
USGS
science for a changing world
Annual
Financial
Report
Fiscal Year 2003

Cover Page

## *Kilauea -- Perhaps the World's Most Active Volcano*

Kilauea is the home of Pele, the Hawaiian volcano goddess. Hawaiian chants and oral traditions tell in veiled form of many eruptions fomented by an angry Pele before the first European, the missionary Rev. William Ellis, saw the summit in 1823. The caldera was the site of nearly continuous activity during the 19th century and the early part of this century. Since 1952 there have been 34 eruptions, and since January 1983 eruptive activity has been continuous along the east rift zone. All told, Kilauea ranks among the world's most active volcanoes and may even top the list.

*Mission*

*USGS serves the Nation by providing reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life.*

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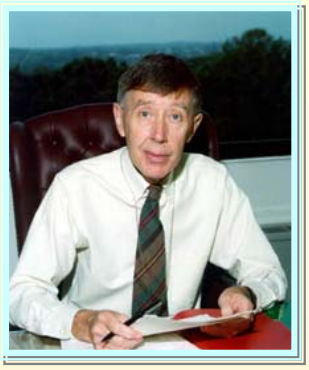
# Message from the Director



***In FY2003, the U.S. Geological Survey (USGS) continued to serve the Nation by providing public science to support public health, public safety, and public prosperity. This Annual Financial Report documents a number of examples of science in action to benefit the Nation:***

- ***USGS scientists, working in partnership with the National Weather Service, are developing the capability to predict the timing, locations, and intensities of floods, 3-5 days before the flood arrives. By combining accurate elevation data, new models for river flow, and Geographic Information System (GIS) technology, USGS can provide people with information they need before a disaster to safeguard lives and property.***

- ***USGS completed assessments of undiscovered, technically recoverable oil and gas resources in five basins of the Rocky Mountain region and determined that the unconventional oil and gas resources in this region, such as coalbed methane, contribute significantly more than conventional oil and gas to the total of undiscovered U.S. oil and gas resources. Understanding the oil and gas resources in our country is necessary to formulate economic and energy policies, evaluate lands in the purview of the Federal government, and develop sound environmental policies.***

- ***In Mecklenburg County, NC, USGS geographers worked with State and local partners to produce high-quality geographic data for the National Map. This successful partnership has combined high-resolution local data, such as water lines, transportation, and other unique data sets, with national data, including orthoimagery, geographic names, and hydrography, to create a seamless dataset accessible over the internet to facilitate decision making.***

- ***In response to requests from the Department of the Interior (DOI) and the U.S. Department of Agriculture, USGS scientists have begun compiling a state-by-state inventory of existing and potential coal stocks in the prairie pothole region of the North-Central United States. USGS studies have shown that greater amounts of atmospheric carbon could be sequestered in wetlands and bottomland hardwood forests than in agricultural lands.***

# Message from the Director

***The USGS was created in 1879, in recognition of the need for sound science about the national domain to ensure the Nation's development and prosperity. Over the ensuing 124 years, the USGS has evolved, matching its talent and knowledge to the progress of science and technology. USGS science is valued by thousands of partners and customers in Federal, State, and local government agencies, non-governmental organizations, and the private sector, who use it to help preserve and protect the future of our citizens.***

***We are committed to strengthening our research, monitoring, and assessments of natural resources and natural hazards, which provide solid dividends of progress in science and technology to the American public. The programs and activities described in this report demonstrate clearly that the USGS continues to be a good investment for taxpayer dollars. As we celebrate our past 124 years of service to the Nation, we look forward to continuing to provide the information and understanding needed to help resolve complex natural resource problems across the Nation and around the world.***

***Charles G. Groat***
***Director***
***October 2003***

# Message from the Chief Financial Officer

***The USGS is committed to excellence as a premier science agency and strives for that same quality in its business and financial practices. In the last several years, our quest for excellence in our business and financial arena has been problematic. We received a disclaimed opinion from our independent auditors (KPMG LLP) and they were not able to render an opinion on our FY 2002 Annual Financial Report. Rather, the Department of the Interior's Office of Inspector General issued a report, titled "Observations on USGS' Internal Controls and Compliance with Laws and Regulations." This April 7, 2003 report identified eight (8) material weaknesses: (1) Information technology systems controls; (2) Organizational structure and leadership of financial management; (3) Financial reporting controls; (4) Account analysis and adjustments; (5) Revenue cycle controls; (6) Property, plant, and equipment controls; (7) Inventory controls; and (8) Working capital fund accounting.***

***To address these material weaknesses, a comprehensive corrective action plan was developed and implemented. Using this document as a guideline, we have made considerable progress in implementing the recommendations offered in the April 7, 2003 report. Significant effort has been devoted to improve our information technology systems controls, resulting in better security and management of these critical infrastructures. We have strengthened our financial management organization and leadership having employed a Deputy Chief Financial Officer with full authority and responsibility for the Bureau's financial management activities and added several skilled and knowledgeable accountant supervisors and operating accountants to key positions in the central accounting and finance office. We have also begun investing in training for our professional and administrative staffs throughout the Bureau. Revised policies, procedures, and processes have been instituted that lend better controls over financial reporting. The vital communications link between our central offices and regional and field offices has been enhanced through routine communications and the formation of two advisory teams: the Business Leaders Team (BLT) and the Field Managers Team (FMT). The BLT and FMT have provided valuable insight and advice on redefining and improving the Bureau's business practices. We remain committed to continuing this level of communication.***

# Message from the Chief Financial Officer

***In keeping with our intent to eliminate barriers to integrated science and enhance planning and execution of our scientific programs, in FY03 we implemented our new planning and budgeting system, "Budget and Science Information System" (BASIS+). This system provides to our scientists and managers an automated tool for planning and tracking their work. Additionally, we began implementation of an automated maintenance management system (MAXIMO $_{TM}$) that provides current cost and status data to our facilities managers.***

***The offshoot of these initiatives is an unqualified opinion on the Bureaus' Consolidated Balance Sheet as of September 30, 2003. Eight of the nine previous material weaknesses were resolved, leaving four reportable conditions, one of which is a material weakness related to deficiencies in USGS' policies, procedures and controls over accounting for reimbursable agreements. Three of the prior year's material weaknesses were downgraded to reportable conditions, and relate to IT security, property management and intra-departmental eliminations.***

***Notwithstanding these improvements, we recognize that our goal of excellence in financial management is not a short-term initiative. However, in addition to maintaining our reputation as a premier science organization, we must and will continue to devote the needed resources to return the Bureau to its status as a top-notch business-operated organization. To that end, I remain committed to supporting integrated science with modern systems and processes in an environment of competent and accountable financial management.***

***Carol F. Aten***
***Chief Financial Officer and***
***Chief, Administrative Polices and Services***
***October 2003***


Coral reefs are home to 25% of all marine species. However, the tiny colonial animals that build these intricate limestone masses are dying at alarming rates. If this trend continues, in 20 years the living corals on many of the world's reefs will be dead and the ecosystems that depend on them severely damaged. As part of the effort to protect our Nation's extensive reefs, USGS scientists are working to better understand the processes that affect the health of these ecologically and economically important ecosystems.

# Management's Discussion and Analysis

# *Overview of the Organization*

# Management's Discussion and Analysis

Created by an act of Congress in 1879, the USGS has evolved over the ensuing 124 years, matching its talent and knowledge to the progress of science and technology. Today, the USGS stands as the sole science agency for the DOI. It is sought out by thousands of partners and customers for its natural science expertise and its vast earth and biological data holdings. The USGS is the science provider of choice in accessing the information and understanding to help resolve complex natural resource problems across the Nation and around the world.

**Vision**

**The USGS is a world leader in the natural sciences through our scientific excellence and responsiveness to society's needs.**

**Strategic Direction**

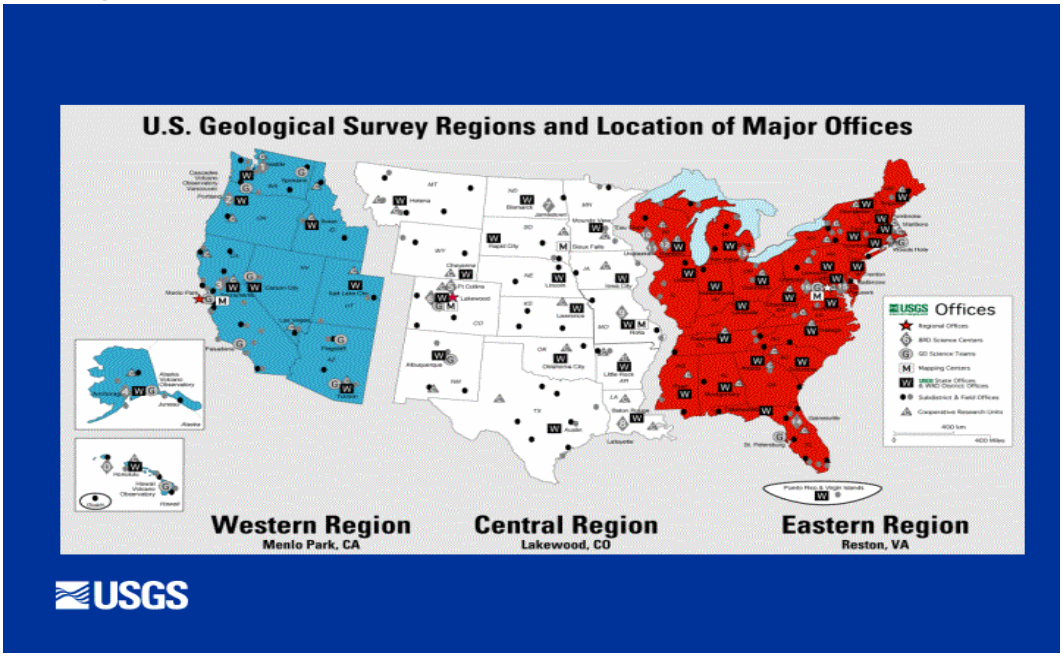
**The USGS will combine and enhance our diverse programs, capabilities, and talents and increase customer involvement to strengthen our science leadership and contribution to the resolution of complex issues.**

The USGS serves the Nation as an independent fact-finding agency that collects, monitors and analyzes natural data, and provides scientific understanding about natural resource conditions, issues, and problems. The value of the USGS to the Nation rests on its ability to carry out studies on a national scale and to sustain long-term monitoring and assessment of natural resources. Because it has no regulatory or management mandate, the USGS provides impartial science that serves the needs of our changing world. The diversity of scientific expertise enables the USGS to carry out large-scale, multi-disciplinary investigations that build the base of knowledge about the Earth. In turn, decision makers at all levels of government and citizens in all walks of life have the information tools they need to address pressing societal issues.

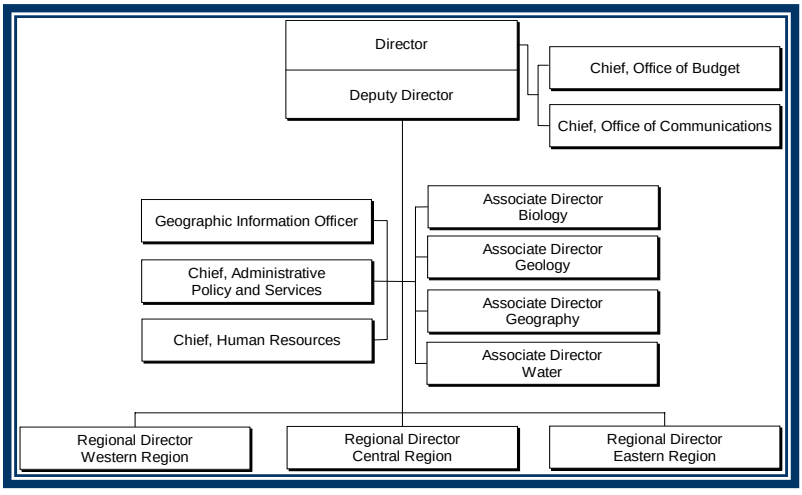
The thousands of scientists, technicians and support staff of the USGS are located in nearly 400 offices in every State and in several foreign countries. With an annual budget of more than $1 billion, the USGS leverages its resources and expertise in partnership with more than 2,000 agencies of State, local and tribal governments, the academic community, other Federal agencies, non-governmental organizations, and the private sector. Field investigations, direct observations of natural science processes and phenomena, and monitoring and data collection are the scientific hallmarks of the USGS.

The USGS is proud of its outstanding history of public service and scientific advances. The USGS has been at the forefront of advances in understanding the Earth, its processes, and its resources. USGS scientists pioneered hydrologic techniques for gaging the discharge in rivers and streams and modeling the flow of complex ground-water systems. Innovative ventures with the private sector have given the world access to digital images of neighborhoods and communities in one of the largest data sets ever made available online. Modern-day understanding of the formation and location of energy and mineral resource deposits is rooted in fundamental scientific breakthroughs by USGS scientists. USGS biologists revolutionized thinking about managing wildlife resources, which has provided a sound scientific basis that lets waterfowl conservation and recreational hunting work in tandem as adaptive management, not as conflicting interests. Advances in seismology are making early warnings of earthquakes a reality that will give the needed alert time to save lives. The future of the global community presents unprecedented opportunities for the science of the USGS to continue to make substantive and life-enhancing contributions to the betterment of the Nation and the world.

## The Organization




The vast landscape of the Nation results in complex, interrelated, natural resource use and conservation issues that are best addressed through holistic science solutions. USGS consists of a headquarters organization located in Reston, Virginia and field offices located throughout the United States. Major Field Centers (Regional Offices) are located at Denver, Colorado, Menlo Park, California, and Reston, Virginia.

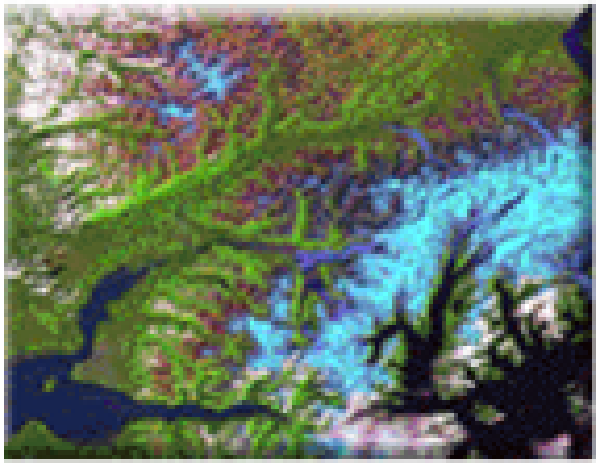



The USGS incorporates a matrix-management process that provides national senior leadership under the authority of Associate Directors responsible for overall management of the Bureau's four primary programs. Direct line authority and responsibility are vested in three Regional Directors who serve as the personal representative of the Director in their respective locations. USGS Regional Directors are responsible for ensuring that science priorities are balanced and reflect local, regional, and national needs. This management structure serves the Bureau well by locating Bureau leadership and programs closer to customers and their issues, and facilitates a citizen-centered approach where it is needed. It also encourages and strengthens lines of communication across the breadth of USGS programs and with other DOI Bureaus and other stakeholders at the regional level.

# *Strategic Goals and Performance Reporting*

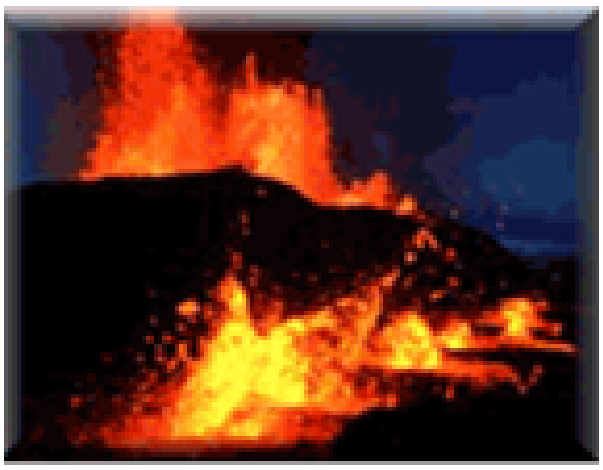
**Strategic Goal –**
***Provide Science for a Changing World***

**Two program activities:**



**Hazards**

**Focus efforts in response to present and anticipated needs to predict and monitor hazardous events in near-real and real time and to conduct risk assessments to mitigate loss.**



**Environmental and Natural Resources**

**Focus efforts in response to present and anticipated needs to expand our understanding of the environment and natural resources issues on regional, national and global scales and enhance predictive/forecast modeling capabilities.**

# Hazards

### Long-Term Goal

Ensure the continued transfer of hazards-related data, risk assessments, and disaster scenarios needed by our customers before, during, and after natural disasters, and by FY2005, increase the delivery of real-time hazards information by increasing the average number of streamgages reporting real-time data on the Internet during each quarter to 5,500 (thus reducing the time it takes to provide flood information at that site from 6 to 8 weeks to 4 hours) and installing 500 improved earthquake sensors (thus reducing delivery time of information on potentially damaging earthquakes from 40 to 20 minutes) to minimize the loss of life and property.

### Annual Goal

The FY2003 Annual Performance Goal is to develop, maintain and improve monitoring networks and techniques of risk assessment by: maintaining the baseline of data (average annual completion); increasing by 74 improved earthquake sensors to deliver real-time information on potentially damaging earthquakes to minimize loss of life and property and maintaining the average number of streamgages at 5,462 delivering real-time data on the Internet.

| **FY03 Annual Goal**<br>GPRA Program Activity: **Hazards** | **Performance** | | | | | |
|---|---|---|---|---|---|---|
| Develop, maintain and improve the monitoring networks and techniques of risk assessment | **1999 Actual** | **2000 Actual** | **2001 Actual** | **2002 Actual** | **2003 Planned** | **2003 Actual** |
| | **6** | **6** | **6** | **6** | **6** | **5** |
| | **Results Report & Discussion:** **Goal Not Met**<br>Closure and discontinuation of the Center for Integration of Natural Disaster Information (CINDI) eliminated this network. In FY2002, an interdisciplinary panel of USGS senior scientists was tasked to conduct a program and management review of the CINDI business model. The panel's report was the basis for an executive decision to close the CINDI facility and a transition plan for FY2003 was prepared and followed. Technology has outpaced the original business model; state-of-the-art communication technology has overtaken the need for a centrally located laboratory. In addition, other USGS programs now either provide their own hazard and disaster information effectively from distant locations or provide disaster information to the public using a commercial distributor.<br><br>The DOI has developed a new strategic plan for FY2003 – FY2008 that does not contain this measure in its present form. The USGS will continue to monitor at the Bureau level. | | | | | | |
| Maintain the baseline of data and risk assessments transferred to customers | **1999 Actual** | **2000 Actual** | **2001 Actual** | **2002 Actual** | **2003 Planned** | **2003 Actual** |
| | **16** | **17** | **26** | **24** | **15** | **16** |
| | **Results Report & Discussion:** **Goal Exceeded.**<br><br>The DOI has developed a new strategic plan for FY2003 – FY2008 that does not contain this measure in its present form. The USGS will continue to monitor this at the Bureau level. | | | | | |

| FY03 Annual Goal<br>GPRA Program Activity: **Hazards** | Performance | | | | | |
|---|---|---|---|---|---|---|
| Increase by 50 improved earthquake sensors to deliver real-time information on potentially damaging earthquakes to minimize loss of life and property (Cum.) | 1999 Actual | 2000 Actual | 2001 Actual | 2002 Actual | 2003 Planned | 2003 Actual |
| | 120 | 201 | 329 | 425 | 499 | 476 |
| | **Results Report & Discussion:** **Goal Not Met.**<br><br>Plans were to install the 24 sensors that were not installed by the end of FY2002 which were installed in the 1st quarter of FY2003. Of the remaining 50 additional sensors that were to be installed in the 4th quarter, only 27 were actually installed. This was due to the fact that the appropriation came late in the fiscal year causing a problem with purchasing the equipment along with a portion of the Advanced National Seismic System (ANSS) funding was used for operation and maintenance of stations already installed and for making improvements to communication links, existing hardware, and other network elements to improve data delivery as recommended by partners and stakeholders.<br><br>The DOI has developed a new strategic plan for FY2003 – FY2008 that does not contain this measure in its present form. The USGS will continue to monitor this at the Bureau level. | | | | | |
| Hold 28 Stakeholder Meetings | 1999 Actual | 2000 Actual | 2001 Actual | 2002 Actual | 2003 Planned | 2003 Actual |
| | 16 | 40 | 27 | 37 | 28 | 43 |
| | **Results Report & Discussion:** **Goal Exceeded.**<br><br>Additional Earthquake Studies Advisory Committee meetings were held that had not been planned. More than planned hazard-related streamgaging network meetings were also held.<br><br>The DOI has developed a new strategic plan for FY2003 – FY2008 that does not contain this measure in its present form. The USGS will continue to monitor this at the Bureau level. | | | | | |
| Maintain the quarterly average number of streamgages (5,462) delivering real-time data on the Internet | 1999 Actual | 2000 Actual | 2001 Actual | 2002 Actual | 2003 Planned | 2003 Actual |
| | 4,500 | 4,872 | 5,280 | 5,626 | 5,462 | 5,621 |
| | **Results Report & Discussion:** **Goal Exceeded.**<br><br>The streamgage performance measure relies on two separate but related components: (1) installation of new real-time streamgages and upgrading of existing streamgages to give them real-time capability; and (2) improvements to the national computer infrastructure. Additional increase in performance above the target may be due to improvements in computer hardware infrastructure and in the software that allows users to view real-time streamgage data on the Internet.<br><br>The DOI has developed a new strategic plan for FY2003 – FY2008 that does not contain this measure in its present form. The USGS will continue to monitor this at the Bureau level. | | | | | |
| Measure Hazards Customer Satisfaction Goal | 1999 Actual | 2000 Actual | 2001 Actual | 2002 Actual | 2003 Planned | 2003 Actual |
| | Pilot | Baseline | Baseline Single Goal not Met | 97% | Measure Goal | 98% |
| | **Results Report & Discussion:** **Goal Met.**<br><br>Target was to Measure Goal, which has been a consistent 98% each quarter.<br><br>The DOI has developed a new strategic plan for FY2003 – FY2008 that does not contain this measure in its present form. The USGS will monitor new customer satisfaction measures. | | | | | |

# Geology

### *Earthquake Probabilities for the San Francisco Bay Region 2003-2032*

At the April 2003, *Disaster Resistant California* conference in San Jose, Calif., USGS scientists and partners released a new report stating that there is a 62 percent chance that a major earthquake of magnitude 6.7 or higher, and an 80 percent chance that one or more earthquakes with a magnitude of 6.0 to 6.6 will strike the region in the next 30 years. While the urban core of the San Francisco Bay region remains at high risk, scientists identified the likelihood of additional significant earthquakes in three of the most rapidly growing parts of the region. The report included earthquake loss estimates for the Bay area over the next 30 years. Public officials, land use planners, engineers and architects will use the new hazard assessment to develop safer building practices in this vulnerable, earthquake-prone region.

### *USGS Issues Volcano Hazard Assessments for Kanaga and Great Sitkin Volcanoes, Alaska*

The assessments summarize USGS knowledge of the eruptive history and potential volcanic hazards from these two volcanoes in the western Aleutians. Both have erupted in historic times: Kanaga in 1993-1994 and Great Sitkin in 1974. Explosive eruptions producing ash clouds pose potential hazard to passing aircraft and to the communities of Adak and Atka, on adjacent islands, as well as to shipping and fishing activities in the vicinity. Federal and state agencies, in addition to private-sector entities with activities in the western Aleutians, will use the information in these assessments in future research.

### *New Seismic Equipment Unveiled in Memphis*

In October 2002, the USGS unveiled new seismic stations in the Memphis, Tennessee area that are part of the Advanced National Seismic System (ANSS), the first line of defense in the war on earthquake hazards. Federal, State and local partners and emergency responders attended this event, held at the University of Memphis. The USGS is improving its earthquake monitoring and reporting capabilities through the ANSS, a nation wide network of modern strong motion seismometers that can provide emergency-response personnel with real-time "shaking" information within 3-5 minutes of an earthquake. The new seismic data will be used to improve earthquake characterizations in the mid-continent region by the USGS and regional partners, and by researchers studying seismic wave propagation, attenuation, and earthquake hazards.

**Image taken of Great Sitkin Volcano in July 2002. Photograph by Rebecca Reuter, National Marine Fisheries Service**

### *USGS Expands website for Yellowstone Volcano Observatory*

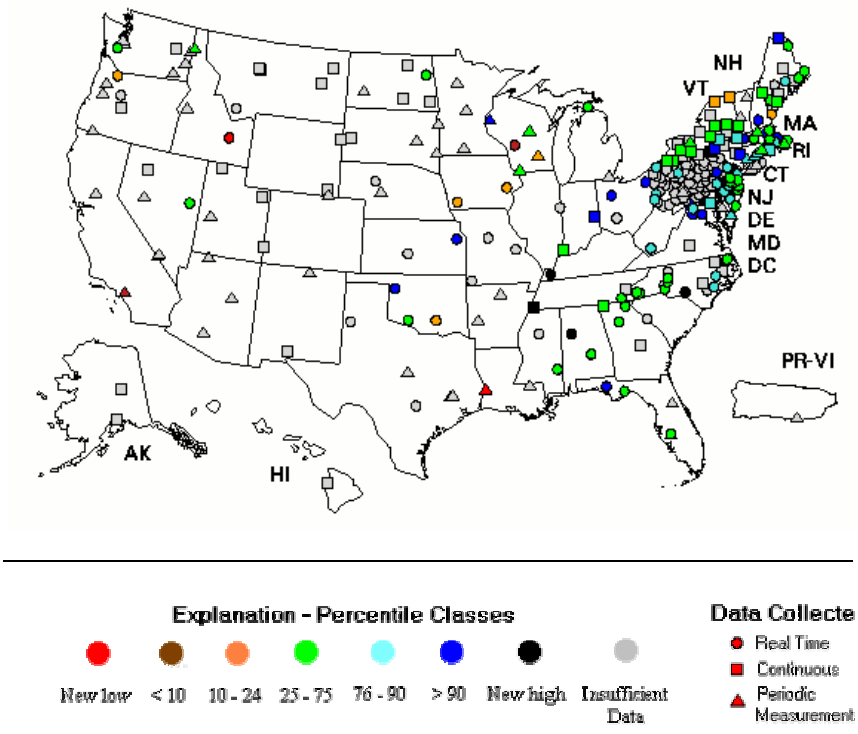
An updated and expanded website for the Yellowstone Volcano Observatory (YVO) was released in March 2003, replacing the initial website that was posted following the establishment of YVO in May 2001. The updated website covers activities of the three agencies involved in the operation of YVO (the USGS, Yellowstone National Park, and the University of Utah) and increases the stream of data from monitoring networks available in near real-time to the public and to other scientists working on Yellowstone issues. This website supports the program's goal of outreach and communication. Federal and State agencies, scientists, and the general public will use the information available on the website.

## Water

### *Fire Chiefs Want USGS Flood Inundation Maps*

A new USGS flood-mapping method was described in a recent issue of the International Association of Fire Chiefs' weekly newsletter. The new USGS system can produce flood-inundation maps as much as three to five days ahead of a storm giving response personnel more time to plan and execute mitigation efforts. USGS has been contacted by fire chiefs across the country who want the new flood-mapping method for their areas. The USGS method combines high-accuracy elevation data, a new computer flow model, and a geographic information system to produce maps in real-time. Information is available at http://water.usgs.gov/pubs/wri/wri024251/.

The ***Charlotte Observer*** reported that a recent storm was a good test of the flood-monitoring system linked to USGS streamgages. The flood-monitoring system alerts emergency personnel when streamflow at USGS streamgage sites reach a certain height.




The USGS maintains a network of wells to monitor the effects of droughts and other climate variability on ground-water levels. The network consists of a national network of about 150 wells monitored as part of the Ground Water Resources Program, supplemented by wells in some States monitored as part of the Cooperative Water Program.

## Environmental and Natural Resources

### Long-Term Goal

Ensure the continued availability of long-term environmental and natural resource information and systematic analysis and investigations needed by customers, and by FY2005, develop 20 new decision support systems and predictive tools for informed decision-making about natural systems.

### Annual Goal

The FY2003 Annual Performance Goal is to provide and improve long-term environmental and natural resource information, systematic analyses and investigations, and predictive options for decision-making about natural systems by: providing essential information to address environmental and natural resources issues by maintaining 45 long-term data collection/data management efforts and supporting two large data infrastructures managed in partnership with others; delivering 971 new systematic analyses and investigations to our customers; improving and developing 8 new decision support systems and predictive tools for decision-making; and collaborating with university partners to understand natural systems and facilitate sound management practices through 209 external grants and contracts.

| **FY03 Annual Goal**<br>GPRA Program Activity:<br>**Environmental and Natural Resources** | **Performance** | | | | | |
|---|---|---|---|---|---|---|
| Provide and improve long-term environmental and natural resource information, systematic analyses and investigations, and predictive options for decision-making about natural systems by providing essential information to address environmental and natural resources issues by maintaining 45 long-term data collection/data management efforts and supporting two large data infrastructures managed in partnership with others | **1999 Actual** | **2000 Actual** | **2001 Actual** | **2002 Actual** | **2003 Planned** | **2003 Actual** |
| | **40** | **46** | **46** | **47** | **47** | **46** |
| | **Results Report & Discussion:** **Goal Not Met**<br>The malfunction of the Landsat 7 satellite at the end of May 2003 caused the non-collection of the bulk of information that was contributing to the long-term data collection "National Satellite Land Remote Sensing Data Archive".<br><br>The DOI has developed a new strategic plan for FY2003 – FY2008 that does not contain this measure in its present form. The USGS will continue to monitor at a Bureau level. | | | | | |
| Deliver 971 new systematic analyses and investigations to our customers | **1999 Actual** | **2000 Actual** | **2001 Actual** | **2002 Actual** | **2003 Planned** | **2003 Actual** |
| | **959** | **1,113** | **1,018** | **993** | **971** | **1,081** |
| | **Results Report & Discussion:** **Goal Exceeded.**<br><br>The DOI has developed a new strategic plan for FY2003 – FY2008 that does not contain this measure in its present form. The USGS will continue to monitor at a Bureau level. | | | | | |

| FY03 Annual Goal<br>GPRA Program Activity:<br>**Environmental and Natural Resources** | Performance |
|---|---|

**Improve and develop 8 new decision support systems and predictive tools for decision-making**

| 1999 Actual | 2000 Actual | 2001 Actual | 2002 Actual | 2003 Planned | 2003 Actual |
|---|---|---|---|---|---|
| 7 | 7 | 7 | 9 | 8 | 11 |

**Results Report & Discussion:** **Goal Exceeded.**

Three decision support systems were improved and/or updated that were not originally planned for fiscal year 2003.

The DOI has developed a new strategic plan for FY2003 – FY2008 that does not contain this measure in its present form. The USGS will continue to monitor at a bureau level.

**Collaborate with university partners to understand natural systems and facilitate sound management practices through 209 external grants and contracts**

| 1999 Actual | 2000 Actual | 2001 Actual | 2002 Actual | 2003 Planned | 2003 Actual |
|---|---|---|---|---|---|
| 238 | 209 | 239 | 182 | 209 | 160 |

**Results Report & Discussion:** **Goal Not Met.**

The Cooperative Research Units vary in methodologies for issuing research work orders (RWOs). The plan is still to get to the target number by the end of the calendar year. More units than usual combine RWOs to gain efficiencies in processing rather than keeping them as separate projects.

The DOI has developed a new strategic plan for FY2003 – FY2008 that does not contain this measure in its present form. This measure will be discontinued in FY2004.

