., "my Refuge is my kingdom") still exist, particularly in Refuges, and there is a general tendency for the agency to follow old patterns.

In summary, employee cynicism and distrust, resistance to change, agency culture, and lack of leadership are inhibiting implementation of SHC.

RELATIONSHIP OF FINDINGS FROM ANNUAL REPORTS AND INTERVIEWS

Analysis of FWS annual reports showed there were only minimal changes in the metrics analyzed (e.g., mission, budget, organizational structure, legislation and policies, and priorities), indicating that at the broad organizational level the FWS has not changed substantially over the last 25 years. However, the annual reports and the metrics I analyzed do not provide a comprehensive view of organizational change in the FWS. Specifically, they do not include attitudes and perceptions of employees. Since organizations are made up of individuals, and individual reactions to change influence the success of change implementation efforts, it is important to assess individual attitudes about and perceptions of change. Interviews with FWS employees provided insight into how individuals experience and perceive implementation of a planned organizational change (SHC) in the agency and specifically revealed employee cynicism and resistance to change related to SHC implementation.

At the organization level, structural inertia theory posits that organizational reliability and accountability require stable organizational structures (Hannan and Freeman 1984). However, as structures are stabilized, strong pressures against organizational change are generated because organization members want to maintain the status quo (Hannan and Freeman 1984). So, as Kelly and Amburgey (1991) note, the characteristics that provide organizational stability also generate resistance to change. Even if inertial forces are present, this does not mean an organization cannot change. Rather, the speed of change in the core features of an organization is slower than the rate of environmental change (Hannan and Freeman 1984). According to inertia theory,

inertia tends to increase with organizational size and age. Therefore, probability of change in core features—described by Hannan and Freeman (1984) as the organization's mission, authority structure, technology, and marketing strategy—declines with age and size. Old organizations have had time to formalize structures and standardize routines (Stinchcombe 1965), and therefore structural stability tends to increase with age. Similarly, as organizations grow in size, they emphasize predictability, formal roles and rules (Downs 1967), thereby becoming predictable, rigid, and inflexible (Quinn and Cameron 1983). Empirical studies (e.g., Singh et al.'s (1988) study of voluntary organizations, Baum's (1990) study of day care centers, and Kelly and Amburgey's (1991) study of the U.S. airline industry) have provided support for the prediction that old organizations are less likely than young ones to experience change in their core features. Empirical tests (Singh et al. 1988, Baum 1990, Kelly and Amburgey 1991) of the relationship between organization size and probability of change, however, are less conclusive. The FWS and its predecessor agencies date back to 1871, so it is a relatively old organization, and with over 9,000 employees, it is a relatively large organization. Therefore given the size and age of the agency, the FWS is likely experiencing inertial forces described by Hannan and Freeman (1984).

It is likely that structural inertia has played some role in the relative lack of change in the FWS over the last 25 years. Although the FWS has changed many times (e.g., structurally and functionally) over the course of its history (showing the agency can and does change), the agency has been in existence since 1871 and has grown in size from a few individuals working for the U.S. Fish Commission to its current size of over 9,000 employees. Some the core features of the FWS, such as the mission and hierarchical structure, have changed very little over the last 25 years in particular. These features of the FWS seem to be relatively stable. The stability of these

features may be partially due to structural inertia, but I also think the stability stems from the regulatory responsibilities of and resulting constraints on the FWS as well as a culture of cynicism and resistance to change. The FWS implemented a change in organizational structure during the EA, which was not supported by employees and ended up being eliminated (D. Flemming, personal communication, March 22, 2011). Inertia is generally described as the tendency to repeat past actions and patterns of activity (Jansen 2004); interview participants in this study discussed the tendency in the FWS to repeat past actions and patterns of activity. One participant summarized this tendency well: "You know we always talk about doing more with less, and we continue to do the same things we've been doing forever…So I think it is somewhat that we're stuck in our old patterns." It seems that inertial forces act at the broad organizational level as well as at the individual level.

