EVALUATION REPORT

YEAR 2000 READINESS OF AUTOMATED INFORMATION SYSTEMS AT THE U.S. FISH AND WILDLIFE SERVICE

REPORT NO. 98-I-701
SEPTEMBER 1998

United States Department of the Interior

OFFICE OF INSPECTOR GENERAL
Washington, D.C. 20240

SEP 28 1998

EVALUATION REPORT

Memorandum

To: Director, U.S. Fish and Wildlife Service

From: Robert J. Williams
Assistant Inspector General for Audits

Subject: Evaluation Report on Year 2000 Readiness of Automated Information Systems at the U.S. Fish and Wildlife Service (No. 98-I-701)

INTRODUCTION

This report presents the results of our evaluation of the year 2000 (Y2K) readiness of automated information systems at the U.S. Fish and Wildlife Service. The objective of our review was to determine whether the Service (1) inventoried its automated information systems and identified those systems that were mission critical and were not Y2K compliant; (2) developed auditable cost estimates for renovating systems to be Y2K compliant; (3) identified, by name, individuals responsible for ensuring that the Service is Y2K compliant; (4) ensured that responsible individuals' personnel performance evaluation plans included critical elements related to identifying and remedying Y2K problems; (5) developed a credible plan that included milestones and a critical path to ensure that the Service is Y2K compliant; and (6) developed a contingency plan that would address the failure of any part of the systems not being Y2K ready. We also reviewed the Service's progress in inventorying automated information systems components, including computer software, hardware, and firmware; telecommunications systems; facilities; and data exchanges between the Service and other Department of the Interior agencies or external entities for Y2K problems. This review was conducted at the request of the Department of the Interior's Chief Information Officer to assist the Information Officer in monitoring the progress of Departmental agencies in ensuring Y2K readiness, implementing Y2K compliant systems, and validating the accuracy of the information reported by the Departmental agencies to the Chief Information Officer.

BACKGROUND

The "Y2K problem" is the term used to describe the potential failure of information technology systems, applications, and hardware related to the change to the year 2000. Many computer systems that use two digits to keep track of the date will, on January 1, 2000,

recognize"double zero" not as 2000 but as 1900. This could cause computer systems to stop running or to start generating erroneous data. The problem has been recognized as nationally significant by the President in Executive Order 13073, issued in February 1998. The Secretary of the Interior, in a December 1997 memorandum, stated that the Y2K problem was critical to the Department in meeting its mission and that resolution of the problem was one of his highest priorities. Further, Office of Management and Budget Memorandum 98-02, "Progress Reports on Fixing Year 2000 Difficulties," issued on January 20, 1998, requires all Federal executive branch agencies to ensure that Federal Government systems do not fail because of the change to the year 2000 and to have all systems, applications, and hardware renovated by September 1998, validated by January 1999, and implemented (that is,"fixes to all systems--both mission critical and non-mission critical") by March 3 1, 1999. The Office of Management and Budget states in Memorandum 98-02 that it is to provide "information to the Congress and the public as part of its [Office of Management and Budget's] quarterly summary reports on agency progress ... [and] to report on the status of agency validation and contingency planning efforts and on the progress in fixing ... equipment that is date sensitive."

The Department has developed the "Department of the Interior Year 2000 Management Plan," which focuses on the resolution of the Y2K problem and provides an overall strategy for managing Departmental mission-critical systems and infrastructure. The Department has a multitiered approach to managing the Y2K problem that includes a top tier, which comprises the Secretary of the Interior; the Information Technology Steering Committee, which consists of the Chief of Staff and the Assistant Secretaries; and the Chief Information Officer, who is responsible for the Department's Y2K issues. This tier, which represents senior-level Departmental managers, provides the Y2K project's direction and resources and ensures accurate reporting to external organizations, such as the Office of Management and Budget and the Congress. A Departmentwide Y2K project team, which reports to the Chief Information Officer and comprises representatives from each agency and the Office of the Secretary, is tasked with developing the Department's Year 2000 Management Plan, refining inventory data on the Department's mission-critical and information technology portfolio systems,' and monitoring and reporting on the progress of each conversion. In addition, a Y2K Embedded Microchip' Coordinators Team has been established to inventory and monitor embedded microchip technology Y2K problems. The team is led by the Office of Managing Risk and Public Safety and comprises representatives of the eight Departmental agencies, the Denver Administrative Service Center, and various Departmental offices.