**Hold 544 Stakeholder meetings to learn our customer needs**

| 1999 Actual | 2000 Actual | 2001 Actual | 2002 Actual | 2003 Planned | 2003 Actual |
|---|---|---|---|---|---|
| 473 | 468 | 592 | 767 | 544 | 806 |

**Results Report & Discussion:** **Goal Exceeded.**

In keeping with program evaluation recommendations by the National Research Council, USGS has doubled efforts to formally listen and respond to stakeholders and customers.

The DOI has developed a new strategic plan for FY2003 – FY2008 that does not contain this measure in its present form. This measure will be discontinued in FY2004.

**90% Customers satisfied**

| 1999 Actual | 2000 Actual | 2001 Actual | 2002 Actual | 2003 Planned | 2003 Actual |
|---|---|---|---|---|---|
| Pilot | Baseline | 95% | 95% | 90% | 94% |

**Results Report & Discussion:** **Goal Met.**

The DOI has developed a new strategic plan for FY2003 – FY2008 that does not contain this measure in its present form. The USGS will monitor new customer satisfaction measures.

# Biology

***Threatened and Endangered Species Habitat***

The Central Southwest/Gulf Coast Node of the National Biological Information Infrastructure (NBII) designed and developed custom field data collection applications and a secure website to facilitate the exchange of geospatial and related data and information on threatened and endangered bird habitats at the Army's Fort Hood. Preliminary real-time ecological field sampling is encouraging, with initial habitat mapping focused on the black capped vireo (*Vireo atricapillus).*

***National Wildlife Refuge System***

The U.S. Fish and Wildlife Service (FWS) and the USGS provided technical assistance to aid the National Wildlife Refuge System through collaboration with the NBII. NBII is assisting refuge system personnel in applying USGS gap analysis data to help establish scientifically sound priorities for the strategic growth of the National Wildlife Refuge System, and to develop geospatial data and capabilities to conduct analyses on refuge system growth.

***Southern Appalachian Information Node***

Personnel associated with NBII's Southern Appalachian Information Node trained faculty at the University of Tennessee at Chattanooga (UTC) to provide teacher-training workshops. These certified faculty members will provide twenty Tennessee science teachers (grades 3-8) with training in Global Learning and Observations to Benefit the Environment (GLOBE). The GLOBE is an international environmental education and science partnership supported by National Science Foundation, NASA, and National Oceanographic and Atmospheric Administration. Participants attended a 3-day workshop on the campus of UTC to learn: 1) the GLOBE website and how to upload data; 2) sampling protocols and learning activities on atmosphere and climate, hydrology, soils, and geographic positioning systems; 3) how to interpret and use maps and graphs generated by GLOBE data; and 4) how to integrate regional biological activities specifically designed to support the needs of the NBII's Southern Appalachian Information Node. The UTC is using the NBII information portal http://my.nbii.gov for curriculum development to examine the effects of invasive species on an island ecosystem (the islands of the State of Hawaii). A "case study" backdrop will be used for full matriculation in the study of ecology in the Department of Biological and Environmental Sciences at the UTC.

USGS Director, Chip Groat, and USGS biologists, Denny Fenn, work with local students to remove Purpleloosestrife, an, invasive species, from USGS grounds.

***National Fish and Wildlife Database Summit***

In FY2003, representatives from 31 State fish and wildlife management agencies, four Federal agencies, five state cooperative organizations, four universities, and seven non-government organizations met at the *National Fish and Wildlife Database Summit* (Summit) to explore improving interagency exchange of biological information. The Summit, sponsored by the NBII, the FWS, and the Organization of Fish and Wildlife Information Managers was designed to solicit

ideas for enhancing collaboration between States and NBII and to develop components of a strategic plan for information sharing. The Summit generated seventeen key recommendations in six broad areas defined for future cooperation. Participants rated the overall Summit as highly successful.

### *Screening Invasive Species*

The USGS, through the NBII's Pacific Basin Information Node, developed a decision support system for the Hawaii Department of Agriculture (HDOA) for use in identifying and stopping the importation of certain avian species into the islands. Hawaii has very strict rules regarding the importation of animal species in order to protect agricultural interests, quality of living, and the delicate and unique ecosystems within the Hawaii islands. HDOA manages the official list of species allowed into the State, and requires a permit for non-domestic animal importation. To enforce this, HDOA performs inspection services at ports of entry. This decision support system uses several sources of data to aid in preventing introduction of unwanted bird species into Hawaii. The project includes data created and maintained by the HDOA and the USGS Pacific Island Ecosystems Research Center. At present, due to the West Nile Virus, the HDOA has temporarily banned all avian importation. However, once this ban is lifted, this system will be used for the management and screening of incoming Avian species.

### *Urban Biodiversity Issues*

The USGS sponsored a series of NBII prototype projects aimed at exploring urban biodiversity issues including sprawl, habitat fragmentation, degradation and loss, and water and air quality. Stakeholders from the Holmes Run, Tripps Run, Lake Barcroft, Cameron Run, and Hunting Creek watershed were invited to participate in the formulation of data and products for the prototype. The group discussed actions to be taken, ranging from upcoming workshops to increasing the robustness of projects. The results of these actions, along with the results of the stakeholder breakout groups, formed the basis for the NBII's Metropolitan D.C. Urban Biodiversity Information Node, known as UrBIN. Throughout the project, stakeholders provided direct input and expertise. Results are available at www.urbin.nbii.gov.

Many of the Hawaiian islands' bird species face serious threats to their existence. Some of the threats to these unique species include introduced diseases such as avian malaria and pox, introduced predators, habitat destruction and a restricted range.

## Geography

### *The National Map*

In FY2003, further progress was made in developing *The National Map* system of distributed databases of geographic information, which provides publicly available, seamless data online that are continuously maintained and nationally consistent. Regional USGS mapping liaisons across the country developed new agreements with Federal, State, and local agencies to populate *The National Map* with their geospatial data holdings and explore

new ways to store, archive, and maintain the information. The eight FY2003 pilot projects were Delaware; Denver; Lake Tahoe; Mecklenburg, North Carolina; Texas; Utah; Washington-Idaho; and U.S. Landsat. Each is aimed at testing different approaches for developing *The National Map*. The Mecklenburg project is described below.

***The Mecklenburg Project***

The Mecklenburg Partnership project is a collaborative effort that involves Mecklenburg County, the State of North Carolina, and the North Carolina Center for Geographic Information and Analysis (NC CGIA). The USGS formed an innovative partnership with Mecklenburg County for the production of orthorectified imagery and LIDAR-derived elevation products over the Mecklenburg County area. This partnership has evolved into creating a project for implementing *The National Map* for Mecklenburg County and some data layers of *The National Map* for the State of North Carolina. Data contributed from Mecklenburg included fire zones and major water lines. Statewide data from NC CGIA included schools, hospitals, surface water intakes, and water supply watersheds. See http://nationalmap.usgs.gov/nmpartnerships_mecklenburg.html

***AmericaView***

AmericaView is a nationwide USGS project that focuses on satellite remote sensing data acquisition and delivery technologies in support of applied research, education, and technology transfer. Originally designed as a pilot project in the State of Ohio, AmericaView's focus is to overcome some of the major cost and data-access problems that the Federal government and research community historically have faced in using satellite remote sensing technology. As a result of the success recognized in the Ohio pilot, the project goals have been expanded to encompass the entire country. One primary objective of the project is to extend the understanding and use of remote sensing science through all levels of the educational system, beginning with kindergarten. With the assistance of USGS, in FY2003 the AmericaView consortium was chartered to formally coalesce many university and State-based partners to build a nationwide network of State and local users of satellite imagery. The consortium is actively working with USGS and universities across the country to expand partnerships in the AmericaView project to all 50 States.

Students in a remote sensing class at West Virginia University, an AmericaView member institution, field check aerial and satellite image interpretations at Coopers Rock State Forest, West Virginia.

# Water

### *Streamflow Gaging*

A new USGS streamflow gaging and sediment station is now up and running on the Little Conestoga Creek near Millersville, Pennsylvania. It is the only daily load sediment station currently operating in the Chesapeake Bay watershed. The USGS and the Franklin and Marshall College are working on sediment studies in the watershed, funded by the Environmental Protection Agency (EPA) and the USGS Chesapeake Bay programs.

### *EPA Award*

In recognition of outstanding contributions to public health and environmental protection and advancing EPA's water protection mission, on June 23, 2003, the Water Resources programs of the USGS were honored with the EPA Assistant Administrator for Water's Partners Award. The award commends the "deliberate commitment of USGS to become the principal source of high-quality, accessible, and useful data on the nature, location, and characteristics of our Nation's water." USGS efforts to communicate water information were also commended. The collaboration between USGS and EPA has "helped to shape and make more defensible many controversial and high-visibility risk management decisions." The products of this partnership include "better, faster, and more economical methods and development of a consensus set of water quality data elements for improving consistency and exchange of water quality data among local, State and Federal agencies, and the private sector."

### *USGS Report on Pharmaceuticals in Water*

*Discover Magazine*, in its January 2003 issue, named the USGS' "National Reconnaissance of Pharmaceuticals, Hormones, and Other Organic Wastewater Contaminants in Streams" as one of the 100 top science stories of 2002. The study, by the USGS Toxic Substances Hydrology Program, documented the presence of low levels of many organic compounds, including prescription and non-prescription drugs, hormones, and other wastewater compounds, in a network of 139-targeted streams across the United States. The study was cited as the *Discover* magazine's 8th top science story overall and was listed 2nd in the environmental sciences category. The honor was shared with research focusing on anticonvulsants and anticancer drugs in water being conducted by the Johns Hopkins Whiting School of Engineering for the EPA. In a note accompanying the award, the *Discover* magazine editors said, "The goal of both research teams is to provide a baseline of what organic compounds are in the water, in what quantities, and how they are getting there."

### *Stream Temperature Assessment and Monitoring*

Traditional methods for recording stream temperature with a handheld thermometer or in-stream data loggers provide information on water temperature at only a given point. Spatially continuous data on temperature throughout the entire stream are needed to understand the impacts on organisms from human-caused temperature changes. Thermal infrared imagery collected from a low-flying helicopter can be used to map water temperatures over many kilometers of stream in a short period of time. In the *Journal of Range Management*, USGS scientist Christian Torgersen recently reviewed the use of forward-looking infrared imagery for stream temperature assessment noting that "Under most conditions, thermal imagery of the water surface provides an accurate measurement of stream temperature. However, channels, backwaters, floodplain ponds, and shade from riparian vegetation require careful image interpretation."

***Statistical Model for Estimating Stream Temperatures in the Salmon and Clearwater River Basins, Central Idaho***

The USGS released a new report, "A Statistical Model for Estimating Stream Temperatures in the Salmon and Clearwater River Basins, Central Idaho." The primary objective of the study was to provide Idaho resource managers with a reliable method to determine the best summertime temperature standards for Idaho streams to protect coldwater aquatic life as required by the Clean Water Act, while also allowing for other necessary uses of the water. The State of Idaho is hoping to use the results of this study to improve their ability to establish realistic stream temperature standards. The model allows users to insert variables such as stream elevation, drainage area, slope steepness, and air temperature to estimate the daily average stream temperature during the warmest months at sites where temperature data are lacking. An online version of the report is available at http://idaho.usgs.gov/PDF/wri024195/index.html.

***New Mexico Ground Water***

Ground water in the Española basin, New Mexico, is the primary source of water for Santa Fe, Los Alamos, and several Indian Pueblo nations. During a drought period, water management decisions must be based on scientific knowledge of ground-water flow, storage, and contamination. The USGS hosted a workshop in Santa Fe in March 2003, to gather geophysicists, geologists, hydrologists, and water resource managers from various Federal, State and local government agencies and academia. The workshop provided a forum for the scientists to exchange information, develop mutual goals, report progress to technical communities, and establish a working relationship with decision-makers.

***USGS Ground-Water Study in Washington State***

Risk of contamination reaching public water supply wells near the U.S. Navy base at Bangor, Washington, is low, according to a USGS ground-water modeling study. USGS scientist presented information about the final results of the study to a citizen's advisory board meeting on March 17, 2003. The model also showed that for some regional pumping scenarios, seawater intrusion into water wells is possible. Results are available at http://pubs.water.usgs.gov/wri024261/. The Navy is remediating contaminated ground water on the base.

***Environmental Mercury Roundtable***

The 12th Annual USGS/EPA Mercury Roundtable, held in January 2003, focused on the question, "Can environmental mercury exposures result in reproductive and endocrine disruption in humans and fish?" This topic is of interest to those who manage land, fish and wildlife. Participants in this interagency event included Federal agencies, State and local agencies from several States, and Native American Tribes. Presentations on fish health and human health described the current condition of the science. The USGS Contaminant Biology and Toxic Substances Hydrology Programs and the USEPA Office of Research and Development sponsored the Roundtable.

***Lower Colorado River Priorities***

USGS scientists joined scientists and managers from Federal, State, and local agencies on June 17-18, 2003 in Parker, Arizona, to integrate science priorities with the needs of land and water managers along the lower Colorado River. The purpose of the workshop was to foster communication between researchers and policymakers and enable participants to focus on issues of endangered and invasive species, ecosystems,

climate variability, water resources and management, flood and drought hazards, and sediments.

***The Effects of Nutrient Enrichment on Aquatic Ecosystems***

On March 19, 2003 the National Water-Quality Assessment (NAWQA) Program hosted a briefing on the effects of increased nutrients on aquatic plants and animals. The briefing in Washington D.C. was attended by about 40 organizations interested in water resources management and land use impacts. Attending organizations also identified the type of information needs they have for making decisions, which will be considered as further research is done by NAWQA.

## Geology

***Headwaters Province – Earth Science Studies in Support of Public Policy Development***

The USGS provides geoscience data and interpretations required for sound policy and land-stewardship practices to Federal Land Management Agencies. The U.S. Forest Service (USFS) National Forest management plans for the Headwaters Province are in revision, and the USGS is providing geologic maps, topical studies, and geospatial minerals, geochemical, and geophysical databases and assessments to meet the goal of integrating geoscience into decision-making. The USGS is a party in an interagency agreement with the Forest Service to assess the mineral resources of National Forests. As part of this agreement, the USGS provides current, impartial information on the occurrence, quality, quantity, and availability of mineral resources. Discussions between USGS and USFS staff defined the goals, activities, and products for this project. The Forest plan revision process, planning regulations, and timetables were used to design products and sequence work. This project met USFS requests to capture geologic map information in a digital format that could be queried, integrated with other datasets, and used for modeling and analysis in geographic information systems. Digital themes derived from geologic maps will be used by the USFS for planning purposes. This effort supports the Mineral Resources Program's assessment and research goals of providing objective information and analysis related to minerals issues to support those who make decisions regarding national security, land use, resource policy, and environmental or public health and safety and of collecting, compiling, analyzing, and disseminating data and developing and maintaining national and international databases for timely release of information to all users. The USFS will use the data resulting from this study for land-planning purposes.

***USGS Completes Assessment of Oil and Gas Resources***

The USGS completed an assessment of undiscovered, technically recoverable oil and natural gas resources in five geologic basins in the Rocky Mountain region. The assessed basins are: Uinta-Piceance of Colorado and Utah, Southwestern Wyoming (Greater Green River Basin), San Juan Basin of New Mexico and Colorado, Montana Thrust Belt, and the Powder River Basin of Wyoming and Montana. The National Oil and Gas Assessment includes conventional and unconventional (continuous) hydrocarbon resources. The findings indicate that unconventional resources contribute significantly to the total of the estimated U.S. oil and gas - much more so than conventional resources in these five basins. Improved methods of assessing geologic resources have provided the USGS with refined capabilities of understanding the resource potential, particularly unconventional resources. The information will be used by land use and resources planners at the Bureau of Land Management (BLM) and USFS in their land and resource plans and in their scenario

planning. Industry will use this information for large scale geologic planning, to augment their smaller scale, site specific information. The National Petroleum Council will use this information in their study of the U.S. Natural Gas Supply study. Many other individuals and groups will use the maps, data, information, and reports generated for other detailed assessments, local planning uses, and other geologic problems.

***Resources in the Appalachian Basin***

A USGS fact sheet entitled "Assessment of Undiscovered Oil and Gas Resources of the Appalachian Basin Province, 2002" (http://pubs.usgs.gov/fs/fs-009-03/) features the most current and comprehensive energy assessment for the region. The assessment was featured at the National Petroleum Council (NPC) Supply Task Group Workshop on Eastern Interior Basins hosted by the USGS. The NPC was commissioned by the Department of Energy to conduct a study of natural gas resources in the United States focusing on the supply, demand, and delivery through 2025. In addition to the NPC, the information will be used by local and State governments as well as industry in planning near- and long-term resource development.

***USGS Hosts Workshop for National Defense University***

On February 21, 2003, USGS scientists conducted a workshop for the Strategic Materials Industry Study seminar of the National Defense University, Industrial College of the Armed Forces (ICAF). The workshop, which was requested by the ICAF, featured presentations by USGS scientists on the aluminum, cobalt, rare earths, steel, titanium, and tungsten industries. The workshop was highly praised by the ICAF for providing students with a "better understanding of the origins and uses of these strategic materials and the intricacies of the associated worldwide industrial base." This workshop supports the program goal of providing objective minerals information and analysis related to minerals issues to support those who make decisions regarding national security, land use, resource policy, and environmental or public health and safety. The information presented will be used by the National Defense University to understand the origins and uses of strategic materials.

***USGS Provides Training for the Government of Madagascar***

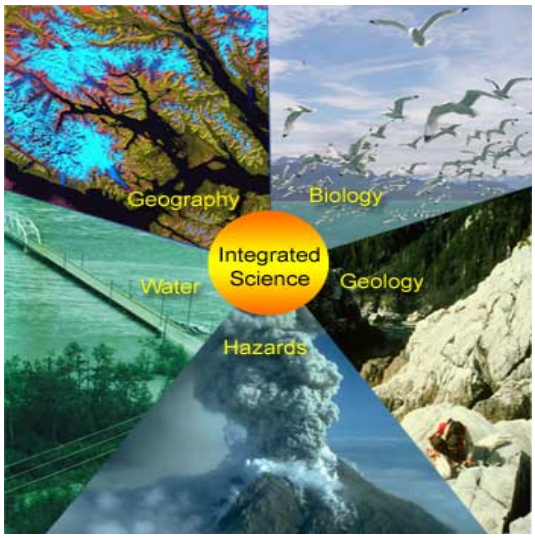
USGS mineral specialists presented a short course on "Three-Part Mineral Resource Assessment" for the Ministry of Energy and Mines, in Antananarivo, Madagascar, April 23-25, 2003. Three-part mineral resource assessments were developed by the USGS to provide estimates of undiscovered minerals to assist in land classification decisions in support of the Mineral Resources program goal of understanding the geologic setting and genesis of the Nation's mineral resources in a global context, in order to ensure a sustainable supply of minerals for the Nation's future. The short course also included discussions on mineral deposit models, how deposit models could be used to direct studies in Madagascar, and how mineral resource assessments could be used in land-use decision-making. The short course was sponsored by the World Bank and the Ministry of Energy and Mines. The information presented during the workshop will be used by the Ministry of Energy and Mines, Madagascar, in land-management decisions. In addition, USGS scientists will use their new understandings of Madagascar, developed during the workshop, in the ongoing global assessment of mineral resource potential.

# Forward Looking Information

## Possible Future Effects of Existing Events and Conditions

Through regionalization the USGS can respond more rapidly to changing societal needs and anticipate new trends in science research and information. With staff co-located in integrated science centers as well as dispersed across the landscape, the USGS is positioned to improve its services by fostering integrated science, enhancing partnerships, and meeting demands for increased science information at the local and regional levels. The combined expertise of co-located staff allows the USGS to provide solutions to complex environmental problems that are multidisciplinary in nature and to increase and diversify partnerships, which are key to USGS success in providing relevant science information on critical land and resource management issues. Following are a few accomplishments that illustrate success in anticipating current and future applications of integrated science and in working collaboratively with customers and partners to solve relevant societal problems.

***Integrated Science Centers***




***Alaska Science Center***

The USGS Alaska Science Center (ASC) was established in FY2002 for the advancement of USGS science in Alaska, the North Pacific, and the circumpolar arctic region. The ASC audience consists of scientific peers, resource and regulatory agency partners and clients, the public and elected representatives. There is one major Center in Anchorage, and two field stations in Fairbanks and Juneau, each housing various science teams linked directly to science issues and programs in Alaska and the Arctic.

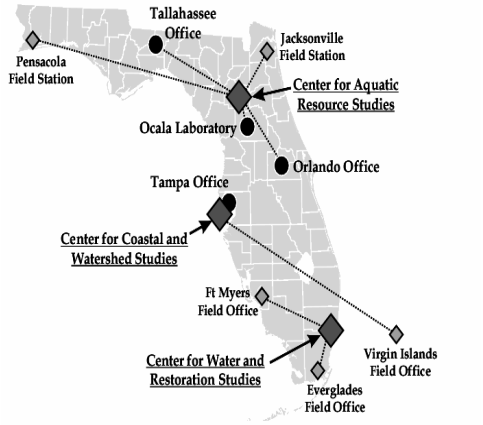
The ASC has fostered improved scientific integration by:

- applying a broad range of scientific expertise to Alaska and DOI Trust Lands and Trust Species priority issues and problems,
- acquiring a fuller understanding of natural systems and their responses to change,
- removing barriers that can limit the ability of scientists with varying expertise to work together on wide ranging issues,
- specializing in complex problems that may cross jurisdictions or other boundaries,
- providing the foundation for long term commitment to issues and tasks, and
- integrating the results of diverse research and scientific studies to provide peer-reviewed science to decision-makers on regulatory and policy issues.

Important resource management areas in which the ASC has and will continue to play an integral role as science provider include multi-disciplinary research on northern marine, freshwater, and terrestrial ecosystems in support of sustainable energy and mineral exploration and development; impacts of global climate change on fragile and complex arctic geologic, hydrologic and biological systems; monitoring, early detection and warning for volcanic events in support of the air safety community; restoration of Gulf of Alaska marine ecosystems from the Exxon Valdez oil spill; and the development of integrated ecosystem scale models which provide decision makers with tools for understanding and predicting the consequences of alternative resource management policy and decision making scenarios.

***Florida Integrated Science Center***

The USGS Florida Integrated Science Center (FISC) is established for the advancement of USGS science in Florida, the Southeastern States, the U.S. Caribbean, and the Nation. There are three Centers, four offices and five field stations within Florida and the U.S. Virgin Islands, housing various science




teams linked directly to science issues and programs. The FISC is a field-based organization initiative to promote and enhance integrated science through scientists at the staff-level. It brings together Florida-based scientists and support staff under centralized leadership to join in working on priority issues while streamlining decision making and promoting operational efficiencies. The FISC audience consists of scientific peers, agency partners and clients, the public, and elected representatives. Organizations partnering with the USGS through the FISC include the Fish and Wildlife Service, the National Park Service, the National Oceanic and Atmospheric Administration, the Environmental Protection Agency, State and local governments, Indian Tribes, and academia.

The FISC allows for:

- applying a greater range of expertise to priority issues and problems,
- acquiring a fuller understanding of natural systems and their responses,
- removing barriers that can limit the ability of scientists with varying expertise to work together on wide ranging issues,
- specializing in complex problems that may cross jurisdictions or other boundaries,
- providing the foundation for long-term commitment to issues and tasks, and
- integrating the results of diverse studies to inform decision-making on resource management, and regulatory and policy issues.

Some examples of areas in which the FISC has and will continue to play an integral role are: science for south Florida restoration which provided early indications of the power of multidisciplinary science, Tampa Bay Estuary Studies which demonstrated approaches in integrating science around a single system, and diverse studies in the Suwannee River Basin and coral reefs and development of these studies into fully integrated initiatives.

**Integrated Science Projects**

***Puget Sound Integrated Science and Ecological and Hazards Research***

Puget Sound is the second largest estuary in the United States. This natural and economic jewel of the Pacific Northwest supports hundreds of species of fish, including several native salmon species, and several species of marine mammals, including Orca whales. Puget Sound has a vibrant economy supported by a deep water port and major airport facilities that bring in billions of dollars of world trade, nationally important military installations, and significant economic sectors in forestry, fisheries and tourism. However, development has over-stressed both the resources and the environment throughout the Basin. Major issues impacting Puget Sound include degraded coastal habitat, water quality, and urban sprawl. Additionally, several marine species routinely being introduced into Puget Sound through ballast water discharges in coastal waters and ports have contributed to the decline of fisheries and threatened aquatic populations that have been tied to the loss of critical ecosystem functions.

USGS is engaged in an active and broad-based partnership with State, Federal and local resource agencies, tribes, commercial sector, and non-governmental organizations, to form the Puget Sound Nearshore Ecosystem Restoration (PSNER) partnership. PSNER is committed to economically sustainable protection and restoration of coastal and nearshore ecosystems in Puget Sound. Key areas of ongoing USGS research this year where progress has been made include aquatic invasive species, estuarine life history of Pacific salmon, disease effects on forage fish populations, water quality, landscape processes, earthquake and landslide hazards, and geographic and geospatial information delivery. Recognition of the complex interaction among the biological, physical and human-influenced processes dictates the need for an integrated science approach to addressing future ecosystem restoration projects in the Sound.

***Federal, State, and Community Leaders Collaborate in Addressing Mancos Shale Land Use and Water-Quality Issues***

Responsible stewardship of western lands is a primary goal of many Federal and State

agencies as well as non-government organizations and citizen groups. In parts of the West, much of that land is underlain by marine black shale, such as the Cretaceous age Mancos Shale of western Colorado, northern New Mexico, and eastern Utah. During the last few decades, land use and water-quality issues related to Mancos landscapes have risen in prominence in the western slope area of Colorado and parts of eastern Utah. Many immediate issues are related to specific, naturally occurring toxins such as selenium and salinity. As a result of the 2002 workshop co-sponsored by Bureau of Land Management, Bureau of Reclamation, and the USGS, a multi-disciplinary project was started in fiscal year 2003. The broad objectives of this project are to use science to help define issues of the black shale terrains, provide scientifically valid information for use in developing resource and land-use management policies, and assure the information provided is transportable and applicable to resource managers in other black-shale landscapes. One immediate outcome is improved lines of communication among the Federal, State,

local, and industry managers. Long-term, the project will contribute to the development of predictive models that can be used to evaluate black shale landscapes in terms of their economic resources and their environmental sensitivity. More information can be found on the Web at *http://minerals.cr.usgs.gov/projects/mancos_shale.*

***USGS and the Greater Everglades***

The Greater Everglades ecosystem is a unique subtropical network of diverse habitats that encompasses a large part of the southern Florida peninsula. Part of the area—mostly publicly controlled parks, preserves, sanctuaries, and refuges managed as DOI trust resources—remains in nearly undeveloped condition, while much of the area has been dramatically changed due to increases in urbanization and agriculture. Major changes to the natural hydrology of the system, which supports diverse ecosystems, have had profound effects on the natural habitat.

Recognition that the natural ecosystem of South Florida has been seriously altered and that continued impacts will further degrade this ecosystem has led a coalition of partners to identify and implement studies to address key restoration needs outlined in the Comprehensive Everglades Restoration Plan (CERP) related to water quantity, quality, and timing of delivery of water to the Greater Everglades ecosystem. Restoration partners include the USGS, Fish and Wildlife Service, the National Park Service, the National Oceanic and Atmospheric Administration, the Environmental Protection Agency, State and local governments, Indian Tribes and academia.

The foundation of USGS ecosystem science is integrated and multidisciplinary studies are combined with discipline-based, fundamental process research. In the Everglades, the USGS focuses its expertise to address complex biological, chemical, geologic, hydrologic, and geographic components of an ecosystem – in this case the Greater Everglades ecosystem. Ongoing and future Greater Everglades research and studies include:

- Understanding the complex interactions between contaminants, nutrients, hydrology, and other related processes within the present-day and the past unaltered Greater Everglades ecosystem.

- Developing a program of hydrologic research, monitoring, and modeling to assist decision makers to get the water quantity, distribution and timing right as required by CERP.

- Providing innovative mapping techniques via USGS landscape and topographic mapping research about the land surface beyond that being generated by State and local government mapping efforts that enables partners to better understand the Greater Everglades in a more comprehensive and cost-effective manner.

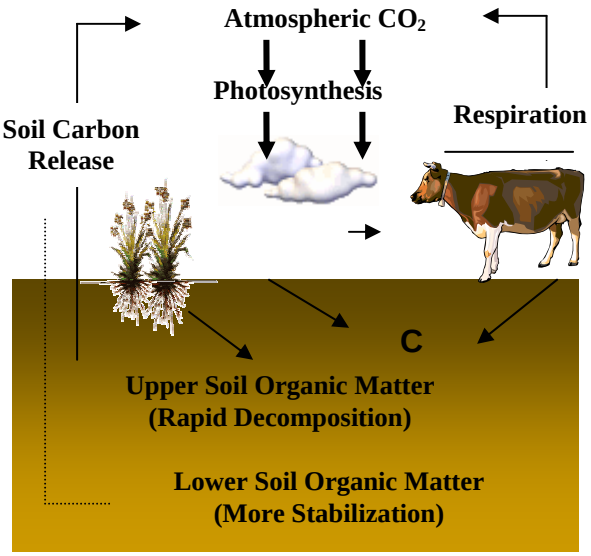
- Providing research and information on the historic and current natural

system to allow restoration planners to establish realistic baseline conditions, restoration goals, and performance measures; create predictive models; and monitor success of restoration efforts.

- Understanding past conditions and cycles of change also allows for better-informed planning, project implementation, and land management decisions.

### *USGS Research Aids in Restoring Wetlands for Carbon Storage*

Both the DOI and USDA have expressed the need to understand the carbon cycle and in particular carbon storage to reduce the impact of greenhouse gases, such as carbon dioxide, methane, and nitrous oxide, on global warming. Other concerned parties include Congressional representatives, State agricultural officials, conservation groups, private industry, and farm groups. USGS studies indicate that greater amounts of atmospheric carbon can be stored in restored wetlands and bottomland hardwoods than in agricultural lands managed to increase storage, even though the restored area is much smaller. Wetlands in the prairie pothole region of Iowa, Minnesota, South Dakota, North Dakota, and Montana traditionally functioned as sinks for atmospheric carbon, but row crop agriculture (the current principal land use) releases carbon to the atmosphere instead of storing it. Based on USGS research, USDA added restored prairie wetlands to the National Carbon Sinks Table. To aid managers, a USGS project was started in FY2003 to (1) develop a State-by-State inventory of existing and potential wetland carbon stocks in the prairie pothole region of the United States, (2) evaluate differences in carbon storage among various wetland types, and (3) examine the interrelationship of carbon production and climate change. Similar research is underway in the Lower Mississippi Valley (LMV) and other locations to quantify potential carbon storage in soil and trees through reforestation of LMV croplands. More information can be found on the Web at http://www.npwrc.usgs.gov/resource/othrdata/amnorpln/conclu.htm.




Carbon enters the soil through roots, litter, and manure. Some land-use activities can increase the carbon released to the atmosphere. Other land uses, such as wetlands, can absorb carbon and reduce the amount of atmospheric CO2. For more information on carbon sequestration in soils: http://edcintl.cr.usgs.gov/carbonoverview.html

Disease ecology in North American waterfowl is a major area of the National Wildlife Health Center (Eastern Region) investigations

Center scientists are leading investigations into causes of amphibian declines and deformities

"Capturing" a manatee with photography at the Florida Caribbean Science Center

# *Compliance with Legal and Regulatory Requirements*

## FY2003 Management Control Assessments

The associate directors of Biology, Geology, Geography and Water; the regional directors of Eastern, Central, and Western Region; the chief of Administrative Policy and Services; and the Geographic Information Officer provided signed assurance statements that their areas of responsibility had assessed the systems of management, administration, and financial controls in accordance with standards, objectives, and guidelines prescribed by the Federal Managers' Financial Integrity Act (FMFIA) and the Office of Management and Budget (OMB) Circular A-123.