As a bureaucratic, regulatory organization responsible for implementing a long list of federal legislation, the FWS generally operates in stable, reliable, and predictable way. Yaffee (1997) indicates that efficiency and stability are strongly valued by many natural resource agencies and in bureaucracies in general. Traditional natural resource management in agencies like the FWS operated in a linear, predictable fashion. However, as Danter et al. (2000) note, implementation of the EA forced natural resource management agencies to operate in a non-linear, adaptive manner to which they were unaccustomed. Like the EA, successful implementation of SHC requires the FWS to operate in a non-linear, adaptive way—the concept includes monitoring and evaluating biological objectives and adapting and or modifying objectives on a large scale with multiple stakeholders or partners. This method requires flexibility. On the other hand, increasing emphasis on accountability in government (e.g., the Government Results and Performance Act (GPRA) of 1993 as discussed in Chapter 4), enforces

the need for reliability and stability. So external (e.g., GPRA) and internal (e.g., the agency's own inertia and history of operating in a stable and reliable way) forces are operating on the FWS as it tries to implement a concept (SHC) that is inherently non-linear and adaptive.

Although inertial forces may be influencing organizational resistance to change, this does not mean the FWS has not attempted or cannot change. I provided many examples of historical changes in the FWS in Chapter 2. The FWS is not a closed organization and is heavily influenced by its external environment, which is political, social and economic. External factors influencing change in the FWS include the U.S. Congress, the judicial system, the President and his Administration (specifically the Secretary of Interior in this case), public attitudes and opinions about conservation issues, and other organizations (e.g., non-governmental organizations) with interests in the FWS's mission and activities. Several categories of broad organizational theories (e.g., ecology and evolutionary, institutional, and dialectical and conflict theories) emphasize these types of external influences on organizational change.

External factors are not the sole influences on the FWS or on change in the agency. Internal factors also influence change in the FWS. A number of broad organizational theories (e.g., rational adaptive, policy diffusion and innovation, and dialectical and conflict theories) emphasize or discuss internal influences on change, focusing specifically on the role of the manager or leader in assessing an organization's external environment and rationally changing the organization as necessary to survive.

While a number of organizational theories address and emphasize the role of leaders in change, they fail to address the role of other individual members of an organization. At the individual level, members or employees of organizations bring their individual values, attitudes and beliefs to their jobs (Stanley et al. 2005). The values, attitudes, and beliefs of individual

employees influence the culture of an organization as well as the potential success of organizational change. Therefore, change recipients' reactions to organizational change is a major factor influencing the extent to which any change can succeed; organizations will accept or reject change through the actions of their members (Armenakis et al. 1993, Armenakis et al. 1999, Oreg et al. 2011). In fact, there has been a growing consensus among researchers about the key role employees' reactions to change play in influencing the success of organizational change (Oreg et al. 2011).

According to Eilam and Shamir (2005), sources of employee resistance to change include a fear of the unknown, need for stability, a feeling of reduced control, and anticipated challenges in adjusting to new work procedures or conditions. Additionally, employee cynicism has been more frequently cited as a potential reason for resistance to change (Reichers et al. 1997, Abraham 2000, Stanley et al. 2005). Kanter and Mirvis (1989) categorized 43% of the American workforce as "cynics," and 48% of the employees in Reichers et al. (1997) sample were classified as "high" in cynicism. Therefore, cynicism seems to be a common employee characteristic across all types of organizations. In this study, 82% of interview participants were cynical about SHC implementation, a percentage almost two times those cited by Kanter and Mirvis (1989) and Reichers et al. (1997).

Stanley et al. (2005) reviewed various definitions of cynicism, which is broadly defined as a negative attitude that can be both broad and specific in focus with cognitive, affective, and behavioral components. Reichers et al. (1997:40) focused specifically on "cynicism about change" which "involves a real loss of faith in leaders of change and is a response to a history of change attempts that are not entirely or clearly successful." Cynicism about change is a specific type of cynicism and contrasts to other types of cynicism like "personality cynicism", which

Abraham (2000) defines as an innate trait of an individual with generally negative attitudes. Cynicism often involves an element of distrust or questions about motives for implementing a change and is sometimes distinguished from skepticism which does not involve doubt about motives. However, there is no consensus yet on how these constructs differ (Stanley et al. 2005).