'The portfolio is an inventory listing of 13 crosscutting or sensitive systems that are receiving attention at the Secretarial level.

[2]Embedded microchips are "integrated circuits (miniature circuit boards)" that control "electronic devices," which include "elevators, heating, ventilation and air conditioning (HVAC), water and gas flow controllers; aircraft navigational systems; and ... medical equipment" and office devices such as telephones, facsimile machines, pagers, and cellular telephones. (Department of the Interior's Office of Managing Risk and Public Safety "Year 2000 Embedded Microchip Hazards" [Web site])

The Department's August 1998 "Quarterly Progress Report," which was submitted to the Office of Management and Budget, reported that the Department had 91 mission-critical systems. Of the 91 mission-critical systems reported by the Department to the Office of Management and Budget, the Service had 1 system (see the Appendix). The Service has a project management team that comprises a Y2K executive (Assistant Director for Administration); a Y2K manager (Computer Specialist, Information Resources Management); eight Regional Y2K managers; and individual managers for computer systems, telecommunications, and embedded microchips.

SCOPE OF EVALUATION

To accomplish our objective, we reviewed the documentation available that supported the Service's information submitted to the Department's Chief Information Officer for the August 1998 "Quarterly Progress Report." We performed our evaluation during May through August 1998 at the Service's Office of Information Resources Management, located in Arlington, Virginia. We interviewed personnel responsible for project coordination to identify the Service's plans and progress. We also interviewed, either in person, by telephone, or by electronic mail, personnel involved in various aspects of the Y2K project, including coordination, compliance identification, software remediation, and project management.

The evaluation was conducted in accordance with the "Quality Standards for Inspections," issued by the President's Council on Integrity and Efficiency, and included such tests and inspection procedures considered necessary to accomplish the objective. Our conclusions on the status of the progress made by the Service in addressing and remediating Y2K problems were based on reviews of documentation maintained by the Service's Information Resources Management, program, and regional offices and on discussions with the various Y2K coordinators throughout the Service and with individuals performing remediation or replacement of noncompliant applications or hardware. As specifically agreed to in our discussions with the Department's Chief Information Officer, we did not validate or certify that the Service's systems or infrastructure were Y2K compliant.

RESULTS OF EVALUATION

Of the six areas that the Chief Information Officer requested us to evaluate, we concluded that the U.S. Fish and Wildlife Service had completed actions on all six areas. Specifically, the Service had identified its mission-critical systems, developed auditable cost estimates, designated responsible individuals for ensuring Y2K compliance, had updated annual personnel performance evaluation plans to include critical elements relating to remedying Y2K problems, developed credible plans that included milestones, and developed contingency plans for its mission-critical systems. The specific actions taken by the Service related to each area and other issues affecting the Service' readiness efforts are discussed in the paragraphs that follow.

Automated Information Systems Inventory

Although the Service had performed an inventory of all of its automated information systems, the Service had not reported all of its mission-critical systems to the Department's Chief Information Officer. According to the Department's milestone dates, agencies were required to have mission-critical systems inventoried and systems that were not Y2K compliant identified by June 1997. Additionally, Office of Management and Budget Memorandum 98-02 requires agencies to report on their total number of mission-critical systems. In the Department's August 1998 report to the Office of Management and Budget, the Service reported that it had one mission-critical system, the Law Enforcement Management Information System (LEMIS). However, we found that the Service had one additional system which was critical to the Service's mission and was not Y2K compliant. Specifically, we believe that either the Federal Aid Project and Accounting Ledger System (FAPALS) or the replacement system for FAPALS, the Federal Aid Information Management System (FAIMS), should have been reported as mission critical. One of these systems should have been reported to the Department's Chief Information Officer as a mission-critical system because of the system's impact on the Federal Aid Program, which supports the Service's mission "to conserve, protect, and enhance fish and wildlife and their habitats."