The objectives of the assessments ensured that:

- programs achieved their intended results;
- resources were used consistent with the Bureau's mission;
- resources were protected from fraud, waste and mismanagement;
- laws and regulations were followed; and
- reliable and timely information was maintained, reported, and used for decision making.

In performing this assessment, the associate directors of Biology, Geology, Geography and Water; the regional directors of Eastern, Central, and Western Region; the chief of Administrative Policy and Services; and the Geographic Information Officer relied on the knowledge and experience gained from the daily operations of their programs and systems of accounting and administrative controls, and information obtained from sources such as management control assessments, Office of the Inspector General and General Accounting Office audits; program evaluations and studies; independent audits of financial statements; performance plans and reports; and other information. Each assurance statement provided documentation on specific management control assessments conducted and audits and or reviews conducted by the OIG and/or GAO. The USGS Director relied on this extensive documentation to support the Bureau assurance statement provided to the Department on September 15, 2003. (see Appendix B for additional information on the program evaluation.)

*In October 2002, USGS established an ongoing Bureau wide network security project to address security deficiencies. This network security project includes a broad range of tasks from centralizing the management of the USGS wide-area network to reviewing and securing all USGS desktop computers. The USGS is also implementing a security policy monitoring software tool that will routinely assess all USGS mission critical systems to ensure the confidentiality, integrity, and availability of these assets. The tool will help ensure compliance with Department of the Interior, National Information Standards Technology, and industry best practices and will also be installed over time on all mission essential systems.*

*Based on the preliminary results of the USGS independent financial statement audit for FY 2003, the USGS can conclude that it is in substantial compliance with the U.S. Government Standard General Ledger at the transaction level as required by the Federal Financial Management Improvement Act (FFMIA). However, due to reportable conditions identified in security and applications controls in financial management systems and a material weakness related to USGS' policies, procedures, and internal controls over its accounting for reimbursable agreements, the USGS cannot provide reasonable assurance that it is in substantial compliance with OMB Circular A-130, Management of Federal Information Resources, and OMB Circular A-127, Financial Systems and Federal Accounting Standards. The USGS has developed and will implement a remediation plan to resolve the reportable conditions relating to information system security controls and applications, and accounting and reporting standards during the next fiscal year.*

*Chip Groat*
*Director*

**Resolution of Internal Control Material Weaknesses and Non-compliance with laws and regulations**

The following table summarizes actions taken to resolve material weaknesses, reportable conditions, and instances of noncompliance with laws and regulations reported in the Independent Auditors' Report on the USGS Financial Statements for Fiscal Years 2001 and 2000 and in the Independent Auditors' Report Regarding "Observations on U.S. Geological Survey's Internal Control and Compliance with Laws and Regulations for Fiscal Year 2002".

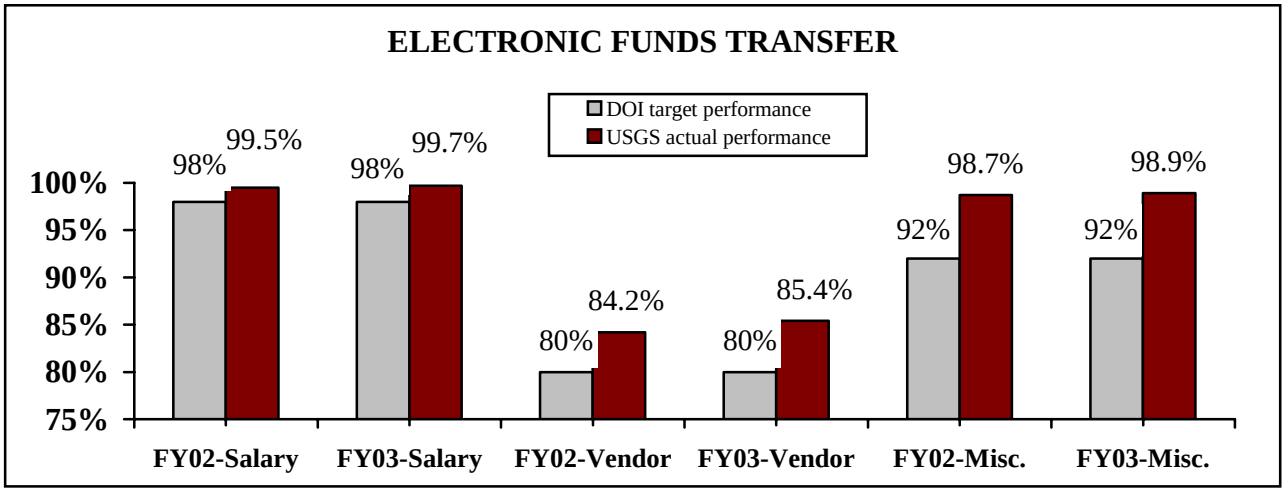
| Material Weakness Description | Corrective Action | Target Date | Implemented (Yes/No) |
|---|---|---|---|
| Inadequate Security and Controls Over Information Technology Systems | Develop and implement an entity-wide risk assessment program to fully comply with OMB Circular A-130. Ensure proper segregation of duties and identify and if necessary adopt mitigating controls where segregation of duties cannot be achieved. Improve security management structure by taking immediate steps to correct the network vulnerabilities and access control deficiencies. Document and implement application software development and change controls to prevent unauthorized or untested program modifications. Periodically test continuity of operations plan.<br><br>**Status as of 9/30/03:** USGS has a reportable condition related to IT security to address during Fiscal Year 2004. | 9/30/03<br><br>6/30/04 | Partially |
| Organizational Structure and Leadership of Financial Management | Ensure that all personnel, including scientists, who perform accounting functions fully comply with OMB Circular No. A-123, *Management Accountability and Control*. Align all accounting functions and responsibilities under a CFO who can focus directly on the improvement of financial management operations; investigate the critical process weaknesses and perform a reassessment of needs that addresses personnel resources, management responsibilities, process flow, policies and procedures and internal controls; improve and enforce controls to ensure that accounting information processed by regional and district/field offices are complete, accurate, timely and in accordance with policy; clarify APS' authority to administer, manage, and enforce compliance with accounting policies and procedures; develop and provide training programs for all accounting and administrative personnel; assess the structure of the central accounting and finance operations to ensure that all accounting positions and responsibilities are appropriately defined. | 09/30/03 | Yes |

| Material Weakness Description | Corrective Action | Target Date | Implemented (Yes/No) |
|---|---|---|---|
| Final Reporting Controls | Perform appropriate reviews of the financial statements; establish and implement effective year-end closing procedures to facilitate timely preparation of financial information; implement quarterly or semi-monthly closing procedures; implement procedures to ensure that individual financial statement line items are reconciled on a regular basis; establish and implement procedures to ensure that all required financial statement notes are properly prepared and reported. | 09/30/03 | Yes |
| Account Analysis and Adjustments | Develop and implement procedures to ensure that all accounting adjustments are adequately supported; perform timely analysis after month-end of suspense account and related accounts such as accrued liabilities, advances from others and prepayments; implement regular analysis of proprietary and budgetary accounts and determine the causes of any unreconciled differences; establish and implement procedures to address timely reconciliation of intra-Departmental transactions.<br><br>**Status as of 9/30/03:** USGS has a reportable condition to address in FY2004 to improve elimination of intra-departmental transactions | 09/30/03 | Partially |
| Revenue Cycle Controls | Upgrade systems to reduce the extent of manual intervention and improve automatic systems interfaces; reduce the complexity of accounting for individual agreements; establish policies and procedures for retaining support for expenses related to internal transactions; establish procedures to ensure timely review of PCAS information; and establish procedures to ensure compliance with applicable accounting standards for long-term contracts.<br><br>**Status as of 9/30/03**. USGS continues to have a material weakness in accounts receivable and revenue controls. | 09/30/03 | No |
| Property, Plant, and Equipment | Implement policies and procedures to ensure that proper accounting and control of all property, plant and equipment.<br><br>**Status as of 9/30/03.** USGS has a reportable condition to address during FY 2004. | 09/30/03 | Partially |
| Inventory Controls | Establish policies and procedures to ensure compliance with SFFAS No. 3. | 09/30/03 | Yes |
| Working Capital Fund Accounting | Develop and implement a posting model that will properly record investment complements of the working capital fund. | 09/30/03 | Yes |

| Non-compliance with laws and regulations Description | Corrective Action | Target Date | Implemented (Yes/No) |
|---|---|---|---|
| FFMIA areas:<br>• Financial Management Systems<br>• Federal Accounting Standards<br>• Standard General Ledger (SGL) | Complete corrective actions described for the Inadequate Security and Controls over Information Technology Systems material weakness; complete corrective actions described for all other material weaknesses described in the previous pages; and complete a review of DORRAN and IBIS systems for compliance with the SGL requirements.<br><br>**Status as of 9/30/03:** USGS did not substantially comply with the Federal *Financial Management Systems* and *Federal Accounting Standards* requirements. However, USGS is in substantial compliance with the U.S. SGL requirements. | 9/30/03<br><br>6/30/04 | Partially |

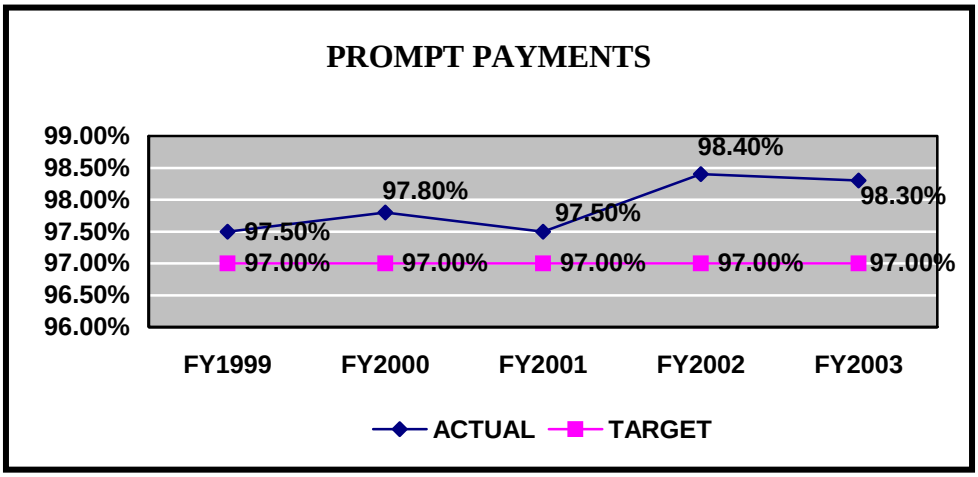
### *The Debt Collection Improvement Act of 1996-Electronic funds transfer compliance*

During FY2003, we continued our efforts to maximize the use of payment mechanisms compliant with Electronic Funds Transfer (EFT) as required by the Debt Collection Improvement Act of 1996. DOI's overall EFT performance targets for FY 2003 by payment categories were: salary 98%, vendor 80% and miscellaneous 92%. USGS exceeded DOI's goal in every category, and made progress with a .2% increase in the EFT percentage for salary and miscellaneous payments and a 1.2% increase for vendor payments.



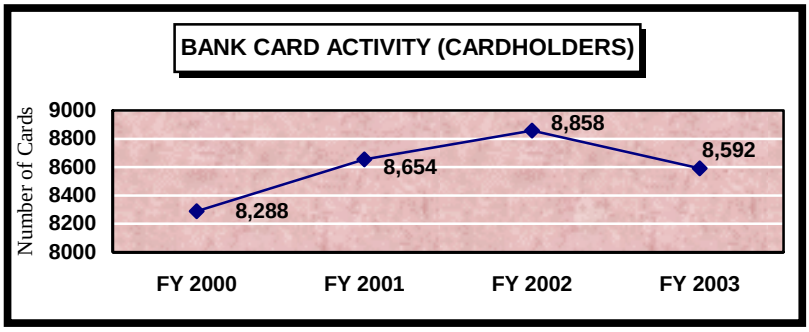
### *Prompt Payment Act compliance*

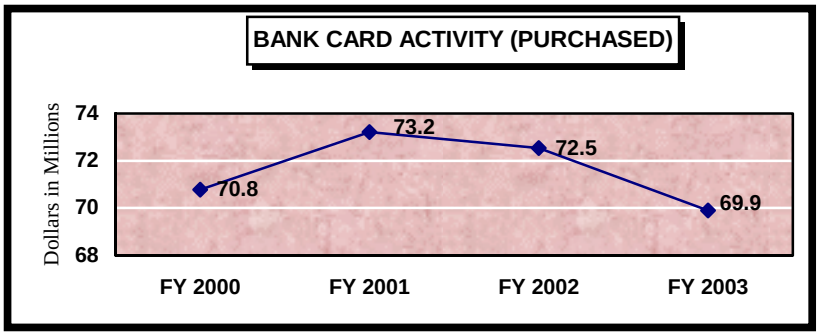
Over 98% of USGS' invoices were paid on time in FY2003 and FY2002. In addition, the late payment interest penalties decreased from $75,005 in FY2002 to $21,308 in FY2003. Our performance remains above DOI's goal of 97 %. We will continue to monitor our payment performance to ensure our timely vendor payment percentage stays on target.




### *Bankcards*

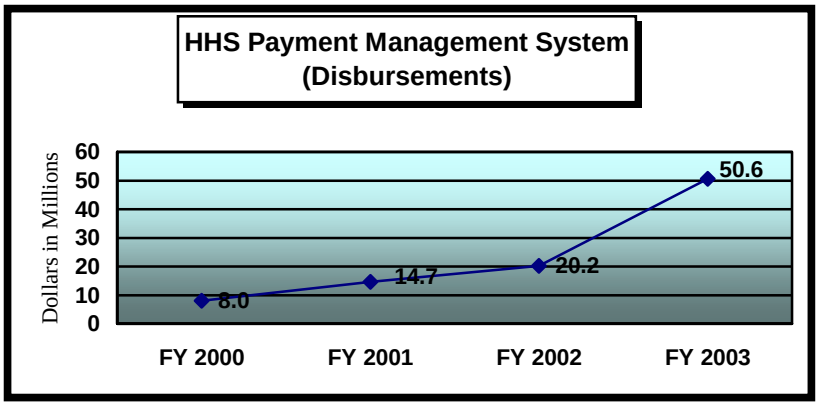
USGS is dedicated to the use of bankcards as a means of streamlining procurements. The use of bankcards continues to grow as more cards are issued and the bankcard becomes the preferred method of procurement for small purchases. Usage of the card has grown from 8,288 cardholders in FY2000 to 8,592 in FY2003. The value of purchases made using the bankcards has remained relatively constant over the past 4 years. USGS has paid considerable attention to the internal controls surrounding these purchases to ensure that all such purchases are legal and proper.



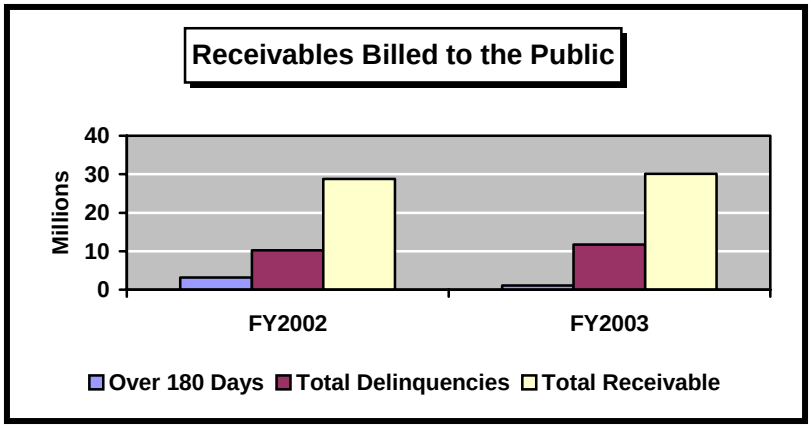
### *HHS payment management system*

USGS uses the Health and Human Services' payment management system to make disbursements for grants and cooperative agreements with States, municipalities and universities. In FY2003, USGS issued payments in excess of $50.6 million dollars through the HHS system, which is an increase of $30.4 million from FY2002. The increase is due to the USGS requirement that all new awards issued after October 1, 2001 are to be set up and paid through the Payment Management System.




### *Debt Management and Receivables due from the Public*

USGS' billed accounts receivable from the public increased from $28.7 million in FY2002 to $30 million in FY2003. The delinquent balance for FY2002 increased from $10.2 million to $11.7 million for FY2003, though the ratio of delinquencies to the billed accounts receivable balance decreased. Delinquent amounts over 1 year past due decreased from $2.8 million in FY2002 to $.3 million, or 88%, at the end of FY2003. Since the implementation of the Debt Collection Improvement Act (DCIA), the USGS'outstanding delinquencies have declined. The DCIA requires that delinquencies older than 180 days be referred to the Department of the Treasury's Financial Management Service, which was established as the Federal government's debt collection center. The USGS reports the status of receivables on quarterly Treasury Report on Receivables (TROR) reports. As of September 30, 2003, USGS reported on the TROR that $1.3 million in delinquencies had been referred to FMS for cross servicing.



# *Analysis of Financial Statements*

## ANALYSIS OF FINANCIAL STATEMENTS

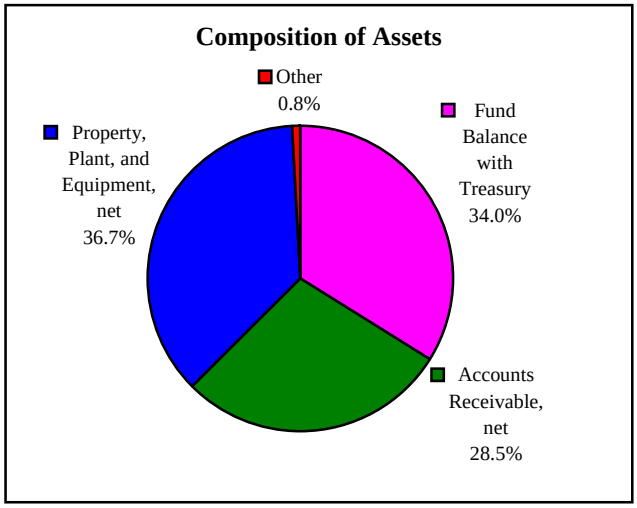
The USGS consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States of America as set forth by Federal entities, guidance issued by the Office of Management and Budget (OMB) and the DOI. The DOI Office of the Inspector General (OIG) is responsible for auditing the consolidated financial statements of USGS and has contracted these services to KPMG LLP. The audit of the FY2003 consolidated financial statements is limited in scope to the Balance Sheet as of September 30, 2003. This financial overview of the FY2003 consolidated financial statements contains highlights of significant balances contained in the accompanying consolidated financial statements.

## COMPOSITION OF ASSETS

The Fund Balance with Treasury of $205,258 represents 34% of total assets at September 30, 2003. The Fund Balance is primarily composed of appropriated funds available to make authorized expenditures. The USGS working capital fund comprises 41%, or $84 million, of the Fund Balance with Treasury.

The General Property, Plant and Equipment (PP&E), net of accumulated depreciation, amounted to $222,126 at September 30, 2003. This amount includes a satellite reported on the balance sheet at a net book value of $75,664, as well as land, buildings and improvements, furniture and equipment and software purchased for internal use totaling $146,462. The satellite transferred to the Bureau by NASA in FY2002 represents 44 percent of the value of the Bureaus total equipment. During FY2003, the satellite experienced technical problems and is currently operating in a diminished capacity. As a result, the satellite's value was reduced by $81,100 and an impairment loss was recognized in the Statement of Net Cost for the same amount.

The total accounts receivable of $172,521 is almost equally divided between other Federal agencies and the public. The majority of the accounts receivable is established to cover the direct and indirect costs for reimbursable services performed in support of surveys, investigations and scientific research. The majority of the receivable balance is unbilled. 92% of the $81,089 receivables from Federal agencies are unbilled. 71% of the $91,432 receivables from the public are unbilled. The large unbilled balance is due to the manner that agreements are written for survey and research type work. The revenue for an agreement is recognized as work is completed, but the receipt of payment is often not due until completion of a survey, or research report, is completed.




## COMPOSITION OF LIABILITIES

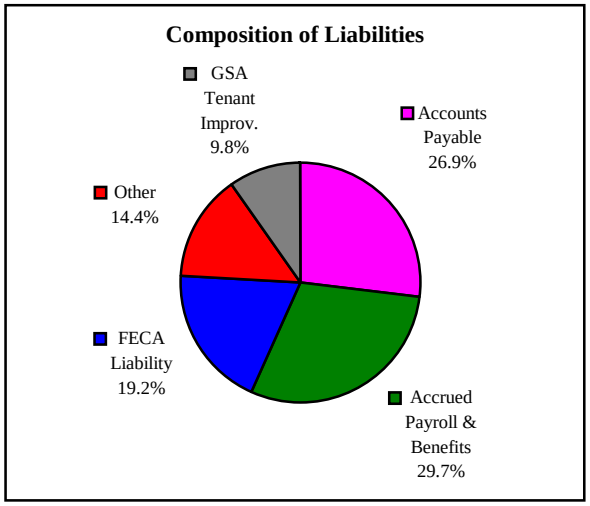
The USGS is a scientific service organization, where the majority of its liabilities are for accrued payroll and benefits. The accrued payroll and benefits and annual leave amount of $78,732 represents 30% of USGS' total liabilities of $265,188. The accounts payable of $71,363 consists of $8,940 accounts payable with other Federal agencies and $62,423 accounts payable with the public.

Deferred revenue and credits of $15,751 consists primarily of amounts advanced to the Bureau to cover reimbursable services to be provided at a future date. The deferred revenue with federal agencies of $35,914 in FY2002 has been reduced to $2,835 in FY2003. This is a direct result of the implementation of common business rules for intra-governmental

*(in thousands)*

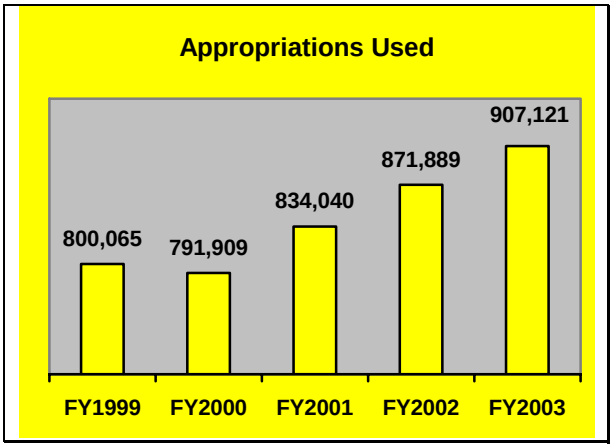
transactions that ended the practice of taking advance payments for service orders with other federal agencies.

Unfunded liabilities with a balance of $169,668 make up 64% of the total outstanding liabilities. The majority of this balance consists of $105,135 of unfunded annual leave and the Federal Employees Compensation Act liability. The other unfunded liabilities include the GSA Tenant Improvement liability of $26,051; contingent liabilities of $15,679 and environmental clean up liabilities of $5,466. The balance of the environmental clean up costs reported in FY2002 included both environmental clean up and continent liabilities for equipment removal. During FY2003, the environmental costs were adjusted to reflect only those sites identified with hazardous waste. The remaining sites where only clean up of equipment remains to be completed were reclassified as contingent liabilities.




## *Financing Sources*

The majority of the USGS financing sources consist of net appropriations of $919,273; consisting of $925,287 from the surveys, investigations, and research appropriations, less rescissions of $6,014. Additionally, the Bureau is reporting imputed financing from costs absorbed by others of $56,237. The ending FY2003 financing sources were $251,182, or 21%, less than the $1,215,891 September 31, 2002 ending balance. The 2002 financing sources include a one time transfers in of $257,684 for a satellite donated from NASA. The FY2003 appropriations used totaled $907,121. Appropriations used have generally increased over the last five years. The amount of appropriations used represents financing sources USGS has available through Congressional appropriations. Appropriations are recognized as an accrual based financing source when the related expenses are incurred or assets are acquired.




## *Budgetary Resources*

The USGS received approximately 61%, or $919,973, of its total budgetary resources of $1,498,220 through net appropriations. Other major sources of budgetary resources include unobligated balances carried over from FY2002 and spending authority from offsetting collections, totaling $127,337 and $445,551, respectively. Of the total budgetary resources $1,342,739 were obligated as of September 30, 2003.

The majority of the budgetary resources were used during the current year to support surveys, investigations and scientific research. The FY2003 appropriations received includes; $64,434 in funds available only for cooperation with states and municipalities for water resource investigations; $15,398 to remain available until expended for conducting inquires into the economic conditions affecting mining and materials processing industries; $7,948 to remain available for satellite operations until expended; $24,463 for operation and maintenance of facilities and deferred maintenance and shall be available until September 30, 2004; $169,815 for biological

*(in thousands)*

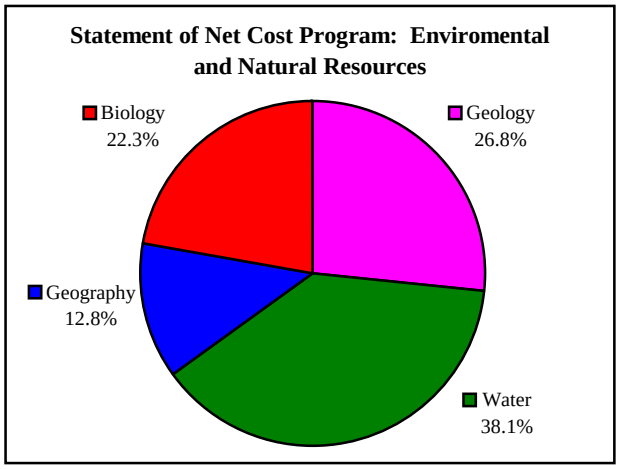
research activity and the operation of Cooperative Research Units until September 30, 2004.

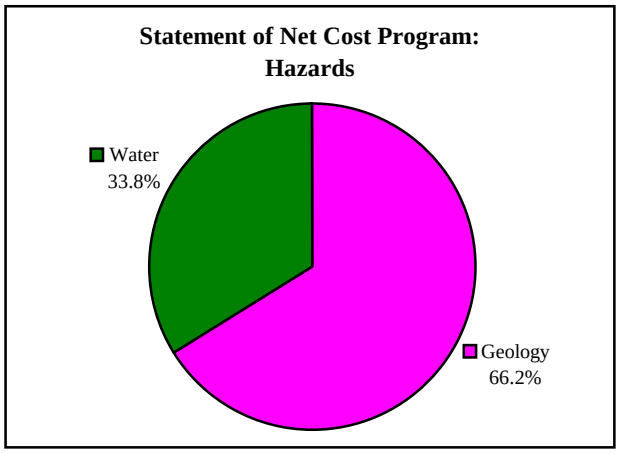
The offsetting collections from the Bureau's reimbursable program include the following: reimbursements from non-Federal sources are from States, Tribes, and municipalities for cooperative efforts and proceeds from sale to the public of copies of photographs and records; proceeds from sale of personal property; reimbursements for permits and licenses of the Federal Energy Regulatory Commission, and reimbursements from foreign countries and international organizations for technical assistance. Reimbursements from other federal agencies are for mission related work performed at the request of the financing agency.

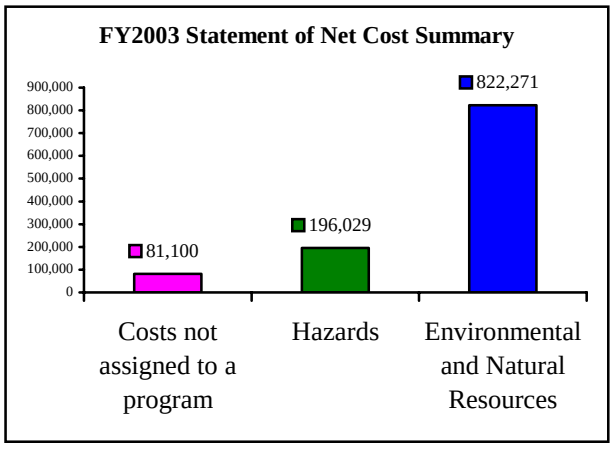
The USGS also maintains a working capital fund that makes up 8% or $117,086 of the total budgetary resources. The fund established in November 5, 1990, is primarily used to invest funds from appropriations and reimbursable agreements without fiscal year limitation to purchase materials, supplies and equipment for long-term capital investments. The WCF also provides fee for service operations primarily for the Water Quality Lab and the Hydraulic Instrumentation Facility. The WCF allows the USGS to provide more efficient financial management of its telecommunications investments; acquisition, replacement, and enhancement of scientific equipment; facilities and laboratory operations, modernization and equipment replacement; drilling and training services; and publications.

## COMPOSITION OF NET COSTS

In FY2003, net cost of operations totaled approximately $1,099. In terms of net cost of operations supporting its two strategic goals, USGS spent 75% of the total to achieve its strategic goal of ensuring the continued availability of long-term environmental and natural resource information and systematic analysis and investigations; and 18% to ensure the continued transfer of hazards-related data, risk assessments, and disaster scenarios needed by our customers before, during, and after natural disasters. Costs not assigned to a program accounted for 7% of total net cost. The USGS organizational support of its strategic goals is provided by four discipline areas; Water, Geology, Mapping and Biology. The charts below will show net costs for each discipline by strategic goal.



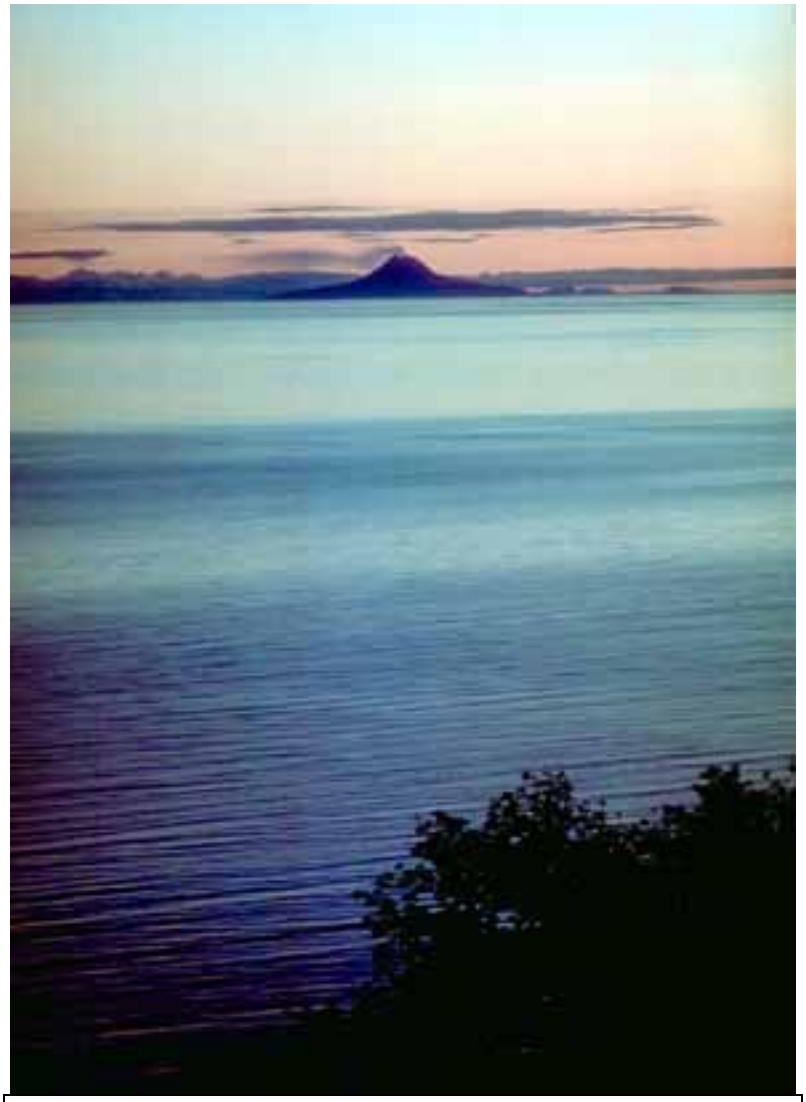




*(in thousands)*

## LIMITATIONS TO THE FINANCIAL STATEMENTS

The consolidated financial statements have been presented to report the financial position and results of operations of the United States Geological Survey (USGS), consistent with the requirements of the Chief Financial Officers' Act of 1990. While the statements have been prepared from the books and records of USGS in accordance with generally accepted accounting principles for Federal entities and the formats prescribed by the Office of Management and Budget, the statements are in addition to the financial reports used to monitor and control budgetary resources which are prepared from the same books and records. The financial statements should be read with the realization that they are for a component of the United States government, a sovereign entity. Liabilities not covered by budgetary resources cannot be liquidated without the enactment of an appropriation, and the payment of all liabilities, other than for contracts, can be abrogated by the sovereign entity.