Several authors (e.g., Reichers et al. 1997, Stanley et al. 2005) have found empirical evidence for a positive relationship between employee cynicism and resistance to change. Employee cynicism and resistance to change were two main themes that emerged through interviews with FWS employees about SHC implementation. As discussed previously, cynicism and resistance to change are likely acting as barriers to successfully implementing SHC in the FWS (and also may have influenced the relative lack of change in the agency over the last 25 years). A majority of interview participants discussed actions of leaders related to SHC implementation and indicated there was a lack of leadership in guiding and endorsing SHC (e.g., "I think it's gonna fade away…if leadership…doesn't provide guidance."). Many scholars have cited leadership as the key to addressing and overcoming employee cynicism and resistance to change and this is the area where the FWS may need to focus their efforts to successfully implement SHC. Kotter (1992) argues that if leaders want to change their organizations, they need to reduce employee cynicism about change. Overcoming cynicism is important to organizational change because when cynicism contributes to a failed change effort, the failure can reinforce cynical beliefs (Kotter 1992). This is especially pertinent to the history of the FWS in implementing the EA. A few participants (8 of 45) in this study expressed beliefs that SHC was just a new name for ecosystem management, which was never fully and successfully implemented throughout the agency. Given the results of this study, I believe a specific type of leadership may play a key role in successfully implementing SHC in the FWS. The type of

leadership to which I refer is called transformational leadership behavior (TLB) and will be discussed in the next section.

LEADERSHIP AND RECOMMENDATIONS FOR FWS

Several scholars (e.g., Bass 1985, Bass1990, Niehoff 1990, Bommer et al. 2005, Stanley et al. 2005) have recommended TLB as a way to address and overcome employee cynicism and resistance to change. In fact, Bommer et al. (2005) presented empirical evidence for TLB reducing employee cynicism about organizational change. Bass (1990) distinguishes transformational leaders from transactional leaders, with the former possessing charisma (which includes providing vision and gaining respect and trust), providing employees with intellectual stimulation, inspiration, and individualized consideration. Transactional leaders are described more as managers who carry out traditional management responsibilities of rewarding accomplishments and intervening only if rules and standards are not met. Transformational leadership behavior includes leaders providing enough guidance and direction (a "softer" version of top-down control) while still empowering employees to achieve the leadership's vision for change. Podsakoff et al. (1996) identified six dimensions of TLB: 1) articulating a vision for the future, 2) fostering acceptance of group goals, 3) communicating high performance expectations, 4) providing intellectual stimulation, 5) modeling appropriate behavior, and 6) displaying supportive leader behavior.

According to Bommer et al. (2005), TLB involves inspiring others and creating enthusiasm through articulation of a vision and increasing employee participation (empowerment) in the process of change by focusing on individual needs and ideas. Leaders who engage in TLB seem to be able to achieve a delicate balance between top-down control and

employee empowerment—something which FWS employees in this study cited as lacking in implementation of SHC. Employees want more guidance, rather than top-down edicts, while still feeling empowered in their work. Falbe and Yukl (1992) found that influence tactics of leaders that included "inspirational appeals" (i.e., inspiring enthusiasm) and "consultation" (i.e., seeking participation and support) more often elicited employee commitment than tactics like "rational persuasion" (i.e., citing facts) and "legitimating" (i.e., using rules and policies to substantiate claims).

A number of scholars have focused their research on implementation of planned change and have developed various models and frameworks. Based on these models and frameworks, Fernandez and Rainey (2006) distilled a set of factors that contribute to successful implementation of organizational change in the public sector (Table 21), most of which are the responsibility of leaders to carry out in helping build support among employees for change. These steps are similar to those in Kotter's (1995) model for achieving organizational transformation (Table 21), which Danter et al. (2000) recommended the FWS follow in implementing the EA. These steps or recommendations remain applicable and relevant to the FWS now in implementing SHC. Therefore, to overcome employee cynicism and resistance to change, the FWS should look more closely at whether or not leaders are using TLB and encourage and support them in doing so if they are not. In addition, the FWS should assess whether and how they have been following the Kotter's (1995) and Fernandez and Rainey's (2006) models for implementing change. Finally, the FWS should consider hiring a change management consultant with a background in social science to help guide leaders through the changes necessary to successfully implement SHC.

Can a handful of FWS leaders with TLB really change the FWS culture of cynicism and resistance to change? It may be difficult, but it is worth trying. It is also important to keep in mind that change and innovation can come from the bottom-up, from the "trenches", and FWS leaders should listen to ideas from employees and reinforce and reward innovative ideas. I think this is happening on a small scale in the FWS, but ideas and successes of employees should be emphasized on a broader scale.