Although the system owner and the manager had not determined whether FAPALS or FAIMS was mission critical by July 1998, one of the systems should have been reported as mission critical because the Federal Aid Program is responsible for administering the Sport Fish and Wildlife Restoration grant programs. The Federal Aid Program provides funds to states for various sport fish and wildlife restoration programs, and in fiscal year 1998, the Service apportioned more than $427 million for these programs. The systems maintain Federal aid grant records and fiscal ledgers used to monitor grant compliance and to generate payments to the states. The systems also interface with the Department of Health and Human Services Payment Management System for disbursing Federal aid funds to states and with the Service's Federal Financial System for recording Federal aid costs. Therefore, the Service had not ensured that a thorough assessment of mission- and nor-mission-critical systems was performed. Without a thorough assessment of its automated information systems, the Service cannot identify the impact that having automated information systems which are not Y2K compliant would have on the Service in accomplishing its mission and core capabilities. However, the Service on September 2, 1998, identified the Federal Aid Information Management System as mission critical and reported this system to the Department's Chief Information Officer. Therefore, the Service subsequently completed this action.

The Department's Chief Information Officer requested that we determine the progress of the Service in addressing the Y2K problem regarding telecommunications and embedded microchips in information systems and facilities. We found that the Service had initiated action at the time of our review to inventory telecommunications equipment and embedded microchips in information systems and facilities. The Service's telecommunications and embedded chip coordinators had received inventory data from Service regional and field

offices. A national database was being constructed of all of the data obtained, and the data will be used by the Service to identify potential Y2K problems and to develop action plans.

Auditable Cost Estimates

We found that the Service had reported correctly that there were no applicable Y2K costs for its one mission-critical system, LEMIS. LEMIS was scheduled for replacement with a system that would be Y2K compliant by design. Although we believe that FAPALS or FAIMS should be reported as mission critical (see section "Automated Information Systems Inventory"), FAIMS is scheduled to replace FAPALS in fiscal year 1999. However, since the replacement was not designed specifically for remedying Y2K problems in FAPALS, no costs for Y2K compliance would be reportable. Therefore, the Service had completed this action.

Designation of Responsible Individuals

We found that the Service had specifically designated, by name, the Y2K executive, the Service Y2K coordinator, Y2K coordinators in each of the Service's regional offices, and Y2K coordinators for embedded microchips and telecommunications. Therefore, the Service had completed this action.

Annual Personnel Performance Evaluation Plans

The Secretary of the Interior's December 1997 memorandum required that "a critical performance element for identifying and remedying" the Y2K problem be included as part of each responsible official's annual performance evaluation plan. Responsible officials are defined 'in the memorandum as agency directors, agency Y2K executives, agency information resources management coordinators, safety officials, and all others as determined by the Y2K executives. We found that the Y2K executive and managers and the Service's information resources management coordinator had performance elements addressing Y2K objectives in their annual performance evaluation plans. Therefore, the Service had completed this action.

Plan for Milestones

We found that the Service had developed a project plan for its reported mission-critical system, LEMIS, and that the plan included reasonable milestone dates. Although FAPALS or FAIMS was not reported by the Service as mission critical, the system owner and the manager had developed a project plan that included reasonable milestone dates. As of July 1998, LEMIS and the replacement system for FAPALS had scheduled implementation dates of November 1998. Therefore, the Service had completed this action.

Contingency Plans

The Service had a contingency plan for its reported mission-critical system. The contingency plan for LEMIS is to enter events that occur after December 3 1, 1999, into the system manually rather than electronically. We found that the contingency plan for LEMIS had been implemented, and Service officials said that it will remain in place until the replacement system is implemented. In addition, the Service has developed a contingency plan for FAIMS, which is the replacement system for FAPALS. Federal Aid Program management stated that the replacement system is to be implemented in November 1998 and will be Y2K compliant. The contingency plan for FAIMS is to create database backups that can be retrieved by redundant hardware systems and manually uploaded to both the Department of Health and Human Services and the Service's Federal Financial System systems. Therefore, the Service had completed this action.