Augustine Volcano

Chesapeake Bay

# Financial Statements

The Department of Interior
United States Geological Survey
Consolidated Balance Sheets
As of September 30, 2003 and 2002
*(In Thousands)*

| | 2003 | (Unaudited) 2002 |
|---|---|---|
| **Assets (Note 3)** | | |
| Intragovernmental: | | |
| Fund balance with Treasury (Note 2) | $ 205,258 | $ 252,041 |
| Accounts and interest receivable, net (Note 4) | 81,089 | 79,456 |
| Advances and prepayments | 2,654 | 4,345 |
| Total intragovernmental | 289,001 | 335,842 |
| Accounts and interest receivable, net (Note 4) | 91,432 | 85,224 |
| Cash | 2 | 2 |
| Inventory, net (Note 6) | 2,395 | 8,342 |
| Property, plant, and equipment, net (Notes 7 and 8) | 222,126 | 344,633 |
| Advances and prepayments | 79 | 2,529 |
| Other Assets | - | 2,153 |
| **Total assets** | $ 605,035 | $ 778,725 |
| **Liabilities (Note 9)** | | |
| Intragovernmental: | | |
| Accounts payable | $ 8,940 | $ 7,481 |
| Accrued payroll and benefits | 7,367 | 9,110 |
| FECA workers compensation liability (Note 10) | 7,929 | 7,572 |
| Deferred revenue (Note 5) | 2,835 | 35,914 |
| Deferred credits (Note 5) | 7,262 | - |
| GSA tenant improvement liability (Note 11) | 26,051 | - |
| Other liabilities (Note 3) | 220 | - |
| Total intragovernmental | 60,604 | 60,077 |
| Accounts payable | 62,423 | 91,619 |
| Accrued payroll and benefits | 16,975 | 35,710 |
| Annual leave liability | 54,390 | 55,700 |
| Deferred revenue (Note 5) | 1,141 | 4,962 |
| Deferred credits (Note 5) | 4,513 | 118 |
| Environmental cleanup liabilities (Note 12) | 5,466 | 5,186 |
| Contingent liabilities (Note 12) | 15,679 | 11,458 |
| FECA actuarial liability (Note 10) | 42,816 | 39,484 |
| Other liabilities | 1,181 | (127) |
| **Total liabilities** | 265,188 | 304,187 |
| Commitments and contingencies (Notes 11 and 12) | | |
| **Net position (Note 17)** | | |
| Unexpended appropriations | 187,441 | 248,481 |
| Cumulative results of operations | 152,406 | 226,057 |
| **Total net position** | 339,847 | 474,538 |
| **Total liabilities and net position** | $ 605,035 | $ 778,725 |

*The accompanying notes are an integral part of these statements*

The Department of Interior
United States Geological Survey
Consolidated Statements of Net Cost
For the Years Ended September 30, 2003 and 2002
*(in thousands)*

| (Note 14) | (Unaudited) 2003 | (Unaudited) 2002 |
|---|---|---|
| **Environmental and Natural Resources** | | |
| Intragovernmental Gross Cost | $ 197,831 | $ 184,459 |
| Less: Intragovernmental Earned Revenue | 192,112 | 179,415 |
| Intragovernmental Net Cost | 5,719 | 5,044 |
| Gross Costs with the Public | 948,651 | 983,822 |
| Less: Earned Revenues from the Public | 132,099 | 142,586 |
| Net Costs with the Public | 816,552 | 841,236 |
| Total Net Cost | 822,271 | 846,280 |
| **Hazards** | | |
| Intragovernmental Gross Cost | 33,473 | 31,730 |
| Less: Intragovernmental Earned Revenue | 32,311 | 30,662 |
| Intragovernmental Net Cost | 1,162 | 1,068 |
| Gross Costs with the Public | 228,941 | 203,714 |
| Less: Earned Revenues from the Public | 34,074 | 34,352 |
| Net Costs with the Public | 194,867 | 169,362 |
| Total Net Cost | 196,029 | 170,430 |
| **Costs not assigned to a program** | | |
| Asset Impairment (Note 8) | 81,100 | - |
| **Total** | | |
| Intragovernmental Gross Cost | 231,304 | 216,189 |
| Less: Intragovernmental Earned Revenue | 224,423 | 210,077 |
| Intragovernmental Net Cost | 6,881 | 6,112 |
| Gross Costs with the Public | 1,177,592 | 1,187,536 |
| Less: Earned Revenues from the Public | 166,173 | 176,938 |
| Net Costs with the Public | 1,011,419 | 1,010,598 |
| Asset Impairment (Note 8) | 81,100 | - |
| **Total Net Cost of Operations** | $ 1,099,400 | $ 1,016,710 |

*The accompanying notes are an integral part of these statements*

The Department of Interior
United States Geological Survey
Consolidated Statements of Changes in Net Position
For the Years Ended September 30, 2003 and 2002
*(in thousands)*

| | FY2003 (Unaudited) | | |
|---|---|---|---|
| | Cumulative Results of Operations | Unexpended Appropriations | Total |
| **Beginning balances** | $ 226,057 | 248,481 | $ 474,538 |
| Cumulative effect of change in accounting principle (Note 17) | 68,543 | (68,543) | - |
| **Beginning balances, as adjusted** | 294,600 | 179,938 | 474,538 |
| **Budgetary financing sources** | | | |
| Appropriations received | - | 925,287 | 925,287 |
| Appropriations transferred in/out | - | 619 | 619 |
| Appropriations used | 907,121 | (907,121) | - |
| Transfers in/out without reimbursement | 984 | - | 984 |
| Donations | 387 | - | 387 |
| Other budgetary financing sources and adjustments | 2,730 | (11,282) | (8,552) |
| **Other financing sources** | | | |
| Imputed financing from costs absorbed by others (Note 13) | 56,237 | - | 56,237 |
| Transfers in/(out) without reimbursement | (10,253) | - | (10,253) |
| **Total financing sources** | 957,206 | 7,503 | 964,709 |
| **Net cost of operations** | (1,099,400) | - | (1,099,400) |
| **Ending balances** | $ 152,406 | 187,441 | $ 339,847 |

| | FY2002 (Unaudited) | | |
|---|---|---|---|
| | Cumulative Results of Operations | Unexpended Appropriations | Total |
| **Beginning balances** | $ 63,652 | 211,705 | $ 275,357 |
| **Budgetary financing sources** | | | |
| Appropriations received | - | 914,002 | 914,002 |
| Appropriations transferred in/out | - | 1,447 | 1,447 |
| Appropriations used | 871,889 | (871,889) | - |
| Transfers in/(out) without reimbursement | 879 | - | 879 |
| Donations | 178 | - | 178 |
| Other non-exchange revenue | 283 | - | 283 |
| Other budgetary financing sources and adjustments | - | (6,784) | (6,784) |
| **Other financing sources** | | | |
| Imputed financing from costs absorbed by others (Note 13) | 49,045 | - | 49,045 |
| Transfers in/(out) without reimbursement (Note 8) | 256,841 | - | 256,841 |
| **Total financing sources** | 1,179,115 | 36,776 | 1,215,891 |
| **Net cost of operations** | (1,016,710) | - | (1,016,710) |
| **Ending balances** | $ 226,057 | 248,481 | $ 474,538 |

*The accompanying notes are an integral part of these statements*

The Department of Interior
United States Geological Survey
Combined Statements of Budgetary Resources
For the Years Ended September 30, 2003 and 2002
*(in thousands)*

| | (Unaudited) 2003 | (Unaudited) 2002 |
|---|---|---|
| **Budgetary resources: (Note 15)** | | |
| Budget authority: | | |
| Appropriations received | $ 925,987 | $ 914,749 |
| Net transfers, current year authority and other | - | 827 |
| Unobligated balance: | | |
| Beginning of fiscal year | 127,337 | 120,416 |
| Spending authority from offsetting collections: | | |
| Earned: | | |
| Collected | 514,296 | 420,825 |
| Receivable from federal sources | (3,957) | 5,030 |
| Change in unfilled customer orders: | | |
| Advance received | (96,939) | 9,750 |
| Without advance from federal sources | 32,151 | (10,489) |
| Recoveries of prior year obligations | 10,765 | 7,280 |
| Permanently not available | (11,420) | (6,783) |
| **Total budgetary resources** | $ 1,498,220 | $ 1,461,605 |
| **Status of budgetary resources:** | | |
| Obligations incurred: | | |
| Direct | $ 908,078 | $ 904,701 |
| Reimbursable | 434,661 | 429,567 |
| Subtotal | 1,342,739 | 1,334,268 |
| Unobligated balance available, apportioned | 109,779 | 106,931 |
| Unobligated balance not available | 45,702 | 20,406 |
| **Total status of budgetary resources** | $ 1,498,220 | $ 1,461,605 |
| **Relationship of obligations to outlays:** | | |
| Obligations incurred | $ 1,342,739 | $ 1,334,268 |
| Obligated balance, net, beginning of fiscal year | 115,725 | 121,974 |
| Obligated balance, net, end of fiscal year: | | |
| Accounts receivable | 174,307 | 178,264 |
| Unfilled customer orders from federal sources | 59,475 | 27,324 |
| Undelivered orders | (179,547) | (180,034) |
| Accounts payable | (91,463) | (141,279) |
| Less: Spending authority adjustments | (38,960) | (1,822) |
| Outlays: | | |
| Disbursements | 1,382,276 | 1,338,695 |
| Collections | (417,357) | (430,575) |
| Subtotal | 964,919 | 908,120 |
| Less: Offsetting receipts | - | (748) |
| **Net outlays** | $ 964,919 | $ 907,372 |

*The accompanying notes are an integral part of these statements*

The Department of Interior
United States Geological Survey
Consolidated Statements of Financing
For the Years Ended September 30, 2003 and 2002
*(in thousands)*

| | (Unaudited) 2003 | (Unaudited) 2002 |
|---|---|---|
| **Resources used to finance activities** | | |
| Budgetary resources obligated: | | |
| Obligations incurred | $ 1,342,739 | $ 1,334,268 |
| Less: Spending authority from offsetting collections and recoveries | (456,316) | (432,397) |
| Obligations net of offsetting collections and recoveries | 886,423 | 901,871 |
| Less: Offsetting receipts | - | (747) |
| Net obligations | 886,423 | 901,124 |
| Other resources: | | |
| Transfers in/(out) without reimbursement | (10,253) | 256,841 |
| Imputed financing from costs absorbed by others | 56,237 | 49,045 |
| Net other resources used to finance activities | 45,984 | 305,886 |
| **Total resources used to finance activities** | 932,407 | 1,207,010 |
| **Resources used to finance items not part of the net cost of operations** | | |
| Change in budgetary resources obligated for goods, services and benefits ordered but not yet provided | 9,181 | 767 |
| Resources that fund expenses recognized in prior periods | (81) | 850 |
| Offsetting receipts that do not affect net cost of operations | (311) | (31) |
| Resources that finance the acquisition of assets | (23,589) | (275,350) |
| Other resources that do not affect net cost of operations | 146 | - |
| Total resources used to finance items not part of the net cost of operations | (14,654) | (273,764) |
| **Total resources used to finance the net cost of operations** | 917,753 | 933,246 |
| **Components of net cost of operations that will not require or generate resources in the current period** | | |
| Components requiring or generating resources in future periods: | | |
| (Decrease) in annual leave liability | (1,310) | 5,661 |
| Increase in environmental and contingent liabilities | 4,501 | 1,268 |
| Increase in exchange revenue receivable from the public | (922) | (704) |
| Increase in GSA tenant improvement liabilities and other | 35,014 | 3,938 |
| **Total components of net cost of operations that will require or generate resources in future periods** | 37,283 | 10,163 |
| Components not requiring or generating resources: | | |
| Depreciation and amortization | 73,094 | 71,061 |
| Revaluation of Assets or Liabilities | 81,100 | - |
| Spending authority transferred from other agencies (Note 16) | 1,466 | 1,253 |
| Bad Debt expense (Recovery) | (11,296) | 987 |
| **Total components of net cost of operations that will not require or generate resources** | 144,364 | 73,301 |
| **Total components of net cost of operations that will not require or generate resources in the current period** | 181,647 | 83,464 |
| **Net cost of operations** | $ 1,099,400 | $ 1,016,710 |

*The accompanying notes are an integral part of these statements*

# *Notes to the Financial Statements*

# Notes to the Financial Statements
# As of September 30, 2003 and 2002
*(In Thousands)*


## SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

### A. Reporting Entity

The U. S. Geological Survey, a Bureau within the Department of Interior, was established on March 3, 1879 by an act of Congress to conduct systematic and scientific "classification of the public lands, and examination of the geological structure, mineral resources, and products of the national domain." The mission of the USGS is to serve the Nation by providing reliable scientific information to describe and understand the earth; minimize loss of life and property from natural disasters; manage water, biological, energy and mineral resources; and enhance and protect our quality of life.

The USGS accomplishes its mission through integrated science programs consisting primarily of:

- the national mapping program that meets the Nation's needs for accurate, nationally consistent base geospatial data by ensuring access to and advancing the application of these data and related natural science information for users;
- the geologic program that provides earth science information that is used to evaluate resource potential, to define risks associated with natural hazards, and to characterize the potential impact of natural geologic processes on human activity, the economy, and the environment;
- the water resources program that continuously assesses the Nation's water availability and quality, provides geographic and cartographic information, and addresses flood hazards by moderating the impacts of floods and improving flood disaster response; and the biologic research program that generates and distributes information needed in the conservation and management of the Nation's biological resources.

### B. Basis of Presentation

These financial statements have been prepared to report the consolidated financial position, the net cost of operations, the changes in financial position, the budgetary resources and the financing of the USGS, consistent with the Chief Financial Officers' Act of 1990 and the Government Management Reform Act of 1994. These financial statements have been prepared from the books and records of the USGS in accordance with generally accepted accounting principles (GAAP) using guidance issued by the Federal Accounting Standards Advisory Board (FASAB), the OMB, and USGS' accounting policies, which are summarized in this note. These consolidated financial statements present proprietary and budgetary information while other financial reports also prepared by the USGS pursuant to OMB directives are used to monitor and control the USGS' use of Federal budgetary resources. The Statement of Budgetary Resources is presented on a combined, rather than consolidated basis, and therefore, Intra-entity eliminations were not made for the purpose of this statement. The Statement of Financing reconciles combined amounts from the Statement of Budgetary Resources to amounts from the consolidated Statement of Net Cost.

### C. Basis of Accounting

Financial transactions are recorded on an accrual accounting basis and a budgetary basis. Under the accrual method, revenues are recognized when earned and expenses are recognized when a liability is incurred, without regard to receipt or payment of cash. Budgetary accounting facilitates compliance with legal requirements and mandated controls over the use of federal funds. It generally differs from the accrual basis of accounting in that obligations are recognized when new orders are placed, contracts awarded, and services received, that will require payments during the same or future period. The USGS intra-entity transactions have been eliminated in the Consolidated Statement of Net Cost.

### D. Fund Balance with Treasury and Cash

Fund Balances with Treasury are cash balances remaining as of fiscal year-end from which USGS is authorized to pay liabilities resulting from operational activity, except as restricted by law. Fund balance with Treasury includes funds received from direct appropriations, transfers, offsetting receipts, recoveries, and funds held in budget clearing accounts. The USGS is permitted by law to use appropriated funds to finance its working capital fund.

### E. Revenues, User Fees and Financing

*Appropriations:* The USGS receives the majority of the funding needed to support its programs through congressional appropriations. Financing sources are received in annual, multi-year and no-year appropriations that may be used, within statutory limits, for operating and capital expenditures. Upon expiration of an annual or multiple-year appropriation, the obligated and unobligated balances retain their fiscal year identity, and are maintained separately within an expired account. The unobligated balance can be used to make adjustments to existing obligations, but is otherwise not available for expenditures. Annual and multiple-year appropriations are canceled at the end of the fifth year after expiration. No-year appropriations do not expire. Appropriations of budget authority are recognized as used when a liability for goods and services or benefits and grants are incurred.

*Exchange revenues:* Additional funds are obtained through reimbursements for services performed for other Federal agencies and the public and fees charged for surveys, investigations, and research. Revenue and intra-governmental reimbursements are recognized as earned when the goods have been delivered or services rendered by USGS. Revenues earned from public sources are derived from states and municipalities for making cooperative topographic and geologic surveys and water resource investigations; proceeds from the sale of photographs, maps, and records; proceeds from the sale of personal property; and reimbursements from permits and licenses of the Federal Energy Regulatory Commission. Revenues from certain cooperators represent about half of the total cost; the USGS pays the remaining half of the total cooperators cost. Revenues earned from other Federal agencies are derived from special-purpose mapping and investigations. Revenues are also received through the Department of State from foreign countries and international organizations for scientific and technical assistance.

The USGS has specific legislative authority to receive revenue from non-federal reimbursable customers as budgetary resources. The USGS also has authority to receive contributions from outside organizations to perform work desired mutually by multiple parties. In addition, the USGS receives rental receipts for quarters provided at remote locations.

User fees are set at a level that will recover the full costs associated with the services for specific customers, and prices for the sale of information products are set at a level that will recover the full costs of reproduction and dissemination, or costs incurred after the mission related information is collected and archived. User fees and product prices are developed in accordance with cost components of OMB Circular A-25, with review and approval by the Director, or a delegated party. The annual Cost Recovery Report and regularly scheduled independent pricing reviews by product line are among the methods used to monitor compliance with the USGS policies.

*Imputed financing sources:* In certain cases, operating costs of the USGS are paid for by funds appropriated with other federal entities. For example, pension benefits for most USGS employees are paid for by the U.S. Office of Personnel Management (OPM) and certain legal judgments against the USGS are paid from the Judgment Fund maintained by Treasury. OMB limits imputed costs to be recognized by federal entities to the following: (1) employees' pension benefits; (2) health insurance, life insurance, and other benefits for retired employees; (3) other post-employment benefits for retired, terminated, and inactive employees, including severance payments, training and counseling, continued health care, and unemployment and workers' compensation under the Federal Employees' Compensation Act; and (4) losses in litigation proceedings. The USGS includes applicable imputed costs on the Consolidated Statements of Net Cost. In addition, an imputed financing source is recognized on the Consolidated Statements of Changes in Net Position.

### F. Assets

Assets presented on USGS' balance sheets include both entity and non-entity balances. Entity assets are assets that USGS has authority to use in its operations. Non-entity assets are held and managed by USGS, but are not available for use in operations.

Intragovernmental assets arise from transactions between USGS and other Federal entities.

### G. Liabilities

Liabilities covered by budgetary or other resources are those liabilities of USGS for which Congress has appropriated funds or funding is otherwise available to pay amounts due. Liabilities not covered by budgetary or other resources represent amounts owed in excess of available congressionally-appropriated funds or other amounts. The liquidation of liabilities not covered by budgetary or other resources is dependent on future congressional appropriations or other funding.

Intragovernmental liabilities are claims against USGS by other Federal entities.

### H. Accounts Receivable

Accounts receivable consist of amounts owed to the USGS by other Federal agencies and the public. Unbilled accounts receivable represents amounts that have been earned but not yet billed to reimbursable customers. Receivables from Federal agencies result from reimbursable services performed, and from joint funding agreements with state, local, and regional agencies for cooperative work in support of the "Surveys, Investigations, and Research" appropriation. Receivables also include balances owed for credit sales of products and maps to Federal agencies and the public, and for interest, administrative costs, and penalties due on delinquent receivables. The majority of USGS' accounts receivable are generated from the water resources and the national mapping program.

Amounts due from Federal agencies are considered fully collectible. Receivables due from the public are stated net of an allowance for estimated uncollectible amounts, determined by considering the debtor's current ability to pay, the debtor's payment record and willingness to pay, and an analysis of aged receivable activity.

### I. Deferred Revenue

Deferred revenue consists of advances received from Federal and public entities for goods and services that will not be fully earned until the related goods or services have been provided by USGS. The majority of USGS' deferred revenue is generated from the water resources program.

### J. Property, Plant, and Equipment

Property, plant and equipment consist of land, structures, facilities and improvements, equipment, and software purchased or developed for internal use. There are no restrictions on the use or convertibility of property, plant and equipment.

The USGS capitalizes property, plant and equipment purchases with an acquisition cost in excess of $50,000 for structures and facilities, $100,000 for software, and $15,000 for all other capital assets. Depreciation or amortization is computed using the straight-line method over the assets' useful lives, of 30 years for structures and facilities, and ranging from 3 to 20 years for equipment and software. Amortization of capitalized software begins on the date of acquisition, if purchased, or when the module or component has been successfully tested if developed internally.

Costs for construction projects are recorded as construction-in-process until completed. Depreciation expense begins once the asset is placed into service.

The USGS leases the majority of its office space and vehicles from the General Services Administration. The lease costs approximate commercial lease rates for similar properties and vehicles.

### K. Advances and Payments

Payments in advance of the receipt of goods and services are recorded as prepaid charges at the time of prepayment and recognized as expenditures/operating expenses when the related goods and services are received.

### L. Inventories

Inventory includes maps and map products that are held for sale and raw materials held for future use. Raw materials consist primarily of paper stock and ink used in the production of maps and map products, film for aerial photographs, and blank CDs for digital data. All inventory products and materials are valued at historical cost, using a method of averaging actual costs to produce like-kind scale maps within the same fiscal year. The USGS estimates an allowance for excess, spoiled, or obsolete map inventory to arrive at a net realizable value, based on inventory turnover and current stock levels.

### M. Accrued Annual, Sick, and other Leave and Compensatory Time

Annual leave, compensatory time, and other leave time are accrued when earned. The accrual is presented as a component of liabilities not covered by budgetary resources in the Balance Sheet and is adjusted for changes in compensation rates and reduced for annual leave taken. Sick leave is expensed when taken.

### N. Retirement Plans

*Civil Service Retirement System (CSRS) and Federal Employees Retirement System (FERS):* Most employees of USGS participate in either the CSRS or FERS defined-benefit pension plans. FERS went into effect on January 1, 1987. FERS and Social Security automatically cover most employees hired after December 31, 1983. Employees hired prior to January 1, 1984 could elect to either join FERS and Social Security, or remain in CSRS.

USGS is not responsible for and does not report CSRS or FERS assets, accumulated plan benefits, or liabilities applicable to its employees. OPM administers the plans, is responsible for, and reports these amounts.

For CSRS-covered employees, in both fiscal years 2003 and 2002, USGS was required to make contributions to the plan equal a range from 7 to 7.5 percent of the employee’s basic pay. Employees contributed 7 percent of basic pay. For each fiscal year, OPM calculates the U.S. government’s service cost for covered employees, which is an estimate of the amount of funds that, if accumulated annually and invested over an employee’s career, would be enough to pay that employee’s future benefits. Since the U.S. government’s estimated service cost exceeds contributions made by employer agencies and covered

employees, this plan is not fully funded by the USGS and its employees. USGS has recognized an imputed cost and imputed financing source for the difference between the estimated service cost and the contributions made by USGS and its covered employees.

FERS contributions made by employer agencies and covered employees exceed the U.S. Government's estimated service cost. For FERS-covered employees, USGS was required in fiscal years 2003 and 2002 to make contributions of 10.7 percent of basic pay. Employees contributed 0.8 percent of basic pay. Employees participating in FERS are covered under the Federal Insurance Contributions Act (FICA), for which USGS contributes a matching amount to the Social Security Administration.

*Thrift Savings Plan (TSP):* Employees covered by CSRS and FERS are eligible to contribute to the U.S. Government's TSP, administered by the Federal Retirement Thrift Investment Board. A TSP account is automatically established for FERS-covered employees, and USGS makes a mandatory contribution of one percent of basic pay. FERS-covered employees are entitled to contribute up to 12 percent of basic pay to their TSP account, with USGS making matching contributions up to four percent of basic pay. Employees covered by CSRS are entitled to contribute up to seven percent of basic pay to their TSP account. USGS makes no matching contributions for CSRS-covered employees.

*Federal Employees Health Benefit (FEHB) Program:* Most USGS employees are enrolled in the FEHB Program, which provides post-retirement health benefits. OPM administers this program and is responsible for the reporting of liabilities. Employer agencies and covered employees are not required to make any contributions for post-retirement health benefits. OPM calculates the U.S. government's service cost for covered employees each fiscal year. USGS has recognized the entire service cost of these post-retirement benefits for covered employees as an imputed cost and imputed financing source.

*Federal Employees Group Life Insurance (FEGLI) Program:* Most USGS employees are entitled to participate in the FEGLI Program. Participating employees can obtain basic term life insurance, with the employee paying two-thirds of the cost and USGS paying one-third. Additional coverage is optional, to be paid fully by the employee. The basic life coverage may be continued into retirement if certain requirements are met. OPM administers this program and is responsible for the reporting of liabilities. For each fiscal year, OPM calculates the U.S. government's service cost for the post-retirement portion of basic life coverage. USGS' contributions to the basic life coverage are fully allocated by OPM to the pre-retirement portion of coverage, and accordingly, USGS has recognized the entire service cost of the post-retirement portion of basic life coverage as an imputed cost and imputed financing source.

## O. Workers' Compensation

A liability is recorded for estimated future payments to be made for workers' compensation pursuant to the Federal Employees' Compensation Act (FECA). The FECA program is administered by the Department of Labor, which initially pays valid claims and subsequently seeks reimbursement from Federal agencies employing the claimants. Reimbursements to the Department of Labor on payments made occur approximately two years subsequent to the actual disbursement. Budgetary resources for this intra-governmental liability are made available to USGS as part of its annual appropriation from Congress in the year in which the reimbursement to the Department of Labor takes place.

Additionally, the liability estimate includes the expected liability for death, disability, medical and miscellaneous costs for approved compensation cases. The estimated liability also includes a provision for incurred but not reported claims. Based on information provided by the Department of Labor, DOI allocates the actuarial liability to its Bureaus and Departmental offices based on the payment history for the Bureaus and Departmental offices. The estimated liability is not covered by budgetary resources and will require future funding.

### P. Contingent Liabilities

A contingency is an existing condition, situation, or set of circumstances involving uncertainty as to possible gain or loss. The uncertainty will ultimately be resolved when one or more future events occur or fail to occur. USGS recognizes a contingent liability when a past event or exchange transaction has occurred, and a future outflow or other sacrifice of resources is measurable and probable. A contingency is disclosed in the Notes to the Financial Statements when any of the conditions for liability recognition are met and when the chance of the future confirming event or events occurring is more than remote, but less than probable. A contingency is not disclosed in the Notes to the Financial Statements when any of the conditions for liability recognition are not met and when the chance of the future event or events occurring is remote.

### Q. Income Taxes

The USGS, as a federal agency, is not subject to federal, state, or local income taxes and, accordingly, no provision for income taxes has been recorded in the accompanying financial statements.

### R. Use of Estimates

The preparation of financial statements in accordance with accounting principles generally accepted in the United States of America requires management to make certain estimates and assumptions in reporting assets, liabilities, revenues, expenses, and financial sources; and in the related note disclosures. Actual results could differ from these estimates. Significant estimates underlying the accompanying financial statements include accounts payable, the allowance for doubtful accounts receivable, property, plant, and equipment useful lives and impairments, contingent and environmental liabilities, and allowance for obsolete inventory.

### S. Change in Accounting Principle

USGS changed its method of accounting for resources directed to the working capital fund. (Refer to footnote 17 for further discussion.)

### T. Reclassifications

Certain reclassifications have been made to the 2002 balances to conform to the 2003 presentation.

## Note 2 FUND BALANCE WITH TREASURY

Fund Balance with Treasury consists of the following at September 30:

| | | 2003 | (Unaudited) 2002 |
|---|---|---|---|
| General funds | $ | 105,229 | 165,197 |
| Special funds | | 2,984 | 5,663 |
| Revolving funds | | 84,029 | 71,326 |
| Trust funds | | 1,376 | 1,704 |
| Other funds | | 11,640 | 8,151 |
| Total | $ | 205,258 | 252,041 |

USGS maintains balances with Treasury by fund type. The fund types and purpose are described below:

General funds – These funds consist of expenditure accounts used to record financial transactions arising from Congressional appropriations.

Special funds – These accounts are credited with receipts from special sources that are earmarked by law for a specific purpose. When collected, these receipts are available immediately for expenditure for special programs, such as providing housing for employees on field assignments, operations and maintenance for the temporary housing, cleanup associated with the Exxon Valdez oil spill, and operating science and cooperative programs.

Revolving funds – These funds account for cash flows to and from the government resulting from operations of the working capital fund, and do not fund normal operating expenses of the Bureau. The working capital funds are restricted to the purposes set forth in the legislation that established the working capital fund and related investment plans.

Trust funds – These funds are used for the acceptance and administration of funds contributed from public and private sources, and programs in cooperation with other Federal and State agencies or private donors.

Other Fund Types – These include miscellaneous receipt accounts, transfer accounts, performance bonds, deposit and clearing accounts maintained to account for receipts and disbursements awaiting proper classification.

Status of Fund Balance with Treasury at September 30 is as follows:

| | | 2003 | (Unaudited) 2002 |
|---|---|---|---|
| Unobligated balances: | | | |
| Available | $ | 110,355 | 107,073 |
| Unavailable | | 57,340 | 28,557 |
| Obligated balance not yet disbursed | | 37,563 | 116,411 |
| Total | $ | 205,258 | 252,041 |

Unobligated unavailable fund balance represents amounts in deposit and budget clearing accounts and amounts from appropriations for which the period of availability for obligation has expired. These balances remain available for upward adjustments of obligations incurred during the period for which the appropriation was available.

## Note 3 NON-ENTITY ASSETS

| | | 2003 | (Unaudited) 2002 |
|---|---|---|---|
| Fund balance with Treasury | $ | 220 | 115 |
| Total non-entity assets | | 220 | 115 |
| Total entity assets | | 604,815 | 778,610 |
| Total assets | $ | 605,035 | 778,725 |

Non-entity assets include amounts receivable to USGS from accrued interest and penalties on delinquent debt. A corresponding payable to Treasury is recorded in other liabilities.