TRANSFERABILITY OF FINDINGS

This study was conducted in only one region of the FWS, which begs the question about whether these results apply to other regions of the FWS. I believe they do. In discussions with FWS employees in other regions, I have heard opinions about SHC that were similar to those I heard from interview participants from the Southeast Region. In addition, FWS employees in the Northeast Region (Region 5) shared their experience with implementing SHC in the Chesapeake Bay, and indicated that they encountered resistance to change and skeptical and cynical attitudes from employees in many FWS programs in that area. I predict that these attitudes are common in other FWS regions as well.

Additionally, given that employee cynicism and resistance to change is common throughout all types of organizations (Kanter and Mirvis 1989, Reichers et al. 1997), my results and recommendations are applicable to other natural resources agencies and many other types of organizations, particularly bureaucracies.

LARGER CONTRIBUTION TO SCIENCE

My research provides insight into how broad theories of organizational change are linked to attitudes and perceptions of individuals within organizations experiencing change. Organizational change is influenced by a complex interplay among many internal and external factors. Organizational inertia may feed employee cynicism and resistance to change and be self-reinforcing. My research has shown that organizational culture can become entrenched, as a culture of cynicism and resistance to change has become entrenched in the FWS. It can be very difficult to effect change in an organization with this kind of culture. Developing more transformational leaders is an important step in trying to change this culture.

IMPLICATIONS FOR THE FUTURE

What is the fate of SHC? Will it be successfully implemented in the Southeast Region and the FWS as a whole? In some ways it is too early to tell. While interview participants generally thought that SHC is a good concept, their perceptions of the implementation of that concept were not overwhelmingly positive. Some participants were hopeful that the idea would take hold and be implemented broadly, but there is a culture of cynicism, distrust of new ideas, and resistance to change that is acting as a barrier to broad organizational change. Lack of leadership both at the top and bottom is also a barrier to change. It remains to be seen if FWS leaders can change the current culture of the FWS to one that embraces rather than resists change. This was attempted with the ecosystem approach (EA) in the 1990s, and by many accounts the EA failed, at least at the broad organizational level. This study has elucidated the barriers that currently exist to implementing change in the FWS. The fate of the EA provides a cautionary tale for the FWS. It is likely that the FWS is currently on a path to repeat history—

like the EA, SHC may be implemented successfully in some parts of the agency, but it may fail to take hold and be implemented at a broad organizational level. Change takes time, and SHC has only been around for the last 5 years. It may be another 5-10 years before we can assess whether or not SHC has been successfully implemented.

EPILOGUE

The purpose of this epilogue is to provide a synopsis of SHC-related activities that were occurring in the Southeast Region (Region 4) and nationally in the FWS during the period I was conducting interviews and since my interviews ended in November of 2009. Following "endorsement" of the NEAT report in 2006 by the FWS Directorate, the FWS Director appointed a National Technical Advisory Team (TAT) and asked all Regional Directors (RDs) to establish Regional Implementation Teams in their respective regions. The purpose of these teams was to help guide SHC implementation nationally and regionally. In 2007, the Southeast RD convened an SHC Technical Advisory Team (TAT), consisting of regional and field level supervisors and staff from the Fisheries, Migratory Birds, Ecological Services, Refuges, Federal Aid, and External Affairs programs, to develop a "road map" and a communication strategy for implementation of SHC in the Southeast Region. During the first few meetings, the Southeast Region TAT discussed their role in SHC and concluded:

> "although [we] can contribute to SHC implementation in an advisory capacity, [we] are not the most appropriate staff to ensure successful implementation of SHC. A strong "Guiding Coalition" [26]—perhaps including a number of Regional Directorate Team

[26] This recommendation came from Kotter's (1995) steps for successful implementation of change. Kotter (1995) suggests that one of the common errors organizations make when seeking major change is failing to create a sufficiently powerful guiding coalition.