Other Issues

We found that the Service's readiness efforts were affected by other issues that should be addressed as follows:

- Contract Language. Department of the Interior Acquisition Policy Release 1997-6, "Year 2000 Contract Specification," issued in April 1997, requires appropriate contract language to be included in all acquisitions that would pertain to Y2K compliance issues. However, the Service's contract issued in January 1998 to replace the Federal Aid Project Accounting and Ledger System did not include the appropriate contract language as required by the policy release to ensure that the replacement system would "either be year 2000 compliant as delivered or if noncompliant at that time be upgraded to be year 2000 compliant at no additional cost to the Government." On September 3, 1998, the Service took action to amend the contract with the appropriate contract language.

- Independent Verification and Validation. According to the Service's Y2K Master Plan, no independent verification and validation tests are to be performed on the LEMIS replacement system being developed by the Service. Rather, system testing and validation are to take place throughout the development cycle of the replacement system, with full operational system test and validation occurring before implementation. We believe that the Service should have specific independent Y2K testing, verification, and validation performed on the replacement system. The Department's draft guidelines require that independent verification and validation, which is "a process whereby the products of the software development life cycle phases are independently reviewed, verified, and validated by an organization that is neither the developer nor the acquirer of the software," be performed. Therefore, the Service's plan did not meet the Departmental requirements for independent verification and validation. However, the Service provided its draft Independent Verification and Validation (IV&V) Plans for LEMIS and FAIMS, dated September 14, 1998, which are in compliance with Departmental guidelines for independent verification and validation testing. The plans state that independent verification and validation will be

performed by a Service organization independent of either the developers of the systems or the systems' owners.

During our September 4, 1998, exit conference with Fish and Wildlife ServiceY2K officials on the preliminary draft of this report, the officials provided documentation that they said they believed would resolve some of the conditions identified in the preliminary draft report. Based on the documentation, we considered the actions on all six areas of the objective to be completed, and we have changed the report accordingly.

The legislation, as amended, creating the Office of Inspector General requires semiannual reporting to the Congress on all audit reports issued, the monetary impact of audit findings, actions taken to implement audit recommendations, and identification of each significant recommendation on which corrective action has not been taken.

We appreciate the assistance of the Service's personnel in the conduct of this evaluation.

U. S. FISH AND WILDLIFE SERVICE
MISSION-CRITICAL SYSTEMS INVENTORY*

System Name or Acronym	Description	Estimated Cost for Compliance
Law Enforcement Management Information System (LEMIS)	A law enforcement system for recording and managing criminal and civil investigations conducted by the U.S. Fish and Wildlife Service.	0

*Information is from the "Department of the Interior Year 2000 Management Plan," issued in February 1998.

ILLEGAL OR WASTEFUL ACTIVITIES SHOULD BE REPORTED TO THE OFFICE OF INSPECTOR GENERAL BY:

Sending written documents to:

Calling:

Within the Continental United States

U.S. Department of the Interior
Office of Inspector General
1849 C Street, N.W.
Mail Stop 5341
Washington, D.C. 20240

Our 24-hour
Telephone HOTLINE
l-800-424-508 1 or
(202) 2085300

TDD for hearing impaired
(202) 208-2420 or
l-800-354-0996

Outside the Continental United States

Caribbean Region

U.S. Department of the Interior
Office of Inspector General
Eastern Division - Investigations
4040 Fairfax Drive
Suite 303
Arlington, Virginia 22201

(703) 235-922 1

North Pacific Region

U.S. Department of the Interior
Office of Inspector General
North Pacific Region
415 Chalan San Antonio
Baltej Pavilion, Suite 306
Tamuning, Guam 96911

(67 1) 647-605 1

Toll Free Numbers:
l-800-424-5081
TDD l-800-354-0996

FTS/Commercial Numbers:
(202) 208-5300
TDD (202) 208-2420

HOTLINE

1849 C Street, N.W.
Mail Stop 5341
Washington, D.C. 20240