## Note 4 ACCOUNTS AND INTEREST RECEIVABLE, NET

Accounts receivable consist of amounts owed to the USGS by other Federal agencies and the public. Unbilled accounts receivable represents amounts that have been earned but not yet billed to reimbursable customers. This account functions much like a “work-in-process” record of the costs incurred on customer agreements. Due to the nature of agreements with reimbursable customers that frequently require invoicing upon completion of the work, USGS sometimes bills customers years after the project was initiated. This procurement practice results in the majority of accounts receivable being comprised of unbilled balances.

Accounts receivable are reduced to net realizable value by an allowance for doubtful accounts. Federal receivables are considered fully collectible. The allowance for public receivables is estimated quarterly based on identification of specific delinquent receivables, an analysis of aged receivable activity and historical trends adjusted for current market conditions, as well as management’s judgment regarding the debtor’s willingness and ability to pay.

Interest receivable represents interest income earned on outstanding receivables that has not yet been collected. Interest accrues on a daily basis beginning thirty days from the date the notice of amount due was sent. Interest is charged at the rate established by the Secretary of the Treasury.

Accounts and Interest Receivable at September 30, 2003 and 2002, respectively, consists of:

| | | (Unaudited) |
|---|---|---|
| | 2003 | 2002 |
| Accounts and Interest Receivable from Federal Agencies | | |
| Current | $ 1,271 | $ 2,156 |
| 1 - 180 Days Past Due | 4,755 | 4,761 |
| 181 - 365 Days Past Due | - | 103 |
| Over 1 Year Past Due | 500 | 51 |
| Total Billed Accounts and Interest Receivable - Federal | 6,526 | 7,071 |
| Unbilled Accounts Receivable | 74,563 | 77,555 |
| Total Accounts and Interest Receivable - Federal | 81,089 | 84,626 |
| Allowance for Doubtful Accounts - Federal | - | (5,170) |
| Total Accounts and Interest Receivable - Federal, Net of Allowance | $ 81,089 | $ 79,456 |
| Change in Allowance for Doubtful Accounts - Federal | | |
| Allowance for Doubtful Accounts, beginning | $ 5,170 | $ 20 |
| Additions | - | 5,150 |
| Deletions | (5,170) | - |
| Allowance for Doubtful Accounts - Federal | $ - | $ 5,170 |

| | | (Unaudited) |
|---|---|---|
| | 2003 | 2002 |
| Accounts and Interest Receivable from the Public | | |
| Current | $ 18,378 | $ 18,500 |
| 1 - 180 Days Past Due | 10,628 | 7,067 |
| 181 - 365 Days Past Due | 739 | 322 |
| Over 1 Year Past Due | 349 | 2,882 |
| Total Billed Accounts and Interest Receivable - Public | 30,094 | 28,771 |
| Unbilled Accounts Receivable | 64,667 | 68,804 |
| Total Accounts and Interest Receivable - Public | 94,761 | 97,575 |
| Allowance for Doubtful Accounts | (3,329) | (12,351) |
| Total Accounts and Interest Receivable - Public Net of Allowance | $ 91,432 | $ 85,224 |
| Change in Allowance for Doubtful Accounts - Public | | |
| Allowance for Doubtful Accounts, beginning | $ 12,351 | $ 14,166 |
| Additions | - | - |
| Deletions | (9,022) | (1,815) |
| Allowance for Doubtful Accounts - Public | $ 3,329 | $ 12,351 |

## Note 5 DEFERRED REVENUE AND CREDITS

Deferred revenue represents receipts of funds for reimbursable work not yet provided to public and Federal entities. Revenue is recognized as reimbursable costs are incurred, and the deferred revenue balance is reduced accordingly.

| | 2003 | (Unaudited) 2002 |
|---|---|---|
| Received from Federal agencies | $ 2,835 | $ 35,914 |
| Received from the Public | 1,141 | 4,962 |
| Total deferred revenue | $ 3,976 | $ 40,876 |

In some instances, USGS is a party to long-term fixed price agreements that may result in gains or losses in future periods.

Deferred credits represent receipts of funds held on deposit prior to completion of a signed agreement to provide reimbursable services to public and Federal entities. Deferred credits also consist of monies that were not obligated prior to the agreement expiration that are funded by annual year appropriations. These deferred credit amounts will be returned to the customer.

| | 2003 | (Unaudited) 2002 |
|---|---|---|
| Received from Federal agencies | $ 7,262 | $ — |
| Received from the Public | 4,513 | 118 |
| Total deferred credits | $ 11,775 | $ 118 |

## Note 6 INVENTORY

Inventory consists of the following at September 30:

| | 2003 | (Unaudited) 2002 |
|---|---|---|
| Finished inventory | $ 10,859 | $ 9,039 |
| Raw materials | 1,056 | 1,918 |
| Allowance for obsolescence | (9,520) | (2,615) |
| Inventory, net | $ 2,395 | $ 8,342 |

USGS disseminates earth, water, and biological science information through various mediums, including maps, reports, digital data sets and general interest publications of the USGS and other Federal agencies.

Maps and map products are located at the USGS Rocky Mountain Mapping Center in Denver, Colorado and at six Earth Science Information Centers across the United States.

The USGS' mission requires it to maintain an inventory of maps and map products and have those products available in sufficient quantities to respond to national emergencies, resource management and development needs, recreation interests, as well as governmental and educational organization requests.

In fiscal year 2002, management judgment was used to estimate the allowance for obsolescence and a net realizable value analysis was not performed. In fiscal year 2003, USGS changed its accounting estimate methodology for calculating the allowance for obsolescence, while adjusting the net book value to its net realizable value. This change in estimation technique is the primary reason for the increase in the allowance for obsolescence.

## PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment consists of the following at September 30, 2003:

| | Cost | Accumulated Depreciation | Net Book Value |
|---|---|---|---|
| Land | $ 300 | — | $ 300 |
| Construction in process | 1,352 | — | 1,352 |
| Buildings | 99,997 | 64,980 | 35,017 |
| Structures and facilities | 12,980 | 8,793 | 4,187 |
| Equipment | 495,282 | 322,041 | 173,241 |
| Software in use | 8,032 | 1,581 | 6,451 |
| Software in development | 1,578 | — | 1,578 |
| Total | $ 619,521 | 397,395 | $ 222,126 |

Property, plant and equipment consists of the following at September 30, 2002 (unaudited):

| | Cost | Accumulated Depreciation | Net Book Value |
|---|---|---|---|
| Land | $ 300 | — | $ 300 |
| Construction in process | 785 | — | 785 |
| Buildings | 102,255 | 61,433 | 40,822 |
| Structures and facilities | 12,980 | 8,394 | 4,586 |
| Equipment | 473,715 | 187,875 | 285,840 |
| Software in use | 358 | 2 | 356 |
| Software in development | 11,944 | — | 11,944 |
| Total | $ 602,337 | 257,704 | $ 344,633 |

Depreciation expense amounted to approximately $73 million and $71 million, for the years ended September 30, 2003 and 2002 (unaudited), respectively. Impairment of property, plant and equipment was recognized in 2003 for $81.1 million (see Note 8).

## Note 8 Property, Plant, and Equipment Impairment

The USGS jointly developed a sun-synchronous, earth-orbiting satellite (Landsat 7) with the National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration. NASA incurred the construction and launching costs. In FY2002, the satellite was transferred to USGS and recorded in equipment at its net book value of $258 million. The satellite is being depreciated over its estimated useful life of five years.

The primary objective of the Landsat Project is to ensure a collection of consistently calibrated Earth imagery. Landsat's Global Survey Mission is to establish and execute a data acquisition strategy that ensures repetitive acquisition of observations over the Earth's land mass, coastal boundaries, and coral reefs; and to ensure the data acquired are of maximum utility in supporting the scientific objectives of monitoring changes in the Earth's land surface and associated environment.

On May 31, 2003, the Landsat 7 satellite suffered a component failure that affected USGS' ability to acquire and distribute data collected by the Enhanced Thematic Mapper Plus (ETM+) instrument, resulting from a failure of the instrument's scan line corrector (SLC). The non-functioning SLC causes individual scan lines to alternately overlap and leave large gaps at the edges of a normal Landsat image.

USGS assembled an anomaly team comprised of a variety of experts, and collaborated with NASA, the Aerospace Corporation, Lockheed Martin, Honeywell, Raytheon, SAIC and others, and developed a recovery plan which was approved by USGS leadership. Unfortunately, the full recovery attempt that took place on September 7, 2003, failed.

Subsequent tests and the failed full recovery attempt confirmed that while it is not possible to acquire 100 percent of the data in a post-failure image, approximately 75 percent of a pre-failure image is still captured. It is also possible, using basic interpolation algorithms, to "fill in" some of the missing pixels toward the center portion of a scene in order to generate a more complete image.

As of May 31, 2003, the net book value of Landsat 7 was $172 million. Based on an internal analysis taking into consideration the diminished capacity of the asset and the potential future marketability of the product sales generated by the asset, USGS management estimated that an economic impairment loss of $81.1 million should be recognized in the FY2003 Statement of Net Cost. Combined with normal depreciation of $15.3 million of the asset, the remaining net book value of the Landsat 7 satellite was approximately $75.6 million at September 30, 2003.

At the point of impairment, the normal depreciation rate estimate was changed to equal the net book value at May 31, 2003 divided by the remaining useful life previously established. The overall impact of the impairment loss on the 2003 financial statements follows:

| | Net Costs | Net Position | PP&E, net |
|---|---|---|---|
| Impairment loss | $ 81,100 | (81,100) | $ (81,100) |
| Reduction in normal depreciation expense | (8,400) | 8,400 | 8,400 |
| Net financial impact | $ 72,700 | (72,700) | $ (72,700) |

## Note 9 LIABILITIES NOT COVERED BY BUDGETARY RESOURCES

Liabilities not covered by budgetary or other resources represent amounts owed in excess of available congressional appropriated funds or other amounts. The liquidation of liabilities not covered by budgetary or other resources is dependent on future congressional appropriations or other funding source.

| | 2003 | | | | |
|---|---|---|---|---|---|
| | Covered by Budgetary Resources | | Not Covered by Budgetary Resources | | |
| | Current | Non-Current | Current | Non-Current | Total |
| **Intragovernmental Liabilities:** | | | | | |
| Accounts Payable | $ 8,940 | - | - | - | $ 8,940 |
| Deferred Revenue | 2,835 | - | - | - | 2,835 |
| Deferred Credits | - | - | 7,262 | - | 7,262 |
| Accrued Payroll and Benefits | 3,206 | - | - | 4,161 | 7,367 |
| FECA workers compensation liability | - | - | 3,172 | 4,757 | 7,929 |
| Payable to Treasury | - | - | 220 | - | 220 |
| GSA Tenant Improvement liability | - | - | 3,664 | 22,387 | 26,051 |
| **Total Intragovernmental Liabilities** | 14,981 | - | 14,318 | 31,305 | 60,604 |
| **Public Liabilities:** | | | | | |
| Accounts Payable | 62,423 | - | - | - | 62,423 |
| Deferred Revenue | 1,141 | - | - | - | 1,141 |
| Deferred Credits | - | - | 4,513 | - | 4,513 |
| Accrued Payroll and Benefits | 16,975 | - | - | - | 16,975 |
| FECA actuarial liability | - | - | - | 42,816 | 42,816 |
| Environmental Cleanup Costs | - | - | - | 5,466 | 5,466 |
| Contingent Liabilities | - | - | - | 15,679 | 15,679 |
| Annual Leave liability | - | - | 2,720 | 51,670 | 54,390 |
| Contract Holdbacks | - | - | - | 1,181 | 1,181 |
| Total Public Liabilities | 80,539 | - | 7,233 | 116,812 | 204,584 |
| **Total Liabilities** | $ 95,520 | - | 21,551 | 148,117 | $ 265,188 |

| | 2002 (Unaudited) | | | | |
|---|---|---|---|---|---|
| | Covered by Budgetary Resources | | Not Covered by Budgetary Resources | | |
| | Current | Non-Current | Current | Non-Current | Total |
| **Intragovernmental Liabilities:** | | | | | |
| Accounts Payable | $ 7,481 | - | - | - | $ 7,481 |
| Deferred Revenue | 35,914 | - | - | - | 35,914 |
| Deferred Credits | - | - | - | - | - |
| Accrued Payroll and Benefits | 9,044 | - | - | 66 | 9,110 |
| FECA workers compensation liability | - | - | 3,029 | 4,543 | 7,572 |
| **Total Intragovernmental Liabilities** | 52,439 | - | 3,029 | 4,609 | 60,077 |
| **Public Liabilities:** | | | | | |
| Accounts Payable | 91,619 | - | - | - | 91,619 |
| Deferred Revenue | 4,962 | - | - | - | 4,962 |
| Deferred Credits | - | - | 118 | - | 118 |
| Accrued Payroll and Benefits | 35,710 | - | - | - | 35,710 |
| FECA actuarial liability | - | - | - | 39,484 | 39,484 |
| Environmental Cleanup Costs | - | - | - | 5,186 | 5,186 |
| Contingent Liabilities | - | - | - | 11,458 | 11,458 |
| Annual Leave liability | - | - | - | 55,700 | 55,700 |
| Other liabilities | - | - | (127) | - | (127) |
| Total Public Liabilities | 132,291 | - | (9) | 111,828 | 244,110 |
| **Total Liabilities** | $ 184,730 | - | 3,020 | 116,437 | $ 304,187 |

## Note 10 FECA LIABILITIES

USGS has recorded an estimated, unfunded liability for the expected future cost for death, disability, and medical claims under the Federal Employees Compensation Act (FECA) of approximately $42.8 million and $39.5 million (unaudited) as of September 30, 2003 and 2002, respectively. This estimated liability is calculated by the Department of Labor using a method that considers historical benefit payment patterns, wage inflation factors, medical inflation factors, and other variables. These actuarially computed projected annual benefit payments are discounted to present value using the Office of Management and Budget's economic assumptions for ten-year Treasury notes and bonds.

The Department of Labor calculated the estimated future benefit payments based on several assumptions. The interest rate assumptions utilized to discount the estimated future benefit payments to present value are 5.20 percent in year one and thereafter. Wage inflation factors (Cost of Living Adjustments) and medical inflation factors (Consumer Price Index Medical Adjustments) are also used in the calculation.

USGS also recorded an estimated, unfunded liability for the expected future payments to the Department of Labor in payment of outstanding workers compensation claims of approximately $7.9 million and $7.6 million (unaudited) as of September 30, 2003 and 2002, respectively.

## Note 11 LEASES AND OCCUPANCY AGREEMENTS

The USGS has many cancelable occupancy agreements with the General Services Administration (GSA), primarily for office space. Many of these agreements do not have a stated expiration. USGS also has many operating leases, primarily for storage and housing for employees working on location, with public entities. USGS has estimated its future minimum liability for GSA occupancy agreements by adding an inflationary increase of 3% per year to the fiscal year 2003 lease rental expense. Public operating leases were calculated based on lease agreement terms. Future estimated minimum lease payments as of September 30, 2003 are:

| Fiscal Year | GSA - real property | Others - real property | Totals |
|---|---|---|---|
| 2004 | $ 71,427 | 1,710 | $ 73,137 |
| 2005 | 70,707 | 1,516 | 72,223 |
| 2006 | 70,283 | 1,492 | 71,775 |
| 2007 | 69,232 | 1,459 | 70,691 |
| 2008 | 68,474 | 1,349 | 69,823 |
| Thereafter | 68,267 | 1,673 | 69,940 |
| | $ 418,390 | 9,199 | $ 427,589 |

Rental expenses for occupancy agreements, operating leases, and exhibit hall space during fiscal years 2003 and 2002 were approximately $85 and $82 million respectively (unaudited).

In some cases, USGS secures funds from GSA's building fund to finance improvements made to space where USGS is the tenant. Because these improvements are made to convert the existing structures into workable space tailored to USGS needs, USGS is required to repay GSA the cost of the improvements over the term of the occupancy agreement, which is incorporated into the total rent payments billed to USGS by GSA. The principal loan balance of approximately $26 million at September 30, 2003 is recorded as a liability and the corresponding leasehold improvements are recorded in Property, Plant & Equipment, which are amortized over the period of the occupancy agreements.

## Note 12 CONTINGENT LIABILITIES

The USGS is a party to various administrative proceedings, legal actions, environmental suits, and claims that may eventually result in the payment of substantial monetary claims to third parties, or in the unplanned reallocation of material budgetary resources to pay for the cleanup of environmentally damaged sites.

The potential liability for legal claims deemed to be probable of loss cannot be reasonably estimated by Interior's Office of the Solicitor as the claims are in a discovery stage. Accordingly, USGS has not accrued any legal liabilities in the consolidated balance sheet for such claims. However, the payment of any judgments against USGS would be made from the U.S. Department of Treasury's Judgment Fund.

Additionally, USGS has several cases that the Solicitor believes are reasonably possible of loss, some of which cannot be estimated. The range of loss for reasonably possible cases that could be estimated by the Solicitor was approximately $3 million to $9.1 million at September 30, 2003. There were no probable or reasonably possible cases with an estimated range of loss at September 30, 2002.

| | 2003 | |
|---|---|---|
| | Low | High |
| Total legal contingent liabilities - Potential | $ 3,005 | $ 9,100 |

The USGS' has accrued the probable and estimable liability represented by site clean-up, primarily of contaminated groundwater, and for the removal of equipment and land restoration for abandoned data collection stations, observation well sites and river cableway sites.

Estimated contingent and environmental liabilities at September 30 are:

| | 2003 | (Unaudited) 2002 |
|---|---|---|
| Estimated environmental cleanup costs | $ 5,466 | $ 5,186 |
| Contingent Liabilities: | | |
| Abandoned sites | 15,679 | 11,458 |
| Total environmental and contingent liabilities | $ 21,145 | $ 16,644 |

## Note 13 IMPUTED FINANCING COSTS

Imputed financing sources are recorded in the financial statements for amounts paid or to be paid on behalf of the USGS by other Federal agencies. The Office of Personnel Management (OPM) pays Federal employee pension and other future retirement benefits on behalf of Federal agencies. OPM provided rates for recording the estimated cost of pension and other future retirement benefits paid by OPM on behalf of federal agencies. The costs of these benefits are reflected as imputed financing in the consolidated financial statements.

Imputed financing costs for the years ended September 30, 2003 and 2002 consisted of:

| | (Unaudited) 2003 | (Unaudited) 2002 |
|---|---|---|
| OPM | | |
| Pension expense | $ 26,057 | $ 27,929 |
| Federal employees health benefits (FEHB) | 30,024 | 20,089 |
| Federal employees group life insurance program (FEGLI) | 84 | 982 |
| Subtotal - OPM employee benefits | 56,165 | 49,000 |
| Non-reimburseable claims paid by the Treasury Judgment Fund | 72 | 45 |
| Total imputed financing costs | $ 56,237 | $ 49,045 |

## Note 14 STATEMENT OF NET COST BY SEGMENT

USGS' four responsibility segments within the Statement of Net Cost represent the major operating segments by which achievement of its mission and goals are measured: Biology, Water, Geology and Geography.

USGS' two major programs on the Statement of Net Cost, Hazards and Environmental and Natural Resources, directly correlate to our Government Performance Results Act outcomes and outputs.

As discussed in Note 8, in fiscal year 2003, USGS experienced an unusual and infrequent event that resulted in the partial loss of value and operating capacity of our Landsat 7 satellite. This significant and unusual accounting event is shown on our Statement of Net Cost as a non-production asset impairment cost outside of normal operations.

The following tables reflect USGS' net cost by responsibility segment for the years ended September 30, 2003 and 2002, respectively.

*(Note 14 Continued)*

| | 2003 (Unaudited) | | | | | |
|---|---|---|---|---|---|---|
| | Geology | Water | Geography | Biology | Eliminations | Total |
| **Environmental and Natural Resources** | | | | | | |
| Intragovernmental Gross Cost | $ 21,687 | 104,580 | 29,448 | 71,099 | (28,983) | $ 197,831 |
| Less: Intragovernmental Earned Revenue | 21,250 | 101,099 | 28,087 | 70,659 | (28,983) | 192,112 |
| Intragovernmental Net Cost | 437 | 3,481 | 1,361 | 440 | - | 5,719 |
| Gross Costs with the Public | 228,347 | 405,065 | 128,650 | 186,589 | - | 948,651 |
| Less: Earned Revenues from the Public | 8,641 | 95,267 | 24,865 | 3,326 | - | 132,099 |
| Net Costs with the Public | 219,706 | 309,798 | 103,785 | 183,263 | - | 816,552 |
| Total Net Cost | 220,143 | 313,279 | 105,146 | 183,703 | - | 822,271 |
| **Hazards** | | | | | | |
| Intragovernmental Gross Cost | 5,980 | 30,007 | - | - | (2,514) | 33,473 |
| Less: Intragovernmental Earned Revenue | 5,698 | 29,127 | - | - | (2,514) | 32,311 |
| Intragovernmental Net Cost | 282 | 880 | - | | - | 1,162 |
| Gross Costs with the Public | 134,605 | 94,336 | - | - | - | 228,941 |
| Less: Earned Revenues from the Public | 5,151 | 28,923 | - | - | - | 34,074 |
| Net Costs with the Public | 129,454 | 65,413 | - | - | - | 194,867 |
| Total Net Cost | 129,736 | 66,293 | - | - | - | 196,029 |
| **Costs not assigned to any program** | | | | | | |
| Asset Impairment (Note 8) | - | - | 81,100 | - | - | 81,100 |
| **Total** | | | | | | |
| Intragovernmental Gross Cost | 27,667 | 134,587 | 29,448 | 71,099 | (31,497) | 231,304 |
| Less: Intragovernmental Earned Revenue | 26,948 | 130,226 | 28,087 | 70,659 | (31,497) | 224,423 |
| Intragovernmental Net Cost | 719 | 4,361 | 1,361 | 440 | | 6,881 |
| Gross Costs with the Public | 362,952 | 499,401 | 128,650 | 186,589 | - | 1,177,592 |
| Less: Earned Revenues from the Public | 13,792 | 124,190 | 24,865 | 3,326 | - | 166,173 |
| Net Costs with the Public | 349,160 | 375,211 | 103,785 | 183,263 | | 1,011,419 |
| Asset Impairment (Note 8) | - | - | 81,100 | - | - | 81,100 |
| Total Net Cost of Operations | $ 349,879 | 379,572 | 186,246 | 183,703 | - | $ 1,099,400 |

*(Note 14 Continued)*

| | 2002 (Unaudited) | | | | | |
|---|---|---|---|---|---|---|
| | Geology | Water | Geography | Biology | Eliminations | Total |
| **Environmental and Natural Resources** | | | | | | |
| Intragovernmental Gross Cost | $ 25,270 | 102,766 | 27,452 | 66,174 | (37,203) | $ 184,459 |
| Less: Intragovernmental Earned Revenue | 24,856 | 99,628 | 26,274 | 65,860 | (37,203) | 179,415 |
| Intragovernmental Net Cost | 414 | 3,138 | 1,178 | 314 | - | 5,044 |
| Gross Costs with the Public | 202,454 | 366,936 | 195,924 | 218,508 | - | 983,822 |
| Less: Earned Revenues from the Public | 8,592 | 96,891 | 26,103 | 11,000 | - | 142,586 |
| Net Costs with the Public | 193,862 | 270,045 | 169,821 | 207,508 | - | 841,236 |
| Total Net Cost | 194,276 | 273,183 | 170,999 | 207,822 | - | 846,280 |
| **Hazards** | | | | | | |
| Intragovernmental Gross Cost | 6,049 | 29,015 | - | - | (3,334) | 31,730 |
| Less: Intragovernmental Earned Revenue | 5,776 | 28,220 | - | - | (3,334) | 30,662 |
| Intragovernmental Net Cost | 273 | 795 | - | | - | 1,068 |
| Gross Costs with the Public | 118,969 | 84,745 | - | - | - | 203,714 |
| Less: Earned Revenues from the Public | 4,743 | 29,609 | - | - | - | 34,352 |
| Net Costs with the Public | 114,226 | 55,136 | - | | - | 169,362 |
| Total Net Cost | 114,499 | 55,931 | - | - | - | 170,430 |
| **Total** | | | | | | |
| Intragovernmental Gross Cost | 31,319 | 131,781 | 27,452 | 66,174 | (40,537) | 216,189 |
| Less: Intragovernmental Earned Revenue | 30,632 | 127,848 | 26,274 | 65,860 | (40,537) | 210,077 |
| Intragovernmental Net Cost | 687 | 3,933 | 1,178 | 314 | | 6,112 |
| Gross Costs with the Public | 321,423 | 451,681 | 195,924 | 218,508 | - | 1,187,536 |
| Less: Earned Revenues from the Public | 13,335 | 126,500 | 26,103 | 11,000 | - | 176,938 |
| Net Costs with the Public | 308,088 | 325,181 | 169,821 | 207,508 | | 1,010,598 |
| Total Net Cost of Operations | $ 308,775 | 329,114 | 170,999 | 207,822 | - | $ 1,016,710 |

## Note 15 BUDGETARY RESOURCES (Unaudited)

The USGS receives budgetary resources from appropriations, offsetting receipts, and reimbursable activities. At September 30, 2003 and 2002, respectively, approximately $155.5 and $127.3 million of the budgetary resources were unobligated. These amounts include expired budget authority of $45.7 and $20.4 million at September 30, 2003 and 2002, respectively. The expired funds remain available for up to five years to pay expenses against obligations incurred.

| 2003 (Unaudited) | | Apportioned Category A | Apportioned Category B | Not Subject to Apportionment |
|---|---|---|---|---|
| Obligations Incurred: | | | | |
| Direct | $ | — | 908,078 | — |
| Reimburseable | | — | 434,661 | — |
| Total Obligations Incurred | $ | — | 1,342,739 | — |

| 2002 (Unaudited) | | Apportioned Category A | Apportioned Category B | Not Subject to Apportionment |
|---|---|---|---|---|
| Obligations Incurred: | | | | |
| Direct | $ | — | 904,701 | — |
| Reimburseable | | — | 429,567 | — |
| Total Obligations Incurred | $ | — | 1,334,268 | — |

The Statement of Budgetary Resources has been prepared to coincide with the President's Budget (the Budget of the United States Government). The FY2003 actual amounts as shown on the FY2005 President's Budget were not available at the time the financial statements were prepared. The FY2005 President's Budget is expected to be available in February, 2004 and will be located at: http://www.whitehouse.gov/omb.

Differences existed between the FY2002 Statement of Budgetary Resources and the FY2002 actual amounts reported in the President's fiscal year 2004 budget request, and are primarily due to the following:

- The Statement of Budgetary Resources includes unobligated beginning and ending balances, recoveries, and obligations from expired accounts which are excluded from the President's Budget;
- Adjustments were made to the Statement of Budgetary Resources after the information for the President's Budget was submitted; and
- Transfers are included in the Statement of Budgetary Resources and are not reported on USGS' FACTS II reporting to Treasury.

Recoveries of prior year obligations are comprised of canceled or downward adjustments of obligations incurred in prior years that were not subsequently disbursed. Resources permanently not available were adjusted pursuant to Public Law 114 Stat 2763A-214, SEC 1403. Canceled authority is returned to the U.S. Treasury at the end of the fifth year of availability for annual and multi-year funds under Public Law 101-510.

## Note 16 ALLOCATION TRANSFERS

There is a relationship between certain line items reported on the Consolidated Statement of Financing under "Total components of net cost of operations that will require or generate resources in future periods" and the change in components of costs that are included in liabilities not covered by budgetary resources reported in note 9.

The USGS is a recipient of allocation transfers of funds from the Bureau of Land Management, Department of State, and the DOI Office of the Secretary.

The allocation transfers that occurred during the years ended September 30, 2003 and 2002, respectively, consist of:

| Appropriation<br>Nature and Purpose of Transfer | **Trading Partner** | | **(Unaudited) 2003 Reconciling Amount** | **(Unaudited) 2002 Reconciling Amount** |
|---|---|---|---|---|
| 14-19-3-1082.08<br>American Sections, International Commissions | **State Department** | $ | 524 | 520 |
| 14X1121<br>Government Hill Central Hazardous Material Fund Site | **DOI - Bureau of Land Management** | | 8 | 44 |
| 14X5198.008<br>Natural Resource Damage Assessment & Restoration | **DOI – Departmental Offices** | | 925 | 576 |
| 14X5198.027<br>Natural Resource Damage Assessment & Restoration | **DOI – Departmental Offices** | | - | 83 |
| 14-14X1618.008<br>Natural Resource Damage Assessment & Restoration | **DOI – Departmental Offices** | | 9 | 30 |
| *Total components of net cost of operations related to transfer accounts where budgetary activity is reported by parent federal entities* | | $ | 1,466 | 1,253 |

## Note 17 CHANGE IN ACCOUNTING PRINCIPLE

USGS implemented a change in accounting principle with regard to the accounting for resources directed to the working capital fund.

During FY2003, USGS implemented new posting models that were issued by the Treasury that were more preferable given the nature of the USGS working capital fund activities. Prior to the change in principle, the "Federal reimbursable" model (recognizing revenue upon occurrence of an expenditure) had been employed for the recognition of revenues and budget authority. The principle change put into practice the "revolving" fund model (recognizing revenue and budget authority at the time it is received), which is more consistent with the working capital fund operations and its legislative authority.

Under the revolving fund concept, the fee-for-service component recognizes revenues and budgetary resources upon receipt of fees for providing products and services. This is consistent with the fact that collections are non-refundable and are necessary for acquiring resources. The investment component recognizes transfers-in of expenditure financing sources and budgetary resources upon receipt of transfers to authorized deposit accounts for investment in future capital purchases. Such transfers are also non-refundable and are restricted as to the use by the enabling legislation and related investment plans. The primary impact of the implementation of this change in accounting principle on the consolidated financial statements was to reclassify approximately $69 million of unexpended appropriations as cumulative results of operations within net position.

# Required Supplemental Information

(Unaudited; See Auditors' Report)

# *Deferred Maintenance*

## Deferred Maintenance

USGS develops a "Five-Year Deferred Maintenance and Capital Improvement Plan" to provide necessary up-keep on property and equipment and to provide facilities that will best fulfill our mission. Deferred maintenance is work that was not performed when it should have been or when it was scheduled, often because of funding or priority ranking of work, and was thus delayed to a future period. Capital improvements include the construction of new facilities or the alteration of an existing facility to accommodate a change of function or unmet programmatic need. All capital improvement components of projects were excluded from the deferred maintenance estimate in this report.

The Five-Year Plan is re-evaluated annually pursuant to the budget process and is subject to adjustments at that time depending on funding levels and revised priorities. Estimations on deferred maintenance are based on condition assessment surveys that are conducted every five years at each USGS site to determine the current condition of facilities and the estimated cost to correct deficiencies. These surveys are conducted by an independent engineering firm and are supplemented by annual condition surveys performed by USGS personnel.

The FY2005 budget formulation process was used to establish the base from which the FY2003 deferred maintenance priority listing was derived. The Office of Management Services (OMS), which formulates the Bureau's deferred maintenance budget, collected project proposals for possible inclusion in the Bureau plan for FY2005 – 2009. OMS collected proposed regional and headquarters facilities projects, which were then ranked to reflect the criticality of the health and safety deficiencies being addressed. A project that addressed a critical health and safety deferred maintenance need received a higher ranking than one addressing a critical mission deferred maintenance need. In June 2003, a team of regional and headquarters facility and safety specialists reviewed the ranked proposals to confirm the accuracy of rankings and otherwise ensure the adequacy of the project proposals. Due to funding constraints, only the highest-priority projects received funding and were included in the FY2005 – 2009 Plan.