> and/or next level down supervisors ("Group of 12")—who have credibility, authority, and a deep understanding of the why, what, and how of change, will be necessary to ensure successful implementation of SHC." (*Southeast Region SHC Update* August-November 2007:1; underlining in original document)

Therefore, the TAT recommended that the Regional Directorate Team (RDT) establish a "guiding coalition" (GC) to guide the successful implementation of SHC in the Region. Accordingly, the RDT formed a GC which was comprised of all the Deputy Assistant Regional Directors (DARDs), all Program Supervisors (e.g., the Fisheries program has two program supervisors), one Field Office representative and one representative from the following programs: External Affairs, Migratory Birds, Federal Assistance, and Budget and Administration—16 individuals in total who supervise the Southeast Region's approximately 1,400 employees. The GC was given the responsibility for implementing SHC in the Southeast Region and was asked to send members to the Southeast Region TAT meetings to participate in the road map development. The final road map (*A Road Map for Implementing Strategic Habitat Conservation in the Southeast Region*) was presented to the Regional Directorate (the RD and all Assistant Regional Directors (ARDs)) in December of 2008.

The GC first met in February 2009 and identified short-term actions to accomplish the goals, objectives, and strategies presented in the road map. From December of 2009 through June of 2010, the GC conducted workshops with project leaders in five geographic areas of the Southeast Region. The purpose of the workshops was "to help communicate with and engage project leaders about SHC and LCCs [Landscape Conservation Cooperatives]" (C. Dohner, FWS Southeast Regional Director, personal communication, March 24, 2010). The five geographic areas are part of a "national geographic framework", which includes 21 geographic areas

covering the conterminous U.S., Alaska, and Hawaii (Fig. 8), and was developed by the FWS and USGS in 2009 to implement landscape conservation. In an "All Employee Message" dated August 18, 2009, the FWS Director explained that the FWS "will use the framework as a base geography to locate the first generation of Landscape Conservation Cooperatives (LCCs) and in planning a second generation of LCCs during the FY 2011 budget formulation process." Each geographic area, therefore, will have a corresponding LCC within it. In the same e-mail, the Director described LCCs as:

> "conservation-science partnerships between the [FWS], federal agencies, states, tribes, NGOs, universities, and other entities. They are fundamental units of planning and science capacity to help us carry out the functional elements of SHC—biological planning, conservation design, conservation delivery, monitoring, and research—and inform our strategic response to accelerated climate change."

Therefore, LCCs are designed to incorporate partners and provide the "capacity" to conduct conservation planning, design, delivery, monitoring, and research.

With a $25 million appropriation from Congress in FY 2010 ($20 million for the FWS and $5 million for USGS), the FWS and USGS, working with other partners, began establishing nine LCCS across the country, including the South Atlantic LCC in the Southeast Region (USFWS 2011). The long-term goal is to establish LCCs for each of the 21 geographic areas. Each LCC will be guided by a steering committee with members from multiple partners, and the core staff of each LCC will consist of a Coordinator and a Science Coordinator (USFWS 2011). To date, LCC Coordinators and Science Coordinators have been hired for all LCCs in the Southeast Region. A National LCC Coordinator has also been hired. In addition, the FWS Directorate developed a new position called the Assistant Regional Director (ARD) for Science

Applications in each region (C. Dohner, personal communication, March 24, 2010). In early 2011, the Southeast Region hired an ARD for Science Applications who will "provide oversight and facilitate the growth of LCC partnerships, improve relationships with science institutions such as cooperative units, as well as the development of LCC staffing capacity" (C. Dohner, personal communication, March 24, 2010).

While all these events and activities were taking place related to SHC and LCCs, climate change efforts by the FWS and DOI started to ramp up and become intertwined with LCC efforts. In anticipation of a new Presidential Administration and possible climate change-related legislation in Congress following the 2008 election, the FWS formed a Climate Change Strategic Plan Team to develop a draft strategic and action plans for responding to climate change. Over the course of 18 months of development, FWS employees, partners, and the general public had an opportunity to comment on these plans, culminating with publication of the final plans in September 2010. Two of the "commitments" included in the final strategic plan (*Rising to the Urgent Challenge: Strategic Plan for Responding to Accelerating Climate Change*) were to establish LCCs and apply SHC as the framework for landscape conservation.