A summary of the USGS Deferred Maintenance estimate at September 30, 2003 follows:

| | *(in thousands)* | |
|---|---|---|
| | **Low** | **High** |
| Buildings | $ 28,255 | $ 32,695 |
| Other Structures | 6,366 | 7,366 |
| Total Deferred Maintenance | $ 34,621 | $ 40,061 |

# *Combining Statements of Budgetary Resources by Major Budget Accounts*

# Statement of Budgetary Resources by Major Budget Accounts

## Surveys, Investigations, and Research (Fund 0804)

The USGS is primarily funded by the Surveys, Investigations, and Research (SIR) appropriation. The SIR appropriation is for expenses necessary for the USGS to perform surveys, investigations, and research covering topography, geology, hydrology, biology, and the mineral and water resources of the United States. The following activities are funded by the SIR appropriation: National Mapping Program, Geologic Hazards, Resources, and Processes; Water Resource Investigations, Biological Research, Science Support, and Facilities. Each activity is described below.

### *Geography*

The National Mapping Program activity provides mapping data essential to making informed decisions about complex natural resource, environmental, and hazards issues, as well as public health, land management, and emergency response issues. The National Mapping Program is broken down into three core directives: Mapping Data Collection and Integration, Earth Science Information Management and Delivery, and Geographic Research and Applications.

### *Geology*

The Geologic Hazards, Resources and Processes activity provides information used to evaluate resource potential, to define risks associated with natural hazards, and to characterize the potential impact of natural geologic processes on human activity, the economy, and the environment. The Geologic Hazards, Resources and Processes activity supports three core directives: Geologic Hazards Assessment, Geologic Landscape and Coastal Assessments, and Geologic Resource Assessments.

### *Water*

The Water Resources Investigation activity funds work on issues related to water availability, water quality and flood hazards. Over 4,000 scientific and support staff in offices located in every state support work for Water Resources Investigations. The Water Resources activity supports four core directives: Water Resources Assessments and Research, Water Data Collection and Management, Federal-State Cooperative Water Program, and the Water Resources Research Act Program.

### *Biology*

The Biological Resources activity generates and distributes information needed in the conservation and management of the Nation's biological resources. Biological Research also contributes to other Bureau activities including management of the Nation's water resources, availability of maps and map data, and improved decision-making regarding land and water use. The Biological Resources activity is broken down into three core directives: Biological Research and Monitoring, Biological Information and Management Delivery, and Cooperative Research Units.

***Support Services***

The Science Support activity provides resources for the executive and managerial direction to all USGS scientific programs. Science Support is broken down into two major programs: Bureau Operations and Payment to the National Business Center.

The Facilities Support activity provides workspace and facilities for accomplishing the Bureau mission. The three core areas of emphasis of Facilities support services are: Rental Payments, Operations and Maintenance, and Deferred Maintenance and Capital Improvement.

## Working Capital Fund (Fund 4556)

The Working Capital Fund was established by law to provide USGS with the ability to finance a continuing cycle of operations in two components: Investments and Fee-for-Service. The Investment Component provides funding for Telecommunications, Equipment, and Facilities. The Fee-for-service component provides continuing funding for the National Water Quality Laboratory, the USGS Hydrologic Instrumentation Facility, Publications, Eastern Region Research Laboratory, the National Training Center, and Drilling services.

## Other Aggregated Accounts

The USGS also receives a variety of other funding. Other appropriations include: Donations and Contributions; Miscellaneous Receipts; Natural Resources and Damage Assessment; and Operations and Maintenance of Quarters.

Kittiwakes on Ice

## Combining Statements of Budgetary Resources by Major Budget Accounts

For the Years Ended September 30, 2003 and 2002

*(in thousands)*

**FY2003 (Unaudited)**

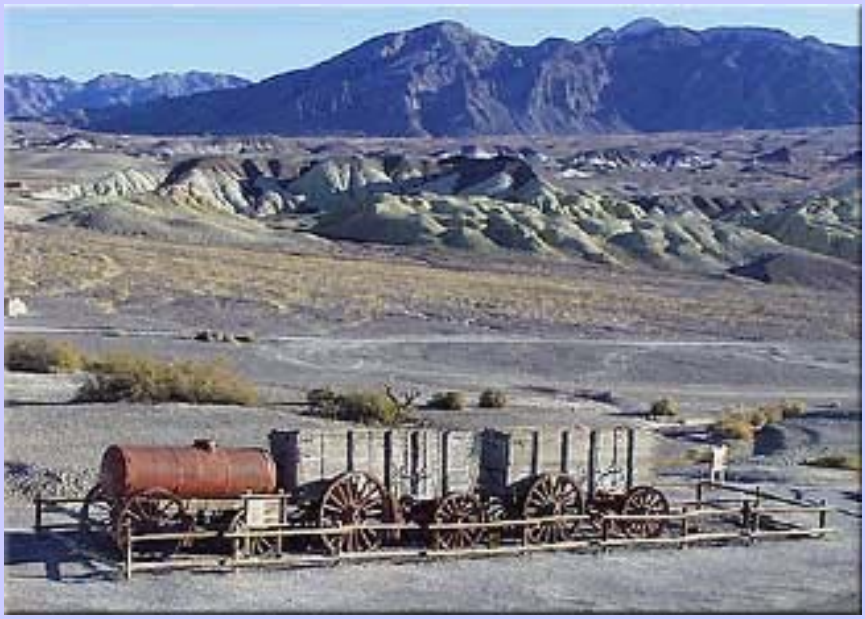
| | Fund 0804 | Fund 4556 | Small Funds | Total |
|---|---|---|---|---|
| **Budgetary resources:** | | | | |
| Budget authority: | | | | |
| Appropriations received | $ 925,287 | - | 700 | $ 925,987 |
| Net transfers, current year authority and other | - | - | - | - |
| Unobligated balance: | | | | |
| Beginning of fiscal year | 53,724 | 69,213 | 4,400 | 127,337 |
| Spending authority from offsetting collections: | | | | |
| Earned: | | | | |
| Collected | 391,699 | 122,597 | - | 514,296 |
| Receivable from federal sources | (2,103) | (1,854) | - | (3,957) |
| Change in unfilled customer orders: | | | | |
| Advance received | (27,781) | (69,158) | - | (96,939) |
| Without advance from federal sources | 35,863 | (3,712) | - | 32,151 |
| Anticipated for rest of year, without advances | - | - | - | - |
| Recoveries of prior year obligations | 10,765 | - | - | 10,765 |
| Permanently not available | (11,420) | - | - | (11,420) |
| **Total budgetary resources** | $ 1,376,034 | 117,086 | 5,100 | $ 1,498,220 |
| **Status of budgetary resources:** | | | | |
| Obligations incurred: | | | | |
| Direct | $ 905,128 | - | 2,950 | $ 908,078 |
| Reimbursable | 392,279 | 42,382 | - | 434,661 |
| Subtotal | 1,297,407 | 42,382 | 2,950 | 1,342,739 |
| Unobligated balance available, apportioned | 32,925 | 74,704 | 2,150 | 109,779 |
| Unobligated balance not available | 45,702 | - | - | 45,702 |
| **Total status of budgetary resources** | $ 1,376,034 | 117,086 | 5,100 | $ 1,498,220 |
| **Relationship of obligations to outlays:** | | | | |
| Obligations incurred | $ 1,297,406 | 42,382 | 2,951 | $ 1,342,739 |
| Obligated balance, net, beginning of fiscal year | 111,208 | 2,113 | 2,404 | 115,725 |
| Obligated balance, net, end of fiscal year: | | | | |
| Accounts receivable | 174,307 | - | - | 174,307 |
| Unfilled customer orders from federal sources | 59,475 | - | - | 59,475 |
| Undelivered orders | (169,574) | (8,430) | (1,543) | (179,547) |
| Accounts payable | (90,519) | (895) | (49) | (91,463) |
| Less: Spending authority adjustments | (44,527) | 5,567 | - | (38,960) |
| Outlays: | | | | |
| Disbursements | 1,337,776 | 40,737 | 3,763 | 1,382,276 |
| Collections | (363,918) | (53,439) | - | (417,357) |
| Subtotal | 973,858 | (12,702) | 3,763 | 964,919 |
| Less: Offsetting receipts | - | - | - | - |
| **Net outlays** | $ 973,858 | (12,702) | 3,763 | $ 964,919 |

**Combining Statements of Budgetary Resources by Major Budget Accounts**
For the Years Ended September 30, 2003 and 2002
*(in thousands)*

**FY2002 (Unaudited)**

| | Fund 0804 | Fund 4556 | Small Funds | Total |
|---|---|---|---|---|
| **Budgetary resources:** | | | | |
| Budget authority: | | | | |
| Appropriations received | $ 914,002 | - | 747 | $ 914,749 |
| Net transfers, current year authority and other | 827 | - | - | 827 |
| Unobligated balance: | | | | |
| Beginning of fiscal year | 48,261 | 65,107 | 7,048 | 120,416 |
| Spending authority from offsetting collections: | | | | |
| Earned: | | | | |
| Collected | 377,859 | 42,966 | - | 420,825 |
| Receivable from federal sources | 7,368 | (2,338) | - | 5,030 |
| Change in unfilled customer orders: | | | | |
| Advance received | 5,371 | 4,379 | - | 9,750 |
| Without advance from federal sources | (8,115) | (2,374) | - | (10,489) |
| Anticipated for rest of year, without advances | - | - | - | - |
| Recoveries of prior year obligations | 7,280 | - | - | 7,280 |
| Permanently not available | (6,783) | - | - | (6,783) |
| **Total budgetary resources** | $ 1,346,070 | 107,740 | 7,795 | $ 1,461,605 |
| **Status of budgetary resources:** | | | | |
| Obligations incurred: | | | | |
| Direct | $ 901,306 | - | 3,395 | $ 904,701 |
| Reimbursable | 391,040 | 38,527 | - | 429,567 |
| Subtotal | 1,292,346 | 38,527 | 3,395 | 1,334,268 |
| Unobligated balance available, apportioned | 33,318 | 69,213 | 4,400 | 106,931 |
| Unobligated balance not available | 20,406 | - | - | 20,406 |
| **Total status of budgetary resources** | $ 1,346,070 | 107,740 | 7,795 | $ 1,461,605 |
| **Relationship of obligations to outlays:** | | | | |
| Obligations incurred | $ 1,292,346 | 38,527 | 3,395 | $ 1,334,268 |
| Obligated balance, net, beginning of fiscal year | 113,248 | 1,886 | 6,840 | 121,974 |
| Obligated balance, net, end of fiscal year: | | | | |
| Accounts receivable | 176,410 | 1,854 | - | 178,264 |
| Unfilled customer orders from federal sources | 23,611 | 3,713 | - | 27,324 |
| Undelivered orders | (174,401) | (3,712) | (1,921) | (180,034) |
| Accounts payable | (136,829) | (3,967) | (483) | (141,279) |
| Less: Spending authority adjustments | (6,533) | 4,711 | - | (1,822) |
| Outlays: | | | | |
| Disbursements | 1,287,852 | 43,012 | 7,831 | 1,338,695 |
| Collections | (383,230) | (47,345) | - | (430,575) |
| Subtotal | 904,622 | (4,333) | 7,831 | 908,120 |
| Less: Offsetting receipts | - | - | (748) | (748) |
| **Net outlays** | $ 904,622 | (4,333) | 7,083 | $ 907,372 |

# *Working Capital Fund*



# WORKING CAPITAL FUND

The Working Capital Fund (WCF) was established by Public Law (P.L.) 101-512 (November 5, 1990), as codified in 43 U.S.C. 50a. The fund was originally established to support the Washington Administrative Service Center and to support the replacement of the USGS mainframe computer, telecommunications equipment, and related Automated Data Processing equipment. Congress later expanded the existing Telecommunications Amortization Fund to establish the USGS Working Capital fund (WCF) by P.L. 103-332, dated September 30, 1994, which enabled USGS to use the WCF to fund laboratory modernization and operation, facilities improvements, publications, scientific equipment, and other types of equipment replacement.

The two operating components of the working capital fund are capital investments and fee-for-service operations:

**Capital Investments:**

A key purpose of the WCF is to plan for long-term capital investments and accumulate the required funds over several fiscal years. The USGS is authorized to use the WCF to invest funds from appropriations and/or reimbursable agreements, without fiscal year limitations, for materials, supplies, telecommunications and other equipment and facilities renovations in support of USGS programs and other agencies of the Federal Government. Normal operating expenses may not be funded through the WCF. All investments and expenditures from a WCF investment component must be documented in an approved, multi-year Investment Plan (IP). Investments must occur, at a minimum, in two fiscal years before acquisition can occur, and are expected to be evenly balanced over the time period defined in the IP. Prior year contributions may not be withdrawn from the WCF under any circumstances; they must be expended from the WCF for an approved capital investment. Current year contributions may be withdrawn, subject to appropriate approvals.

**Fee-for-Service Operations:**

WCF fee-for-service components operate in a business-like manner, recovering fees for services performed based on a fee schedule established through a rate-setting process. WCF fee-for-service components must operate in compliance with OMB Circular A-25, User Charges, and recover the full cost of goods, services, and resources provided to their customers. For each component, an annual budget and pricing schedule is required. User charges are required to be reviewed no less than biennially.

**Change In Accounting Principle:**

As described in Note 17 to the financial statements, in FY2003, USGS implemented a change in accounting principle with regard to the accounting for resources directed to the WCF. This was done to be consistent with the new posting models that were issued by the Treasury that are more preferable given the nature of the USGS WCF activities. The primary effect of the change on the WCF financial statements was to increase cumulative results of operations by approximately $69 million and reduce deferred revenue by approximately the same amount.

Working Capital Fund
Balance Sheets
As of September 30, 2003 and 2002
*(In Thousands)*

| | (Unaudited) FY 2003 | (Unaudited) FY 2002 |
|---|---|---|
| **Assets** | | |
| Intragovernmental: | | |
| Fund balance with Treasury | $ 84,029 | $ 71,326 |
| Accounts and interest receivable, net | - | 1,853 |
| Total intragovernmental | 84,029 | 73,179 |
| Property, plant, and equipment, net | 3,421 | 3,123 |
| **Total assets** | $ 87,450 | $ 76,302 |
| **Liabilities** | | |
| Intragovernmental: | | |
| Accounts payable | $ 105 | $ 324 |
| Accrued payroll and benefits | 70 | 179 |
| Deferred revenue | - | 69,156 |
| Other liabilities | - | 10 |
| Total intragovernmental | 175 | 69,669 |
| Accounts payable | 390 | 2,756 |
| Accrued payroll and benefits | 329 | 706 |
| **Total liabilities** | 894 | 73,131 |
| **Net position** | | |
| Cumulative results of operations | 86,556 | 3,171 |
| **Total liabilities and net position** | $ 87,450 | $ 76,302 |

Working Capital Fund
Schedules of Net Cost
For the Years Ended September 30, 2003 and 2002
*(in thousands)*

**2003 (Unaudited)**

| | Fee For Service | Capital Investments | Total |
|---|---|---|---|
| Full cost of goods and services provided | $ 27,286 | 9,514 | $ 36,800 |
| Related exchange revenues | (29,433) | (1,633) | (31,066) |
| Excess of cost over revenues | $ (2,147) | 7,881 | $ 5,734 |

**2002 (Unaudited)**

| | Fee For Service | Capital Investments | Total |
|---|---|---|---|
| Full cost of goods and services provided | $ 29,647 | 10,223 | $ 39,870 |
| Related exchange revenues | (29,186) | (11,440) | (40,626) |
| Excess of cost over revenues | $ 461 | (1,217) | $ (756) |

Working Capital Fund
Statements of Changes in Net Position
For the Years Ended September 30, 2003 and 2002
*(in thousands)*

| 2003 (Unaudited) | | Cumulative Results of Operations |
|---|---|---|
| **Beginning balance** | $ | 3,171 |
| Cumulative effect of change in accounting principle | | 68,543 |
| **Beginning balance, as adjusted** | | 71,714 |
| Budgetary financing sources | | |
| Transfers in/out without reimbursement | | 21,135 |
| Other budgetary financing sources and adjustments | | 6 |
| Other financing sources | | |
| Transfers in/out without reimbursement | | (565) |
| Total financing sources | | 20,576 |
| **Net cost of operations** | | (5,734) |
| **Ending balance** | $ | 86,556 |

| 2002 (Unaudited) | | Cumulative Results of Operations |
|---|---|---|
| **Beginning balance** | $ | 6,437 |
| Other financing sources | | |
| Transfers in/out without reimbursement | | (4,022) |
| Total financing sources | | (4,022) |
| **Net cost of operations** | | 756 |
| **Ending balance** | $ | 3,171 |

# Required Supplemental Stewardship Information

(Unaudited; See Auditors' Report)

# *Stewardship Information*

USGS makes a substantial investment while fulfilling its stewardship responsibilities for the benefit of the Nation. We serve the citizens of the United States as steward for a large, varied, and scientifically important body of heritage assets, and in conducting research and development that is critical to the health of our country and in understanding the earth.

Costs associated with stewardship initiatives are treated as expenses in the financial statements in the year the costs are incurred. However, these costs and resultant resources are intended to provide long-term benefits to the public and are included as required supplementary stewardship information (RSSI) reporting to highlight their long-term-benefit nature and to demonstrate our accountability over them. Stewardship resources are not required to be included in the assets and liabilities reported in our financial statements; they are, however, important to understanding the operations and financial condition of USGS.

Stewardship assets often have physical properties that resemble those of the general property, plant and equipment that is traditionally capitalized in the financial statements of Federal entities. However, due to the nature of these assets, valuation would be difficult and matching costs with specific periods would not be meaningful. Heritage assets have one or more of the following characteristics: historical or natural significance, special cultural, educational, or aesthetic value, or significant architectural characteristics. We have heritage assets in two categories: museum collections and scientific library collections.

Investments in research and development are expenses incurred to support the search for new or refined knowledge and ideas, and for the application or use of such knowledge and ideas, for the development of new or improved products or processes with the expectation of maintaining or increasing national economic productive capacity or yielding other future benefits.

U.S. Geological Survey Headquarters, Reston, Va.

# *Museum Collections*

## Heritage Assets: Museum Collections

USGS manages a widespread collection of natural history specimens and cultural objects in many science and administrative centers throughout the United States. The collection is divided into two major categories:

- historical (including art, history, ethnography, and documents), and
- zoology.

## Historical objects

Many historical objects, including oil paintings of many historical figures, are among exhibits in the USGS National Center in Reston, Virginia, hallways or lobbies in regional offices and science centers around the country.


Our collection includes many special objects related to the cultural history of USGS, including a 1930 Model A Ford used to successfully map the geology of California deserts through the 1960s and the Lunar Rover used in the southwestern deserts to train astronauts in the lunar landing program through the 1970s.

After engine stabilization and conservation, the USGS' 1930 Model A Ford is moved inside for permanent exhibition.

Other interesting objects in the collection include John Wesley Powell's commission, one of the few documents signed by President James A. Garfield, appointing Powell as the second director of the US Geological Survey; geologic field mapping equipment from Arnold Hague's late nineteenth century expedition to map Yellowstone National Park; and Director Thomas Nolan's field equipment and academic robe from St. Andrew's University in Scotland.

Chair with a canvas cover, used in the Hague Expedition

Apache basket, collected by John Wesley Powell, dating from around 1880

## Zoology Objects

Our zoology objects are located at the Biological Research Arid Lands Field Station of the Mid-continent Ecological Science Center that retains a collection of natural specimens. Employees from the USGS stationed at the University of New Mexico's Museum of Southwestern Biology (see photo at right) maintain this collection under a joint agreement between the USGS and the University of New Mexico.

Of primary importance in our collection is the unique natural history collection of vertebrates that dates from as far back as the late 1920s and was used in support of food habits studies by researchers at the Department of Agriculture's Food Habits Laboratory in Denver, Colorado. Transferred to Fort Collins in the mid-1970s and then to the University of New Mexico under the aegis of the biological Resources Division in the 1990s, this collection includes over 8,000 fluid-preserved specimens of amphibians and reptiles as well as mammal and avian skeletons and skins. Most recently, specimens were acquired as a result of the research emphasis to document mammal species from public lands in the West.

**Collections at a glance**

Our museum collections are housed in both Federal and non-Federal institutions in an effort to maximize accessibility to the public.

| | 2002 Totals | 2003 Additions | 2003 Deletions | 2003 Totals |
|---|---|---|---|---|
| **Objects in Bureau Facilities** | | | | |
| Art | 61 | - | - | 61 |
| History | 256 | 134 | - | 390 |
| Ethnography | 1 | - | - | 1 |
| Documents | 3 | - | - | 3 |
| **Objects in Non-Federal Facilities** | | | | |
| History | 1 | - | - | 1 |
| Zoology | 39,466 | - | (18) | 39,448 |
| **Total Number of Objects** | 39,788 | 134 | (18) | 39,904 |

Cataloging efforts have also been a priority within USGS, as we have completed cataloging 100% of our collections. During the cataloging process, we evaluate the condition of each collection object. We consider "good" to show little or no sign or aging or wear; "fair" applies to objects which are showing signs of deterioration such as faded color of fabric or wood, and "poor" are objects which have missing parts or are extremely worn. No deferred maintenance is necessary for our museum collections.

We also evaluate the condition of the locations housing our collections. This evaluation is based on a lengthy list of conditions. We have objects in five USGS facilities and two of them have been evaluated as "good," which indicates the facilities meet over 70% of our standards. Two of our USGS facilities have not been evaluated as they are largely storage areas. The other USGS facility and our one non-USGS location meet between 50% and 70% of our requirements for a rating of "fair".

US Army surplus field desk used in the field by geologist Dr. David Love.

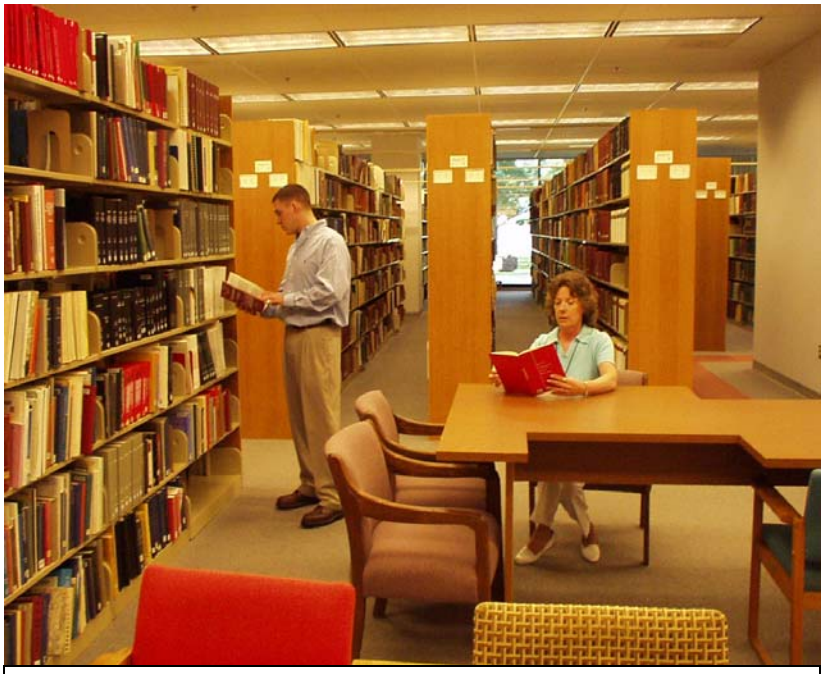
Additions to the collection in the current year were donated and deletions resulted from improving our records after taking a physical inventory.

| All Collections at 9/30/03 | Condition Assessments | | |
|---|---|---|---|
| | Good | Fair | Poor |
| 39,904 | 39,797 | 94 | 13 |

# *Library Collections*

## Heritage Assets: Scientific Library Collection

USGS library holdings, collected during more than a century of providing library services, are an invaluable legacy to the Nation. While responding to the current and anticipated subject interests of USGS researchers, the Library maintains its heritage collection of core science publications dating back to the 17th century providing a historical record of the progress of natural science. The Library was originally located in Washington, D.C., however, the library collection is now housed in four libraries across the country.



The Library at the USGS National Center in Reston, Virginia

In addition to the annual purchases of serials, maps and books, the Library has used other means to build the collection. Since its beginning, the Library has administered a major program of international and domestic exchange of earth science publications authorized by the legislation that established USGS. The exchange program, with national and foreign geological surveys and research organizations, has enabled the Library to collect materials published in small numbers, never widely distributed, and never reprinted.

Our Field Records collection in Denver includes items such as field notes, field maps and sketches and project-related correspondence created or collected by USGS scientists during official project work. The Photographic Archive provides the public with access to over 19,000 photographs and original sketches dating from 1868 to the present. Additionally, USGS maintains a collection of over 500,000 photographs taken during geologic studies of the US and its territories dating from 1868 to present. Some photographs have been used to illustrate publications, but most have never been published.

Mt. St. Helens Mt. St. Helens eruption on August 7, 1980 - P.W. Lipman, Photographer

The George F. Kunz collection on gems and minerals, acquired by the Library in the early 1930's, contains books and archival gem trade records important to the provenance of named stones or specially identified gems, such as the "Hope Diamond". The map collections include an archival and working collection of USGS topographical maps, plus thematic and topographical maps of the United States and the world.

The Library supports the research of the Department of Interior and other government agencies, universities, and professional communities. Libraries throughout the world, including the largest and most renowned, borrow from our library's unique collection. In a single six-month period at the end of 2002, the USGS Library loaned scientific publications and objects to over 750 libraries. These libraries were public, state, federal, nonprofit, company, and academic libraries in every state and in 37 foreign countries. Although not defined by Congress as a national library, the Library is recognized as the premier national collection of geologic and hydrologic publications. These unique publications are valuable supplements to the Nation's large library collections in major universities and government agencies.

**Collections at a glance**

The USGS Library system (4 libraries) contains 1.3 million books and periodicals and 1.7 million non-book items for a total of 3 million items.

| | 2002 Totals | 2003 Additions | 2003 Deletions | 2003 Totals |
|---|---|---|---|---|
| The Library at the National Center in Reston, Virginia | 1,403 | 302 | (4) | 1,701 |
| The Denver Branch Library | 948 | 7 | (1) | 954 |
| The Flagstaff Branch Library | 115 | 2 | - | 117 |
| The Menlo Park Branch Library | 283 | 7 | (1) | 289 |
| **Total Number of Objects (in millions)** | 2,749 | 318 | (6) | 3,061 |

Materials are acquired from extensive exchange agreements with institutions and agencies worldwide, from research projects and purchases from a wide variety of publishers and institutions. Items are withdrawn only after the professional library staff has made a critical analysis of the collection.

Careful consideration is given to assessing the condition of each item in the library collections. A category of "good" is defined as materials protected for reasonable use which includes publications bound or with sturdy covers, maps loosely shelved in drawers without crowding or in archival grade envelopes with minimal folds, photographs mounted in archival quality albums, or materials protected by archival quality paper or plastic sleeves or boxes. Materials evaluated as "fair" are those which can be circulated, but require binding or further treatment to insure long term protection. "Poor" materials are those that cannot be circulated or used without special attention until preservation repairs are made. This includes publications with old brittle or mottled paper, loose pages, loose or thin covers, tears, water-damage, or other damage, improper binding with tight covers, flaking binding covers, loose photographs, nitrate or glass photograph negatives, and multimedia and digital disks without containers.

| Library Collections: | Condition | | | |
|---|---|---|---|---|
| | Good | Fair | Poor | Total |
| Library at the USGS National Center in Reston | 1,361 | 255 | 85 | 1,701 |
| Denver Branch Library | 620 | 191 | 143 | 954 |
| Flagstaff Branch Library | 94 | 17 | 6 | 117 |
| Menlo Park Branch Library | 202 | 58 | 29 | 289 |
| Total | 2,277 | 521 | 263 | 3,061 |

No deferred maintenance is necessary for our library collections.

The archival of topographical and thematic maps of the United States and the world are very popular.

# Research and Development Investments

## Stewardship Investments: Research and Development

Research and development investments at USGS are a core part of fulfilling our mission and are integral to the work performed in all of our internal operating disciplines (Biology, Geography, Geology, and Water). The scope of our research and development activities spans basic, applied, and developmental research, and produces direct outputs and outcomes associated with each activity that are a valuable part of the scientific research performed throughout the Nation.

Total research and development investments were $859 million during fiscal year 2003.

### BASIC RESEARCH

Basic research activities are systemic studies to gain knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications toward processes or products in mind. The table below provides a summary of our basic research and development investments over the past five years and descriptions of each program and selected outcomes and/or accomplishments in these areas for fiscal year (FY) 2003.

| | 2003 | 2002 | 2001 | 2000 | 1999 |
|---|---|---|---|---|---|
| Geography Major Programs | | | | | |
| Geographic Analysis and Monitoring $ | 3 | | | | |
| Geology Major Programs | | | | | |
| Mineral Resources | 16 | | | | |
| National Cooperative Geological Mapping | 7 | | | | |
| Other Biology Programs | 25 | | | | |
| Other Geography Programs | 5 | | | | |
| Other Geology Programs | 21 | | | | |
| Total Basic Research (in millions) $ | 77 | 82 | 63 | 63 | 78 |

# Geography

**Program Description**

Geographic Analysis and Monitoring Program (GAM) scientists conduct geographic assessments of land surface change to improve our understanding of the rates, causes, and consequences of natural and human-induced processes that shape and change the Nation's landscape over time. Studies are conducted within a geographic context and at a range of spatial and temporal scales so that investigations provide comprehensive information needed to understand the environmental, resource, and economic consequences of landscape change.

**Significant Outcomes/Accomplishments**

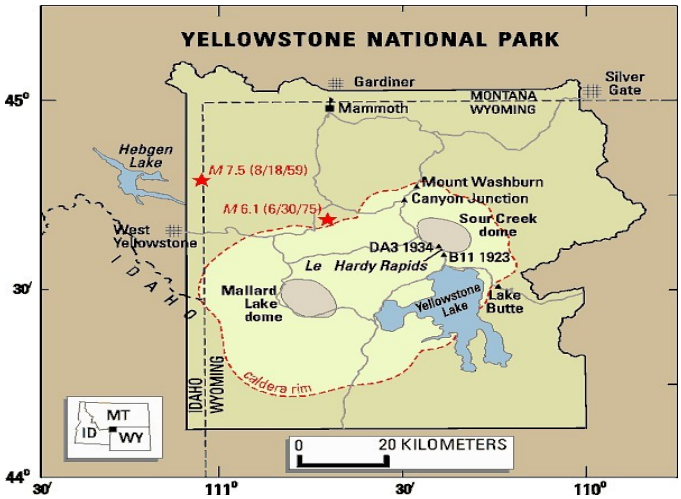
Understanding the Geography and Pathways of West Nile Virus – In an effort to better understand the geographic distribution and pathways of West Nile virus (WNV), over 140 species of bird carcasses (about 15,000 specimens) are being examined. As of June 2003, results from 5,500 birds have indicated that 1% to 2% of them contain flaviavirus antibodies. Nearly 23,000 mosquitoes have been tested and geographic information such as location, ambient air temperature, humidity, land cover, and rainfall is being geocoded and entered into a geographic information system for analysis during 2003 and 2004. An analysis of 2001 and 2002 WNV surveillance data shows that counties that report WNV-infected dead birds early in the transmission season are more likely to report subsequent WNV disease cases in humans than are counties that do not report early WNV-infected dead birds.

Better Ways to Measure *Escherichia coli* (*E. coli*) Bacteria Outbreaks in Southern Lake Michigan – Investigation of the temporal and spatial variability of *E. coli* bacteria in southern Lake Michigan has shown that variability may reduce the reliability of typical single-sample monitoring and beach closure programs to provide timely or adequate information for public health decision making. Methods of interpolating and mapping bacteria indicator densities across space and time have been developed and are being applied in animations for use in communicating information about the problem and in developing predictive models at beach- and regional-scales.

# Geology

**Program Description**

The Mineral Resources Program provides scientific information, objective resources assessments, and unbiased research results on mineral potential, production, consumption, and environmental effects. The program supports DOI's strategic goal to manage or influence resource use to enhance public benefit, promote responsible use, and ensure optimal-value of non-energy minerals by ensuring that data is available for managers to make informed decisions about use of resources.

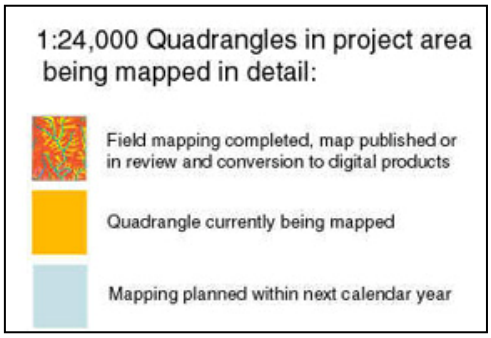



*Volcano Hazards -- Exploration and Discovery in Yellowstone Lake*: Discoveries from multi-beam sonar mapping and seismic reflection surveys of the northern, central, and West Thumb basins of Yellowstone Lake provide new insight into the extent of volcanism and active hydrothermal processes occurring in a large lake environment above a

large magma chamber. Yellowstone Lake has an irregular bottom covered with dozens of features directly related to hydrothermal, tectonic, volcanic, and sedimentary processes. Many previously unknown features have been identified; faults, fissures, domal structures, explosion craters, and sublacustrine landslides constitute potentially significant geologic hazards. Hazards range from potential seismic activity along the western edge of the lake, to hydrothermal explosions, landsliding associated with explosion and seismic events, and sudden collapse of the lake floor. Any of these events could result in a sudden shift in lake level, generating large waves that could cause catastrophic local flooding. Toxic elements derived from hydrothermal processes also may significantly affect the Yellowstone ecosystem. This research supports the program goal of understanding the influence of mineral deposits, mineralizing processes, and mineral-resource development on environmental integrity, ecosystems, public health, and geologic hazards. Information resulting from this work will be used by Federal agencies, the general public, and academia for understanding potential hazards in Yellowstone National Park.

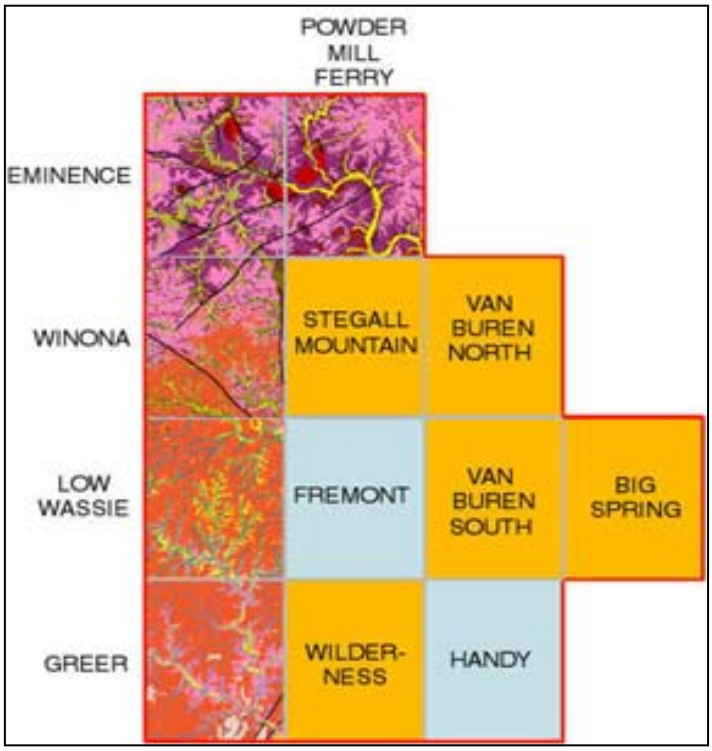
**Program Description**

The National Cooperative Geologic Mapping Program is the primary source of multiple-purpose geologic maps that depict the distribution of the Nation's sediment and rocks and the resources they provide. The program supports DOI's advancing knowledge through scientific leadership and informing decisions through the application of science.




**Significant Outcome/Accomplishment**

Geology of the Stagall Mountain 7.5-minute quadrangle, Shannon and Carter Counties, South-Central Missouri: This geologic map was a product of the Ozarks Mapping Project funded by the National Cooperative Geologic Mapping Program. This map is one of several maps completed for the Ozarks area, all of which will be used to: (1) produce a ground water movement framework that helps determine the effects of lead mining on the local aquifers, (2) provide information for land use decisions by the National Park Service within the Ozarks National Scenic Riverway that goes through the Stagall Mountain area, and (3) provide GIS data from the map to the Missouri Department of Conservation, which uses the GIS data and adds their data to create maps used to identify environmentally sensitive areas and to determine where to conduct controlled burning.



## APPLIED RESEARCH

Applied research activities are systemic studies to gain knowledge or understanding necessary for determining the means by which a recognized and specific need may be met. The table below provides a summary of our applied research and development investments over the past five years with descriptions of each program and selected outcomes and/or accomplishments in these areas for fiscal year 2003.

| | | 2003 | 2002 | 2001 | 2000 | 1999 |
|---|---|---|---|---|---|---|
| Biology Major Programs | | | | | | |
| Biological Information | $ | 17 | | | | |
| Geology Major Programs | | | | | | |
| Geologic Hazard Assessments | | 47 | | | | |
| Geologic Resource Assessments | | 85 | | | | |
| Coastal and Marine Geology | | 39 | | | | |
| Water Major Programs | | | | | | |
| Ground-Water Resources | | 23 | | | | |
| National Water-Quality Assessments | | 55 | | | | |
| Toxic Substances Hydrology | | 6 | | | | |
| Hydrologic Research | | 20 | | | | |
| Cooperative Water Program | | 51 | | | | |
| State Water Resources Research Institutes | | 33 | | | | |
| Other Biology Programs | | 199 | | | | |
| Other Geography Programs | | 48 | | | | |
| Other Geology Programs | | 23 | | | | |
| Other Water Programs | | 35 | | | | |
| Total Applied Research (in millions) | $ | 681 | 799 | 567 | 656 | 672 |

## Biology

**Program Description**

Biological Information Management and Delivery**:** The USGS develops and applies innovative information technologies and practices to the management of biological data, information and knowledge resulting from worldwide research to increase the value of our researchers and other customer groups. This program addresses all facets of the biological information life-cycle including collection, organization, description, discovery, retrieval, analysis and application, dissemination, and disposition. Program objectives are advanced through establishing partnerships with other government and non-government organizations; developing standards and methodologies for biological data collection and documentation; developing information products targeted to specific user populations; and introducing technical applications for analyzing and integrating biological data and information.

**Significant Outcome/Accomplishment**

National Biological Information Infrastructure -- Through the National Biological Information Infrastructure (NBII), the USGS is applying information science to the efficient retrieval of museum collection data. The Distributed Generic Information Retrieval (DiGIR) protocol was developed through the combined efforts of several universities using funding provided by the National Science Foundation. The purpose of DiGIR is to define a protocol for retrieving structured data from multiple databases

simultaneously using open protocols and standards and leveraging existing and emerging technologies. The NBII worked to apply DiGIR to data maintained by multiple museums regarding their collections. This enables users to execute a single search on the Web via the NBII site (www.nbii.gov) to retrieve museum holdings information from numerous museums.

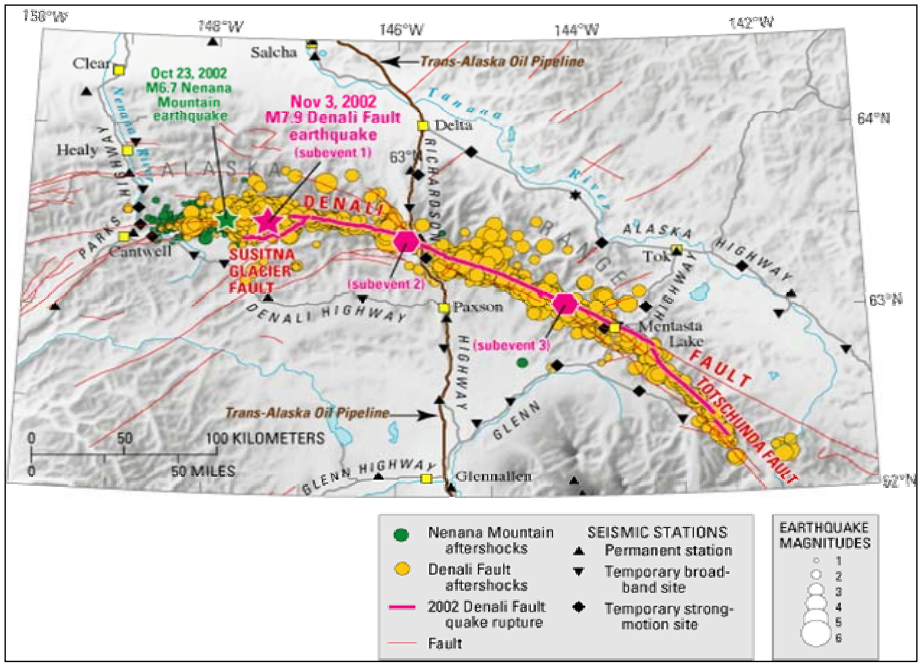
# Geology

**Program Description**

Geologic Hazard Assessments programs provide the Earth science data and information, analyses, and research needed to reduce the loss of life, property, and economic impact of geohazards. The programs conduct hazards assessments, monitoring activities, notification and outreach, and research on the causes and effects of geohazards. These programs support DOI's Serving Communities strategic goal of protecting lives, resources, and property by making information available to communities to use in developing hazard mitigation, preparedness, and avoidance plans. The information is used by DOI and other Federal agencies, states, local governments and the private sector to make informed decisions pertaining to geologic hazard loss reduction or mitigation.

**Significant Outcomes/Accomplishments**

New Alaskan Earthquake *ShakeMap*: USGS scientists, in cooperation with the University of Alaska, Fairbanks, released a new map product for the state of Alaska showing the intensity of ground shaking resulting from the magnitude 7.9 earthquake in central Alaska that occurred on Nov. 3, 2002. This map is the first "ShakeMap" produced for the state of Alaska, and is considered to be a prototype for future maps generated within minutes of significant earthquakes to direct emergency officials to areas that have experienced the greatest amount of ground shaking. Working with partners like the University of Alaska, USGS is implementing an Advanced National Seismic System (ANSS) that provides the dense instrumentation needed for measuring earthquake intensity in vulnerable urban areas and the data needed to produce ShakeMaps. Emergency response personnel will use the ShakeMap information product to target post-earthquake response efforts; land use planners will use the information to develop safer building practices in earthquake-prone regions.




Rupture in South-Central Alaska—The Denali Fault Earthquake of Nov 2002: During the 10 days following the Denali Fault earthquake, geologists from the USGS and Alaska Division of Geological and Geophysical Surveys, as well as several universities, mapped and measured the earthquake rupture on the ground by using aircraft. They identified the previously unknown Susitna Glacier Fault in the area where the quake began and showed that the rest of the rupture exactly followed an older rupture that geologists had documented in the 1970's. They also located major landslides caused by the quake. The pattern of landsliding may help to better estimate levels of shaking along the length of the fault, especially because

of the sparsity of seismic instruments in this rugged mountainous region. Because the Denali Fault earthquake occurred on a "strike-slip" fault, like the San Andreas Fault, it offers a realistic example of effects likely to accompany the next major earthquake in California. By studying earthquakes like the Denali Fault earthquake, scientists and engineers gain the knowledge necessary to reduce the vulnerability of buildings and other structures to damage in these inevitable and terrifying events. USGS studies of the Denali Fault earthquake are part of the National Earthquake Hazard Reduction Program's ongoing efforts to safeguard lives and property from the future quakes that are certain to strike in Alaska, California, and elsewhere in the United States.

New Seismic Hazard Maps: Seventy-five million Americans in 39 States live in cities with moderate to high risk from earthquakes. National maps of earthquake shaking hazards (last revised in 1996) provide information that is essential to creating and updating the seismic design provisions of building codes used in the United States. Buildings, bridges, highways, and utilities built to meet modern seismic design provisions are better able to withstand earthquakes, not only saving lives but also enabling critical activities to continue with less disruption. USGS scientists have been working with colleagues for the past 3 years to revise and update these national seismic hazard maps, based on the latest knowledge of earthquakes, active faults, and ground-shaking characteristics. Other Web site updates include the ground-shaking levels for 150,000 sites, custom hazard mapping for a user-selected region, and the ability to identify the most hazardous earthquake scenarios for a user-selected location. The National Hazard Maps are essential input into National and International building codes and are used by architects and engineers to design and construct earthquake-resistant structures.

USGS Provides Volcano Assistance to Northern Mariana Islands: USGS scientists responded to an eruption of Anatahan Volcano, in the Commonwealth of the Northern Mariana Islands (CNMI). The CNMI is U.S. territory, falling under DOI's Office of Insular Affairs. This eruption, the first at Anatahan in historic times, began suddenly on May 11, 2003. Since then, there has been nearly continuous low-level explosive activity, which has occasionally sent clouds of volcanic ash into commercial air routes and temporarily closed airports on Saipan (80 miles north of Anatahan). USGS scientists are helping personnel of the CNMI's Emergency Management Office to assess volcano hazards from the volcano, install improved seismic monitoring equipment, evaluate seismic data from the continuing eruption, and appraise future volcano-monitoring needs for the Commonwealth. This response effort supports the program's goal of hazards assessments, monitoring, and communication. The information will be used by the government of the CNMI who will use the information for volcanic hazard response and mitigation.

Anatahan Volcano

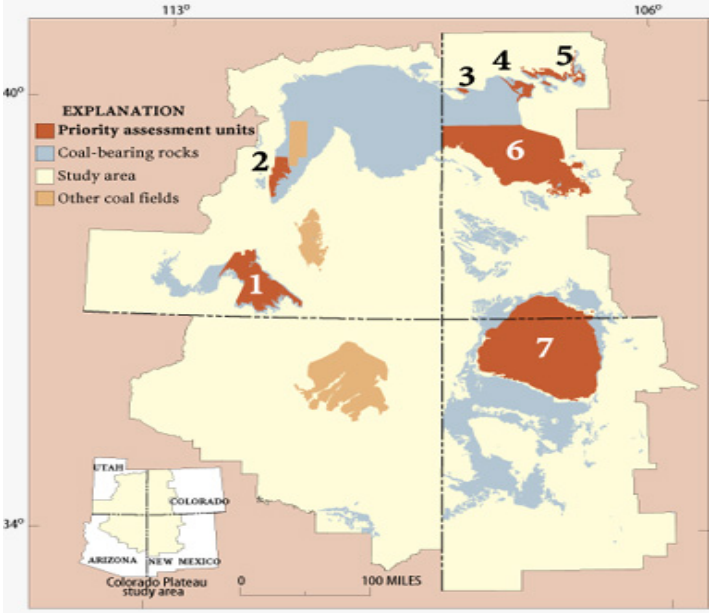
New Debris Flow Map Shows Impacts on Colorado: The USGS released a new map showing the effects of debris flows on major Colorado highways. The map identifies 480 debris flows triggered by a July 1999 thunderstorm in the continental divide area of Colorado. Several of these flows closed major highways. The map provides a foundation for understanding the potential debris-flow effects of high-altitude thunderstorms within Colorado and indicates the types of debris-flow processes and triggering mechanisms that occur in alpine areas in support of the Landslide Hazards Program goal to reduce losses from landslide hazards and communicate the results of research. This information indicates that July and August (the monsoon season in Colorado) are the months in which debris flows are most likely to occur in Colorado. A guidebook, USGS Open-file report 02-398

(http://pubs.usgs.gov/of/2002/ofr-02-398/), is available as a supplement to this new debris-flow publication (http://pubs.usgs.gov/of/2003/ofr-03-050/). Federal, State, and local Departments of Transportations and other government agencies will use this information for response to landslides and planning for new roads. Information on the maps will have relevance for land-use planning and development issues in Colorado.

USGS Seismology at the South Pole: A thousand feet beneath the surface of a 10,000-foot thick ice cap, five miles from the South Pole, seismometers are now recording the quietest vibrations on the Earth. Here, it is possible to record much smaller Antarctic-region earthquakes than ever before, leading to new insights into the evolution of the Antarctic Plate. The ultra low noise makes this station particularly valuable, as the most sensitive southern hemisphere seismic station to contribute data to the International Monitoring System of the Comprehensive Nuclear Test Ban Treaty. The deep-hole installation required development of a heated, insulated seismometer package that can withstand both the low temperature (minus 57 degrees Centigrade) and high pressure (about 500 psi) at that depth. This newest station in the Global Seismographic Network (GSN) is located at the new South Pole Remote Earth Science Observatory (SPRESO), a partnership between the IRIS consortium of universities and the USGS, funded by the National Science Foundation. The data from this key GSN station are used both to locate and characterize earthquakes in Antarctica and the southern hemisphere and to monitor for underground nuclear explosions, worldwide. Data goes to the USGS National Earthquake Information Center, to the International Data Center for the CTBT, and to the IRIS Data for use by scientific researchers.

**Program Description**

Geologic Resource Assessments programs assess the availability and quality of the Nation's mineral and energy resources, including the economic and environmental effects of resource extraction and use. These programs support DOI to enhance public benefit, promote responsible use, and ensure optimal-value by ensuring that data is available for managers to make informed decisions about use of resources.




**Significant Outcomes/Accomplishments**

The National Coal Assessment, a multi-year effort by the USGS, included studies of Federally owned coal in seven areas (called "priority assessment units") in the Colorado Plateau Region. The goal of the assessment was to identify and characterize major coal resources that will supply the Nation's energy needs during the first quarter of the 21st century, and, likely, well beyond. The Federally owned coal deposits of the Colorado Plateau Region play an important role in supplying energy to our Nation. About 360 billion short tons of Federal coal exist in the seven Colorado Plateau assessment units studied for the National Coal Assessment. As United States coal resources continue to be examined for potential development, there is sustained interest in Federal coal in the Colorado Plateau Region. Knowing where the Federal coal is located, how much Federal coal exists, and its geologic setting helps land managers, planners, and mineral developers to make informed land-use decisions.

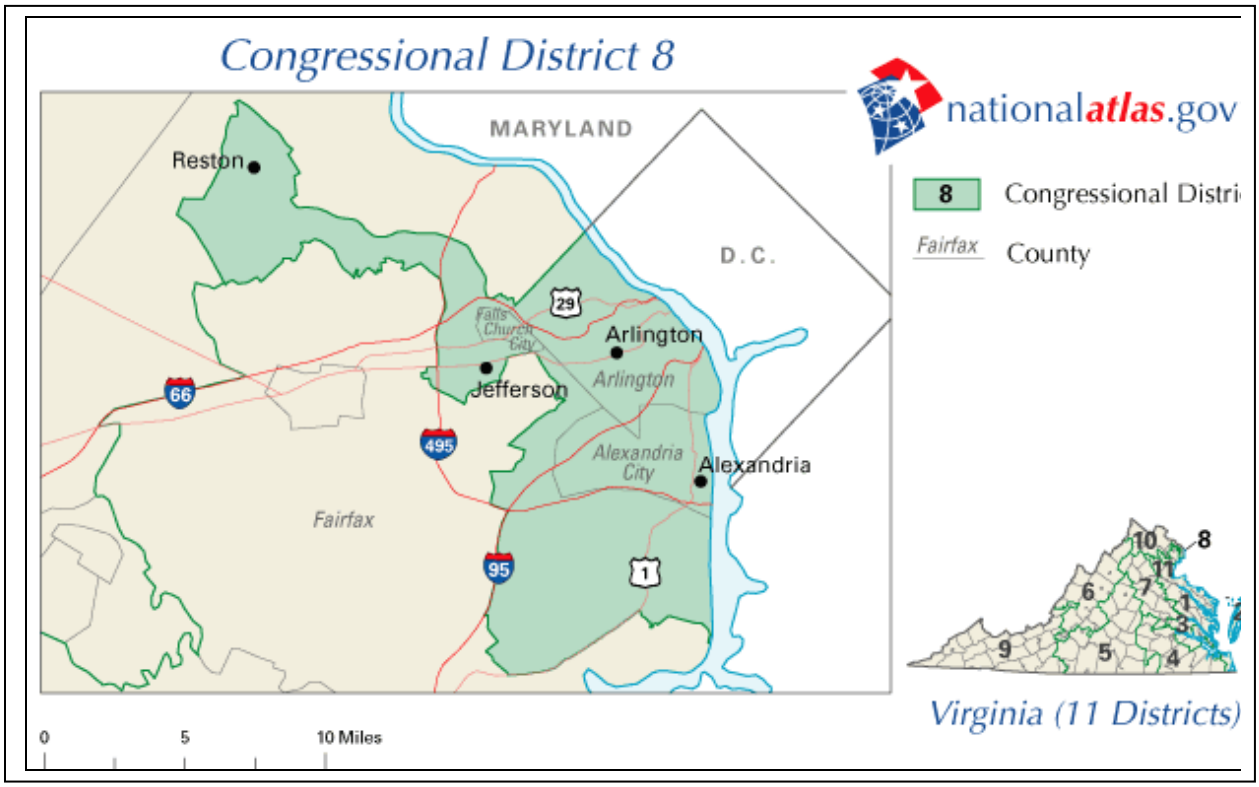
**Program Description**
The Coastal and Marine Geology Program provides geologic information critical to the management of the Nation's coastal and marine environments. The program supports DOI through scientific leadership and informed decisions through the applications of science, which is aimed at expanding the scientific knowledge base and enhancing the quality and objectivity of DOI science.

**Significant Outcomes/Accomplishments**
Crustal Structure of the Coastal and Marine San Francisco Bay Region: USGS Professional Paper 1658 was completed. This volume includes 7 chapters resulting from a 5-year project aimed at unearthing the basic science of the submerged San Andreas strike-slip fault system with its many interacting strands. Primary goals were to discover how the San Andreas and Hayward faults are connected, to locate previously unknown faults and to learn how the complex faults function and interact. The information presented comes from experiments of a scope and scale unlikely to be conducted by the USGS in the foreseeable future. The results provide a fundamental structural framework for a major part of a complex strike-slip fault system that poses a persistent hazard to a large population center. The San Francisco Bay region is home to about 6.8 million people, ranking fifth among population centers in the United States. Most of these people live on the coastal lands along San Francisco Bay, the Sacramento River delta, and the Pacific Coast. The region straddles the tectonic boundary between the Pacific and North American Plates and is crossed by several strands of the San Andreas Fault system. These faults, which are stressed by about 4 cm of relative plate motion each year, pose an obvious seismic hazard. Many of these major faults in the region lie submerged beneath San Francisco and Monterey Bay, providing an opportunity to study fault-zone structure by using marine subsurface-imaging techniques that are easier and cheaper than equivalent studies on land.

## Geography

**Program Description**
The National Atlas of the United States provides a comprehensive, map-like view into the enormous wealth of data collected by the Federal Government. The new National Atlas*:* delivers authoritative views of scientific, societal, and historical information; provides easy-to-use tools to display, manipulate, and query National Atlas data so that customers can produce their own relevant information; makes this information more accessible to individual Americans; provides a showcase for the geospatial data collected by Federal agencies; includes links to current and real-time events and to other Federal producers of geospatial information; and furnishes a national framework of well-maintained and documented base cartographic data for use by citizens and other agencies.

**Significant Outcomes/Accomplishments**
Need a map of your Congressional District? The National Atlas recently created an application for making Congressional District maps. The USGS provided the Congress with printable maps for each of the 108$^{th}$ Congressional Districts. These maps are now available for citizens to use, too. Each map illustrates the District boundary and includes roads, streams, and cities for easy reference. The maps are provided in a choice of two formats for citizens to view and print. (See http://nationalatlas.gov/whatsnew.html)




The Lake Tahoe Decision Support System – In response to the need of the Tahoe Regional Planning Agency (TRPA) to understand complex scientific issues involved in its policy decisions, the USGS is developing a decision support system for the Lake Tahoe Basin. The first stage in this DSS was delivery of the Tahoe Constrained Optimization Model (TCOM) to TRPA. This model generates alternative scenarios of development in a single watershed, along with measures of the impact of that development and its spatial characteristics. It allows TRPA to explore the trade-offs implicit in different economic and environmental land management objectives and the different geographic patterns that might result from them.

## Water

**Program Description**

Since its inception in 1879, the USGS has been involved in issues related to water availability, water quality, and flood hazards. This work is conducted by more than 4,000 hydrologists, technicians, and support staff located in offices in every State. USGS efforts include: (1) collection, management, and dissemination of hydrologic data; (2) analysis of hydrologic systems through modeling or statistical methods; and (3) research and development leading to new methods and new understanding. The following is a basic summary of the USGS Water Resources Investigations programs that are classified primarily as applied research:

The Ground-Water Resources Program evaluates ground water in the Nation's major aquifer systems, assesses the interactions of ground water with surface water, and evaluates the various factors that govern the response of aquifer systems to pumping, droughts, and other stresses.

The National Water-Quality Assessment (NAWQA) Program provides nationally consistent data and information on the quality of the Nation's most important water resources, identifying status and trends, determining cause and effect, and eventually providing forecasting or prediction. The program is now in its second decade of investigation. NAWQA plans for the second decade (recently reviewed by the National Research Council) to focus on water-quality trends over time and on environmental conditions that influence contaminant distribution.

The Toxic Substances Hydrology Program provides scientific information and tools that explain the occurrence, behavior, and effects of toxic substances in the Nation's surface water and ground water. Data and information from the program support sound decision making by resource managers, regulators, industry, and the public, to improve characterization and management of contaminated sites, to protect human and environmental health, and to reduce potential future contamination problems.

As part of the toxic substances hydrology program, USGS scientists collect ground water samples from the pond bottom at Johns Pond, Cape Cod, Massachussets, with a drive-point sampling well to confirm data obtained with diffusion samplers.

The Hydrologic Research and Development Program focuses on long-term investigations that integrate hydrologic, geologic, chemical, climatic, and biological information related to water-resources issues. This program provides the core research capability of the USGS water programs and supports many of the Bureau's foremost water research scientists.

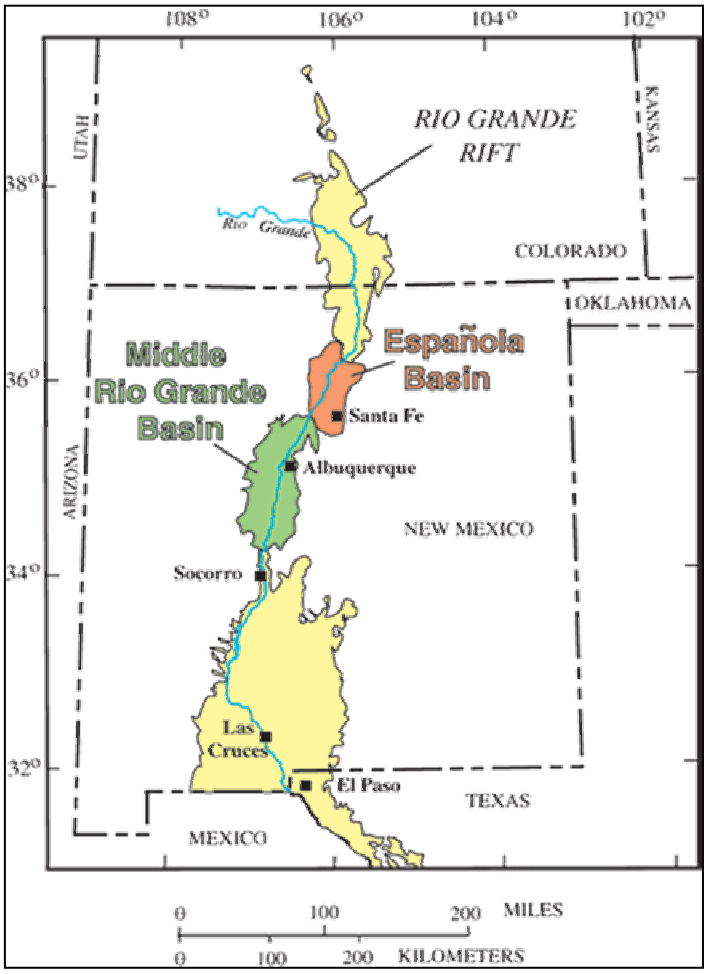
The mission of the Cooperative Water Program is to provide reliable, impartial, and timely information needed to understand the Nation's water resources through a program of shared efforts and funding with State, Tribal, and local partners to enable decisionmakers to wisely manage the Nation's water resources. This program is a 50:50 matching program in which State, Tribal, and local government agencies provide at least half the funds and the USGS performs most of the work. About 40 percent of the Cooperative Water Program comprises focused water resources investigations, with the goal of seeking solutions to water-resources issues of national concern.

The USGS administers grants for 54 State Water Resources Research Institutes designated by the Water Resources Research Act. The program supports academic research to aid in the resolution of State and regional water problems and related land problems, promotes technology transfer, and provides for the training of scientists and engineers.

**Significant Outcomes/Accomplishments**

USGS and Senator Domenici Release New Mexico Water Study: The USGS completed a 6-year study of the Middle Rio Grande basin and held a joint press conference with Senator Pete Domenici in Albuquerque, New Mexico, to announce the study findings. Initiated in the mid-1990s at the request of Senator Domenici, the study led to a number of scientific findings on the ground-water system underlying the greater Albuquerque and Central New Mexico area.

State and local officials, including Albuquerque Mayor Martin Chavez, participated in the event. By increasing the understanding of the water resources of the Middle Rio Grande Basin, water-resource managers and planners will have additional tools to make sound, scientifically based decisions on the future of water in the basin.




USGS Reports Streamflow Increased Sharply in 1970s: Streamflow in the United States increased sharply around 1970 according to a recent USGS study, and has remained at the higher level during the past 30 years. The results show increases in low to moderate streamflow, and less significant increases in high streamflow. This conclusion is based on an analysis of streamflow records from 400 USGS streamgages from 1941 to 1999. The study, entitled "A step increase in streamflow in the conterminous United States," by USGS scientists Gregory McCabe and David Wolock, was published in the Dec. 24, 2002, issue of Geophysical Research Letters. The abrupt rise in streamflow occurred mostly in the eastern United States and coincided with an increase in precipitation. An abrupt rise in streamflow, rather than a gradual increase, is important because an abrupt change signals a climate system shift that likely will remain relatively constant until a new shift occurs. Abrupt shifts in climate are common and are often related to changes in ocean temperatures and circulation patterns; such changes in climate frequently persist for decades at a time. The study results suggest that decision makers exploring future plans for water management or flood mitigation need to consider that future streamflow conditions may be different from past conditions. The robust water and flood planning demands an understanding of climate variation and the resulting wide range of potential future streamflow conditions.

USGS Research Gives Health Officials a Tool for Predicting Water Safety: USGS scientists have found a quick method to predict bacteria levels at four lake beaches in Ohio. Using the USGS model, results can be provided within two hours so public health officials and others have access to timely information on current water-quality conditions. A computer model takes into account current weather and environmental conditions to forecast E. coli bacteria concentrations, which indicate the possible presence of disease-causing organisms. Previous methods take at least 18 hours to determine these concentrations. Information about USGS beach-monitoring research is available at http://oh.water.usgs.gov/beaches.