In 2009, Congress established the National Climate Change and Wildlife Science Center (NCCWSC) within the USGS to provide scientific and technical information to resource managers and scientists dealing with climate change impacts to natural resources (USGS 2010). The USGS began developing eight regional Climate Science Hubs to provide climate change impact data and analysis to aid managers in developing adaptation strategies for climate change. Recognizing and building on these efforts within the USGS and FWS, the Secretary of Interior issued Secretarial Order No. 3289 on September 14, 2009 calling for collaboration, coordination, and information sharing among DOI agencies in response to the threat of climate change. The

Order established a "Climate Change Response Council" to coordinate a Department-wide strategy for addressing climate change impacts to the Nation's cultural and natural resources. The Order also established eight regional Climate Change Response Centers (later renamed Climate Science Centers (CSCs)), which are really a renaming and expansion of the USGS regional Climate Science Hub concept. The CSCs are being hosted at universities who are chosen through a competitive process; five CSCs have been established and the final three will be formally established in FY 2012 (USGS 2011). The Order also adopted the FWS's network of LCCs as a mechanism to develop landscape-scale strategies for understanding and responding to climate change impacts and directs LCCs to help CSCs with coordinating adaptation efforts.

A final note in this epilogue concerns the impacts of the April 20, 2010 Deepwater Horizon (Mississippi Canyon-252) Oil Spill off the coast of Louisiana on operations and priorities of the FWS. Responding to the spill became the highest priority of the FWS, especially in the Southeast Region, which encompasses the areas of the Gulf Coast affected. Significant FWS resources, in the form of employees and their time, were redirected to responding to the impacts of the spill on coastal resources in the Gulf of Mexico. Nearly 2,000 FWS employees—approximately 25% of the FWS workforce—from all regions volunteered for 14-day "deployments" to a number of Incident Command Centers in the Gulf over the course of many months following the spill (Tollefson 2010). Many of these employees volunteered for multiple 14-day deployments. When the well was capped in July, the FWS response began to move into a restoration phase under the Natural Resource Damage Assessment and Response (NRDAR) Program that was established through the Oil Pollution Control Act of 1990. Over the last few months, the FWS has created permanent NRDAR offices and hired full-time NRDAR staff to support the restoration efforts. From my own personal observations, during the months

immediately following the spill, SHC and LCCs seemed to take a back-seat to the response efforts. Communications from the regional and national levels of the FWS were focused on the oil spill and SHC and LCCs were not mentioned.

So what is the current state of SHC implementation in the Southeast Region? I have heard many employees make comments about how they think LCCs and climate change have "taken over" and think that SHC is gone. For these employees, the connection among SHC, LCCs, and climate change is fuzzy at best and non-existent at worst. My personal observation is that SHC is not being talked about very much, and where employees once received emails from the Director and Regional Director about SHC, these emails have become infrequent, especially since the Deepwater Horizon oil spill. There are places in the FWS where SHC is being implemented. For example, one of the eco-teams from which I interviewed employees, has renamed itself as an SHC team and is working to implement SHC in their ecosystem. I have also talked to employees in other FWS regions (e.g., the Northeast Region, Chesapeake Bay Restoration Program) where SHC is being actively implemented. If the FWS wants to implement SHC across the agency and institutionalize this approach as a conservation business model, leaders in the FWS should seriously consider following the steps for successful organizational change described by Fernandez and Rainey (2006) and Kotter (1995). In particular, a clear vision needs to be developed and consistently communicated and leaders need to use TLB and empower their employees. In addition, leaders need to clarify connections among SHC, LCCs and climate change. If these steps are not followed, I think SHC could go the way of EA—it will be implemented successfully in some areas of the FWS and in others, SHC will fade away.

APPENDIX

TABLES AND FIGURES

Table 21. Recommended steps for successful implementation of organizational change. Adapted from Kotter (1995) and Fernandez and Rainy (2006).

Kotter's (1995) steps	Fernandez and Rainey's (2006) steps
Establish a sense of urgency	Ensure the need
From a powerful guiding coalition	Provide a plan
Create a vision	Build internal support and overcome resistance
Communicate the vision	Ensure top management support and commitment
Empower others to act on the vision	Build external support
Plan for and create short-term wins	Provide resources
Consolidate improvements and produce more change	Institutionalize change
Institutionalize new approaches	Pursue comprehensive change

Figure 8. Map of the FWS National Geographic Framework and corresponding Landscape Conservation Cooperatives (LCCs). LCC #21 (Pacific Islands) not shown here. (Figure adapted from: http://www.fws.gov/GIS/data/national/LCCMap.jpg)

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