New USGS Publication on Rock Creek: The USGS recently released findings of a water study conducted in Rock Creek Park in Washington, D.C. Scientists found pesticides in the surface water and metals, organics and pesticides in sediments, which exceeded criteria for the protection of aquatic life. In cooperation with the National Park Service, the USGS studied water quality and sediment quality in Rock Creek over a 2-year period. See the report at: http://md.water.usgs.gov/publications/wrir-02-4067/.

**View of the Calvert Bridge, spanning across Rock Creek Park**
*Photograph courtesy of the DC SHPO*

The Ecology of Arsenic: The May 9, 2003 issue of *Science* features a paper by USGS scientist Ron Oremland. The article reviews the basic processes through which a wide diversity of microbes gain energy by oxidizing, or reducing, arsenic in the natural environment. These microbial processes have a significant role in mobilizing arsenic and in regulating its appearance in drinking water throughout the world.


Typical posting of a beach water-quality advisory for high bacteria levels.

## DEVELOPMENTAL RESEARCH

Developmental research activities represent systemic use of the knowledge or understanding necessary for determining the means by which a recognized and specific need may be met. The table below provides a summary of our developmental research and development investments over the past five years and descriptions of each program and selected outcomes and/or accomplishments in these areas for fiscal year 2003.

| | 2003 | 2002 | 2001 | 2000 | 1999 |
|---|---|---|---|---|---|
| Biology Major Programs | | | | | |
| Wildlife: Terrestrial & Endangered Species $ | 3 | | | | |
| Geology Major Programs | | | | | |
| Volcano Hazards | 3 | | | | |
| Geography Major Programs | | | | | |
| Land Remote Sensing | 14 | | | | |
| Other Biology Programs | 29 | | | | |
| Other Geography Programs | 28 | | | | |
| Other Geology Programs | 24 | | | | |
| Total Developmental Research (in millions) $ | 101 | 83 | 53 | 53 | 39 |

## Biology

**Program Description**

The Wildlife: Terrestrial & Endangered Resources Program conducts research on migratory birds, mammals, amphibians, and their habitats. Results complement and support the conservation and management efforts of Federal and State wildlife agencies, non-governmental organizations and international treaties.

**Significant Output/accomplishment**

USGS Response to Emerging Wildlife Diseases – Public concern related to wildlife diseases has reached an all-time high with the rapid spread of West Nile virus and chronic wasting disease (CWD). The USGS participated in the Task Force for Chronic Wasting Disease and the Implementation Team. These groups were assigned to develop actions, funding, and timelines for measures to initiate a national plan to assist States, Tribes, and Federal agencies with CWD. The National Plan for CWD was completed in late June and the Implementation Plan followed in mid-September. The USGS also directly assisted the Wisconsin Department of Natural

Resources in establishing the capacity to test white-tailed deer tissues for CWD by forming a partnership with the Wisconsin Veterinary Diagnostic Laboratory, purchasing equipment, and developing testing capabilities. The USGS also provided direct input into the investigation of CWD in Wisconsin by developing predictive models of disease occurrence and distribution.

## Geology

**Program Description**

The Volcano Hazards program's mission is to enhance public safety and reduce losses from volcanic events through effective forecasts and warnings of volcanic hazards, thereby preventing volcano hazards from becoming volcano disasters. This mission supports DOI's strategic goal of protecting lives, resources, and property by making information available to communities to use in developing hazard mitigation, preparedness, and avoidance plans.

USGS installs seismographs to track seismic energy release.

**Significant Output/accomplishment**

USGS Develops State of the Art, Web-based Data Analysis and Visualization Software: Modern volcano observatories collect data using a wide variety of instruments. Visualizing these disparate data on a common time base is critical to interpreting and reacting to geophysical changes. With this in mind, the Hawaiian Volcano Observatory (HVO) created VALVE, the Volcano Analysis and Visualization Environment. VALVE integrates a wide range of both continuous and discontinuous data sources into a common interface that allows scientists to interactively select and visualize these data on a common time base and, if appropriate, in three dimensions. This system aids more traditional in-depth analysis by providing a common front-end to retrieving raw data. VALVE is easily extensible, modular, portable, and remarkably cost efficient. Development of VALVE supports the program's hazard monitoring goal. Scientists and data analysts will use VALVE for faster and more complete assessment of monitoring data.

## Geography

**Program Description**

Land Remote Sensing (LRS) is the Nation's portal to the largest archive of remotely sensed land data in the world. Working with NASA, NOAA, commercial satellite companies, State and local governments, and international programs, the LRS Program collects, maintains, and distributes millions of images acquired from satellite and aircraft sensors. From such images scientists and land managers, both public and private, derive information about natural resources, hazards, and long-term changes to the landscape. Through advancements in data archive and processing technology and through the operation and maintenance of satellites, the LRS Program provides continuous access to worldwide land images that can be used in mankind's effort to sustain the ever-changing Earth.

**Significant Output/accomplishment**

Global Science Community Has Access to More Improved and Reliable Landsat 5 Images: The USGS has successfully re-engineered the Landsat 5 archiving process to ingest bumper mode data and upgraded the National Land Archive Production Systems (NLAPS) to produce products from these data. The NLAPS was also modified to implement a new radiometric processing algorithm based on the results of a cooperative research activity with engineers at South Dakota State University. The USGS has also implemented changes to streamline current operational procedures, schedules, and computer software for archiving new Landsat 5 data acquisitions and making these data available for customer ordering within 24 hours. All these enhancements have resulted in the global science community having access to a more improved and reliable Landsat 5 product.

Black Hills, South Dakota Acquired on: Dec 23, 2002

Airborne remotely sensed data image captured of San Francisco, California.

# Independent Auditors' Report

# United States Department of the Interior

Office of Inspector General

Washington, D.C. 20240

December 9, 2003

Memorandum

To: Director, U.S. Geological Survey

From: Roger La Rouche
Assistant Inspector General for Audits

Subject: Independent Auditors' Report on the U.S. Geological Survey's Balance Sheet for Fiscal Year 2003 (Assignment No. E-IN-GSV-0070-2003)

We contracted with KPMG LLP (KPMG), an independent certified public accounting firm, to audit the U.S. Geological Survey's (USGS) balance sheet as of September 30, 2003. The contract required that KPMG conduct its audit in accordance with the *Government Auditing Standards* issued by the Comptroller General of the United States of America, Office of Management and Budget Bulletin 01-02, *Audit Requirements for Federal Financial Statements*, and the General Accounting Office/President's Council on Integrity and Efficiency, *Financial Audit Manual.*

In its Independent Auditor's Report dated October 31, 2003, (Attachment 1), KPMG issued an unqualified opinion on USGS's balance sheet. KPMG identified four reportable conditions related to internal controls and financial operations: (1) accounts receivable and deferred revenues related to reimbursable agreements, (2) Information Technology (IT) data security, (3) policies, procedures and controls over property, plant and equipment, and (4) policies procedures and controls over intra-departmental eliminations. KPMG considers the first reportable condition to be a material weakness. With regard to compliance with laws and regulations, KPMG found USGS to be noncompliant with portions of the Federal Financial Management Improvement Act. Specifically, USGS's financial management systems did not substantially comply with Federal financial management systems requirements and Federal accounting standards.

KPMG is responsible for the auditors' report and for the conclusions expressed in the report. We do not express an opinion on the U.S. Geological Survey's balance sheet, conclusions about the effectiveness of internal controls, conclusions on whether the U.S. Geological Survey's financial management systems substantially complied with FFMIA, or conclusions on compliance with laws and regulations.

In the November 13, 2003 response (Attachment 2), USGS concurred with the report's findings and recommendations and indicated corrective actions would be taken. Based on USGS's response, we consider all the recommendations resolved but not implemented. The recommendations will be referred to the Assistant Secretary for Policy, Management and Budget for tracking of implementation.

The legislation, as amended, creating the Office of Inspector General, (5 U.S.C.A. App. 3) requires semiannual reporting to Congress on all audit reports issued, actions taken to implement audit recommendations, and recommendations that have not been implemented. Therefore, this report will be included in our next semiannual report.

We appreciate the cooperation and assistance of USGS personnel during the audit. If you have any questions, please contact me at (202) 208-5512.

Attachments (2)

KPMG

2001 M Street, NW
Washington, DC 20036

# Independent Auditors' Report

Director of the U.S. Geological Survey and Inspector General
U.S. Department of the Interior:

We have audited the accompanying consolidated balance sheet of the U.S. Geological Survey (USGS) as of September 30, 2003. The objective of our audit was to express an opinion on the fair presentation of this financial statement. In connection with our audit, we also considered USGS's internal control over financial reporting and tested USGS's compliance with certain provisions of applicable laws and regulations that could have a direct and material effect on the consolidated balance sheet.

## SUMMARY

As stated in our opinion on the consolidated balance sheet, we concluded that USGS's consolidated balance sheet as of September 30, 2003, is presented fairly, in all material respects, in conformity with accounting principles generally accepted in the United States of America. We did not audit the accompanying consolidated balance sheet as of September 30, 2002 and the consolidated statements of net cost, consolidated statements of changes in net position, combined statements of budgetary resources, and consolidated statements of financing for the years ended September 30, 2003 and 2002.

Our consideration of internal control over financial reporting resulted in the following conditions being identified as reportable conditions:

A. Controls over accounts receivables and deferred revenues related to reimbursable agreements
B. Controls over Information Technology (IT) data security
C. Policies, procedures, and controls over property, plant and equipment
D. Policies, procedures and controls over intra-departmental eliminations

We consider reportable condition "A", above, to be a material weakness.

The results of our tests of compliance with the laws and regulations, exclusive of those referred to in the *Federal Financial Management Improvement Act of 1996* (FFMIA), disclosed no instances of noncompliance that are required to be reported herein under *Government Auditing Standards,* issued by the Comptroller General of the United States, and Office of Management and Budget (OMB) Bulletin No. 01-02, *Audit Requirements for Federal Financial Statements.*

The results of our tests of FFMIA disclosed instances where USGS's financial management systems did not substantially comply with the Federal financial management systems requirements and Federal accounting standards.

The following sections discuss our opinion on USGS's consolidated balance sheet, our consideration of USGS's internal control over financial reporting, our tests of USGS's compliance with certain provisions of applicable laws and regulations, and management's and our responsibilities.

## OPINION ON CONSOLIDATED BALANCE SHEET

We have audited the accompanying consolidated balance sheet of the U.S. Geological Survey as of September 30, 2003. The accompanying consolidated balance sheet as of September 30, 2002 and the consolidated statements of net cost, consolidated statements of changes in net position, combined statements of budgetary resources, and consolidated statements of financing for the years ended September 30, 2003 and 2002 were not audited by us and, accordingly, we do not express an opinion on them.

In our opinion, the consolidated balance sheet referred to above presents fairly, in all material respects, the financial position of USGS as of September 30, 2003, in conformity with accounting principles generally accepted in the United States of America.

As discussed in Note 17 to the financial statements, during 2003, USGS changed its accounting for the Working Capital Fund.

The information in the Management's Discussion and Analysis, Required Supplementary Stewardship Information and Required Supplementary Information sections is not a required part of the financial statements, but is supplementary information required by accounting principles generally accepted in the United States of America or OMB Bulletin No. 01-09, *Form and Content of Agency Financial Statements*. We have applied certain limited procedures, which consisted principally of inquiries of management regarding the methods of measurement and presentation of this information. However, we did not audit this information and, accordingly, we express no opinion on it.

The other accompanying information included in the Appendices section of the Annual Financial Report is presented for purposes of additional analysis and is not a required part of the financial statements. We did not audit this information and, accordingly, we express no opinion on it.

## INTERNAL CONTROL OVER FINANCIAL REPORTING

Our consideration of internal control over financial reporting would not necessarily disclose all matters in the internal control over financial reporting that might be reportable conditions. Under standards issued by the American Institute of Certified Public Accountants, reportable conditions are matters coming to our attention relating to

significant deficiencies in the design or operation of the internal control over financial reporting that, in our judgment, could adversely affect USGS's ability to record, process, summarize, and report financial data consistent with the assertions by management in the financial statements.

Material weaknesses are reportable conditions in which the design or operation of one or more of the internal control components does not reduce to a relatively low level the risk that misstatements, in amounts that would be material in relation to the financial statements being audited, may occur and not be detected within a timely period by employees in the normal course of performing their assigned functions.

In our fiscal year 2003 audit, we noted the following matters involving internal control over financial reporting and its operation that we consider to be reportable conditions. We consider reportable condition "A" to be a material weakness.

**A. Controls over accounts receivables and deferred revenues related to reimbursable agreements**

Administrative staff did not effectively and consistently investigate and correct abnormal balances in the 289A report, which is the "Status of Funding" report printed from the PCAS system which contains a detailed listing by agreement of Accounts Receivable – Billed, Accounts Receivable – Unbilled, and Deferred Revenue. As a result, unbilled amounts may not be billed timely and incorrect balances within Accounts Receivable – Billed, Accounts Receivable – Unbilled and Deferred Revenue may not be identified and corrected in a timely manner. As a monthly internal control procedure, all cost centers which service reimbursable agreements are required to perform an analysis of billed and unbilled accounts receivable balances, and the deferred revenue balance to ensure the propriety of all reported balances and to ensure that invoices are prepared timely. This analysis is accomplished by reviewing the 289A report for large and/or abnormal balances. Based on our reperformance of the control at four cost centers, we noted that the administrative staff performing the review generally handled the large debit balances appropriately. However, they did not investigate all abnormal balances (such as credit balances) in the 289A report due to the volume of the report and the fact that many abnormal balances require extensive research. In addition, there is no standard policy for how to perform this review, nor are the terms "large" and "abnormal" specifically defined. Therefore, the control is not operating consistently to identify and correct large credit balances or all abnormal balances in a timely manner.

As a result of the above internal control issues, we took a purely substantive approach to auditing the billed and unbilled accounts receivable and deferred revenue balances related to reimbursable agreements that are reported in the consolidated balance sheet of the USGS as of September 30, 2003. During this testwork, we noted the following issues related to our statistical sample of 289 (95 billed accounts receivable; 124 unbilled accounts receivable; and 70 deferred revenue) items:

- 26 instances in which deferred revenue remained on the balance sheet for a significant period of time after completion of the agreements (ranging from 7 months to 8 years), indicating that the amount should either have been refunded to the customer (5 of the instances), or in the case of fixed price agreements, should have been recorded as revenue (21 of the instances).
- 7 instances in which USGS was not billing timely and in accordance with the billing terms stated in the agreement. In some cases, the agreement period of performance had long since passed, however, the customer had still not been billed.
- 9 instances in which there was both an unbilled accounts receivable and a deferred revenue amount for the same agreement. Deferred revenue amounts should be depleted before an unbilled accounts receivable is established. It is our understanding that this is primarily caused by an erroneous end date recorded in the system. PCAS requires a bill end date for all agreements, thus USGS generally estimates an end date well into the future to avoid this issue from occurring. However, if the bill end date has passed and the project was extended but not updated in PCAS, PCAS cannot perform the task of liquidating deferred revenue.
- 2 instances in which there were credit balances in unbilled accounts receivable that should have been recorded as deferred revenue.

**Recommendations**

We recommend that USGS:

1. Implement more effective internal controls through a centralized review and analysis of agreements with abnormal billed and unbilled accounts receivable and deferred revenue balances.

2. Enforce current policies and procedures for conducting reviews of agreements. This should include providing the cost centers with the necessary training and resources for reviewing all agreements.

3. Standardize agreements and develop consistent billing practices that permit recovery of unbilled accounts as expenditures are incurred. Billing practices should be more in line with the bureau's normal vendor payment cycle, which is currently 30 days as required under the Prompt Payment Act.

4. Develop additional reporting capabilities that would help USGS administrative staff to focus on the agreements with the more significant and abnormal balances quicker. The additional capabilities should also include an evaluation using the agreement end date.

## B. Controls over Information Technology (IT) data security

Significant improvement over certain aspects of access controls and information security has been made by USGS since the FY 2002 review. USGS has prepared and

implemented a corrective action plan, re-structured its organization and added to its management staff with the goal of more effectively addressing and resolving prior years' weaknesses. The combined effect of the IT control weaknesses identified as a result of this year's review has been deemed that of a reportable condition. However, we do not consider this reportable condition to be a material weakness. Some of the identified weaknesses have been previously reported, and persist despite developed corrective action plans. Weaknesses were identified in the following IT control areas:

1. *Information Security and Logical Access Controls* – High-risk vulnerabilities were identified on the USGS internal network exposing the bureau's information systems environment to remote or local access threats. As a result of these vulnerabilities, malicious users could send email from unsuspecting accounts externally, improperly use default accounts to enumerate users and elevate rights to the system, access USGS financial systems and issue commands to add/remove files from the system. In addition, encryption tools at USGS are not being consistently used for all network related activities and transmission of sensitive or confidential data.

2. *Information Security and Application Access Controls* - USGS has not assigned responsibility for the Time and Attendance (T&A) application system security to an independent person. The system administrator currently performs security responsibilities. In addition, USGS's access controls over the T&A application need strengthening. For example, the following control weaknesses were identified:

- T&A does not maintain password history, i.e. users can reuse passwords indefinitely.
- T&A does not track failed login attempts or lock user accounts after a predetermined number of failed login attempts.
- T&A users have been assigned application privileges that violate the segregation of duties built into the application. Users have been assigned privileges that allow them to enter, modify, and approve timesheet data.

3. *Entity-Wide Security Plan: Virus Scanning* - USGS has not established workstation standards that are consistent with the current virus-scanning schedule. For example, a parent server is set up to perform virus scans on many Geographic Information Office (GIO) and Administrative Policy & Services (APS) workstations on Sunday mornings. However, the GIO and APS users are not required to leave the workstations powered up on weekends. The workstations that are powered off are not scanned. We noted that 21 out of 31 workstations we reviewed had not been scanned for over a month.

4. *User Account Management* – A standardized, fully coordinated process for reviewing and monitoring user access to all USGS platforms has not been established. As a result, two or more user IDs have been assigned to a single user, accounts have been accessed after their associated passwords should have expired, former employees continue to have active user accounts, and accounts are not consistently supported by properly prepared and reviewed documentation.

5. *Segregation of Duties: Access Controls* – USGS has not consistently ensured proper segregation of duties such that one individual cannot control key aspects of information systems operations. For example, several users have the ability to the initiate and authorize account setup functions in the BASIS+ application.

**Recommendations**

We recommend that USGS:

1. *Information Security and Logical Access Controls* - Review the assessment results that have been provided and ensure that appropriate corrective actions have been implemented to address the specific risks identified. Furthermore, USGS management should evaluate the process for identifying vulnerabilities on the internal network and ensure that thorough, periodic reviews are conducted to identify internal vulnerabilities. We further recommend that USGS management acquire and implement an encryption tool to protect sensitive and confidential data during transmission and in storage. It should be noted that management reported taking immediate action to correct the weaknesses identified as a result of the vulnerability assessment.

2. *Information Security and Application Access Controls* – Designate an independent management official to be responsible for T&A application security. Furthermore, we suggest that the following requirements be included in the administration procedures of the new T&A application:

- Implement restrictions on the reuse of passwords for at least 6 generations;
- Track unsuccessful logins and lock user accounts after 3 failed login attempts when this capability becomes available with the installation of Oracle 8.0; and,
- Enforce segregation of duties within the application so that a user cannot have more than one role.

3. *Entity-Wide Security Plan: Virus Scanning* - Standardize and formalize virus-scanning procedures to ensure that all workstations are scanned at least once a week. USGS should consider using a script as part of the boot-up process that initiates a full scan of the workstation if the last scan date is over a week-old.

4. *User Account Management* – Require that periodic review of the access control listings to its various IT resources be performed to ensure that active users have valid business needs for such access and that the access privileges are not excessive. Password policies should be strictly enforced using the technical tools available and approved user access authorization forms should be completed and maintained for all users.

5. *Segregation of Duties: Access Controls* - Ensure that a user cannot set the "Update FFS" field to "yes" and approve accounts for the same cost center. In cases where it is not feasible to do so, implement manual controls, e.g., have a management level person periodically review the accounts set up by users with incompatible privileges. Such reviews should be documented.

## C. Policies, procedures and controls over property, plant and equipment

When a capital asset is transferred-in from another federal agency, USGS records the transfer in and the asset at the original acquisition cost of the transferring agency instead of the asset's net book value (NBV) on the date of transfer. USGS then records the transferring agency's original in-service date into the Fixed Asset System (FAS), which results in the NBV of the asset being properly stated at the end of the fiscal year. However, this results in USGS recording more depreciation expense than appropriate in the year that the asset is transferred to USGS. It also results in both the acquisition cost and accumulated depreciation being overstated.

Additionally, we noted the following deficiencies related to the recording of personal property acquisitions in the FAS:

- In-service dates inconsistent with the date on the receiving reports
- Acquisition costs not in agreement with amounts stated on the related invoices and purchase orders
- Depreciation beginning on constructed assets before construction is completed and the asset placed in service
- Capital assets recorded with either no in-service date or with a useful life of zero resulting in these assets not being depreciated
- Assets capitalized that are under the bureau's capitalization threshold of $15,000

We believe the cause of most of the above issues is due to lack of adequate training and supervision of field office staff and a lack of review on the part of the Property Management Branch to ensure that all assets are recorded into FAS correctly.

**Recommendation**

We recommend that USGS implement policies, procedures and controls to ensure that capital asset transfers from other federal agencies and personal property acquisitions are recorded in accordance with SFFAS No. 6, *Property, Plant, and Equipment,* as well as existing USGS policies and procedures.

## D. Policies, procedures and controls over intra-departmental eliminations

USGS did not start the fiscal year 2003 reconciliation process for its intra-departmental transactions and balances until the second quarter of the fiscal year, and as of September 30, 2003 had not fully reconciled the transactions and balances. We also noted that the intra-departmental reconciliation process is manual and depends on significant involvement of bureau staff. While the net amount of the unreconciled differences is not material to the USGS consolidated financial statements as of September 30, 2003, failure to strengthen the organization's policies, procedures and controls in this area could

jeopardize the timely preparation of accurate quarterly and year-end consolidated financial statements in the future.

**Recommendation**

We understand that the Department of the Interior is developing an automated process to facilitate the reconciliation of intra-departmental transactions. We recommend that USGS implement this automated process. Until the automated process is implemented, we recommend that USGS improve the manual process to identify and reconcile the intra-departmental transactions. The reconciliation process should be completed at least quarterly and include procedures to resolve any differences identified in a timely manner.

* * * * *

A summary of the status of prior year reportable conditions is included as Exhibit I.

We also noted other matters involving internal control over financial reporting and its operation that we have reported to the management of USGS in a separate letter dated October 31, 2003.

## COMPLIANCE WITH LAWS AND REGULATIONS

The results of our tests of compliance with certain provisions of laws and regulations described in the Responsibilities section of this report, exclusive of those referred to in FFMIA, disclosed no instances of noncompliance that are required to be reported herein under *Government Auditing Standards* or OMB Bulletin No. 01-02.

The results of our tests of FFMIA disclosed instances, described below, where USGS's financial management systems did not substantially comply with the Federal financial management systems requirements and Federal accounting standards.

### E. Federal Financial Management Systems Requirements

As previously discussed in the "Internal Control Over Financial Reporting" section of this report, USGS did not have adequate information security and general control policies and procedures to meet the Federal financial management systems requirements of FFMIA.

**Recommendation**

We recommend that management improve controls over information technology systems to ensure adequate security and protection of information resources and to meet the requirements of FFMIA.

## F. Federal Accounting Standards

USGS is required to prepare its financial statements in accordance with federal accounting standards. As discussed in the "Internal Control Over Financial Reporting" section of this report, we identified weaknesses that affected USGS's ability to prepare its financial statements and related disclosures in accordance with federal accounting standards. Specifically, we determined that USGS needs to improve its internal controls over reimbursable agreements, property, plant and equipment, and intra-departmental eliminations.

### Recommendation

We recommend that USGS implement strengthened procedures and internal controls over reimbursable agreements, property, plant and equipment, and intra-departmental eliminations to ensure the financial statements and related disclosures are prepared in accordance with the federal accounting standards.

The results of our tests of FFMIA disclosed no instances in which USGS's financial management systems did not substantially comply with the United States Government Standard General Ledger at the transaction level.

## RESPONSIBILITIES

### *Management's Responsibilities*

The *Government Management Reform Act of 1994* (GMRA) requires each federal agency to report annually to Congress on its financial status and any other information needed to fairly present its financial position and results of operations. To assist the Department of the Interior in meeting the GMRA reporting requirements, USGS prepares annual financial statements.

Management is responsible for the financial statements, including:

- Preparing the financial statements in conformity with accounting principles generally accepted in the United States of America;

- Establishing and maintaining internal controls over financial reporting, and preparation of the Management's Discussion and Analysis (including the performance measures), required supplementary information, and required supplementary stewardship information, and

- Complying with laws and regulations, including FFMIA.

In fulfilling this responsibility, estimates and judgments by management are required to assess the expected benefits and related costs of internal control policies. Because of

inherent limitations in internal control, misstatements, due to error or fraud, may nevertheless occur and not be detected.

***Auditors' Responsibilities***

Our responsibility is to express an opinion on the consolidated balance sheet of USGS as of September 30, 2003 based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America, the standards applicable to financial audits contained in *Government Auditing Standards*, and OMB Bulletin No. 01-02. Those standards and OMB Bulletin No. 01-02 require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated balance sheet is free of material misstatement.

An audit includes:

- Examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements;
- Assessing the accounting principles used and significant estimates made by management, and
- Evaluating the overall financial statement presentation.

We believe that our audit provides a reasonable basis for our opinion.

In planning and performing our fiscal year 2003 audit, we considered USGS's internal control over financial reporting by obtaining an understanding of USGS's internal control, determining whether internal controls had been placed in operation, assessing control risk, and performing tests of controls in order to determine our auditing procedures for the purpose of expressing our opinion on the consolidated balance sheet as of September 30, 2003. We limited our internal control testing to those controls necessary to achieve the objectives described in OMB Bulletin No. 01-02 and *Government Auditing Standards*. We did not test all internal controls relevant to operating objectives as broadly defined by the Federal Managers' Financial Integrity Act of 1982. The objective of our audit was not to provide assurance on internal control over financial reporting. Consequently, we do not provide an opinion thereon.

As required by OMB Bulletin No. 01-02, we considered USGS' internal control over required supplementary stewardship information by obtaining an understanding of USGS' internal control, determining whether these internal controls had been placed in operation, assessing control risk, and performing tests of controls. Our procedures were not designed to provide assurance on internal control over required supplementary stewardship information and, accordingly, we do not provide an opinion thereon.

As further required by OMB Bulletin No. 01-02, with respect to internal control related to performance measures determined by management to be key and reported in the Management's Discussion and Analysis, we obtained an understanding of the design of significant internal controls relating to the existence and completeness assertions. Our

procedures were not designed to provide assurance on internal control over performance measures and, accordingly, we do not provide an opinion thereon.

As part of obtaining reasonable assurance about whether USGS's consolidated balance sheet as of September 30, 2003 is free of material misstatement, we performed tests of USGS's compliance with certain provisions of laws and regulations, noncompliance with which could have a direct and material effect on the determination of financial statement amounts, and certain provisions of other laws and regulations specified in OMB Bulletin No. 01-02, including certain provisions referred to in FFMIA. We limited our tests of compliance to the provisions described in the preceding sentence, and we did not test compliance with all laws and regulations applicable to USGS. Providing an opinion on compliance with laws and regulations was not an objective of our audit and, accordingly, we do not express such an opinion.

Under OMB Bulletin No 01-02 and FFMIA, we are required to report whether USGS's financial management systems substantially comply with (1) Federal financial management systems requirements, (2) applicable Federal accounting standards, and (3) the United States Government Standard General Ledger at the transaction level. To meet this requirement, we performed tests of compliance with FFMIA Section 803(a) requirements.

**DISTRIBUTION**

This report is intended for the information and use of USGS's management, the U.S. Department of Interior's management, the U.S. Department of the Interior's Office of Inspector General, OMB, the General Accounting Office, and the U.S. Congress, and is not intended to be and should not be used by anyone other than these specified parties.

KPMG LLP

October 31, 2003

**Exhibit I**

**U.S. Geological Survey**
**Status of Fiscal Year 2002 Findings**
**September 30, 2003**

| FY 2002 Report Reference | Condition Area | Status |
|---|---|---|
| | | |
| A | ***Information technology system controls*** | **Partially Repeated Comment**<br>See Reportable Condition 2003-B |
| B | ***Organizational structure and leadership of financial management*** | Substantial progress has been made by USGS in addressing this issue and it is no longer considered a reportable condition. |
| C | ***Financial reporting controls*** | Substantial progress has been made by USGS in addressing this issue and it is no longer considered a reportable condition. |
| D | ***Account analysis and adjustments*** | **Partially Repeated Comment**<br>See Reportable Condition 2003-D. |
| E | ***Revenue Cycle Controls*** | **Partially Repeated Comment**<br>See material weakness discussed in Reportable Condition 2003-A. |
| F | ***Property, plant, and equipment controls*** | **Partially Repeated Comment**<br>See Reportable Condition 2003-C. |
| G | ***Inventory*** | Substantial progress has been made by USGS in addressing this issue and it is no longer considered a reportable condition. |
| H | ***Working capital fund accounting*** | Substantial progress has been made by USGS in addressing this issue and it is no longer considered a reportable condition. |
| I | ***Compliance with FFMIA***<br>***-EDP Controls***<br>***-Federal Accounting Standards***<br>***-Standard General Ledger*** | **Partially Repeated Comment**<br>See findings 2003-E and F in the "Compliance with Laws and Regulations" section. |

# United States Department of the Interior

## U.S. GEOLOGICAL SURVEY

Reston, Virginia 20192

## MEMORANDUM

November 13, 2003

To: Roger La Rouche
Assistant Inspector General for Audits

From: Chip Groat, Director

Subject: Comments to the Independent Auditors' Report on the U.S. Geological Survey's Balance Sheet for Fiscal Year 2003 (Assignment No. E-IN-GSV-0070-2003)

Thank you for the opportunity to respond to the Independent Auditors' Report on the U.S. Geological Survey's Balance Sheet for Fiscal Year 2003. We have reviewed the report and concur with the audit findings of four reportable conditions, one of which is considered a material weakness. Our specific comments on the report and the recommendations are documented in the attached.

Should you have any questions regarding this memorandum or any of our responses, please feel free to contact either Carol Aten at (703) 648-7200 or Karen Baker at (703) 647-7261.

# Attachment –
# Comments on the Independent Auditors' Report

**General Comments:**
The USGS concurs with the findings and recommendations identified in the FY2003 Independent Auditors' Report on Internal Control Over Financial Reporting. Our responses to specific findings and recommendations are documented below.

***A. Controls over accounts receivables and deferred revenues related to reimbursable agreements.***

*KPMG Recommendations:*

1. Implement more effective internal controls through a centralized review and analysis of agreements with abnormal billed and unbilled accounts receivable and deferred revenue balances.

2. Enforce current policies and procedures for conducting review of agreements. This should include providing the cost centers with the necessary training and resources for reviewing all agreements.

3. Standardize agreements and develop consistent billing practices that permit recovery of unbilled accounts as expenditures are incurred. Billing practices should be more in line with the bureau's normal vendor payment cycle, which is currently 30 days as required under the Prompt Payment Act.

4. Develop additional reporting capabilities that would help USGS administrative staff to focus on the agreements with the more significant and abnormal balances quicker. The additional capabilities should also include an evaluation using agreement end date.

*USGS Comments:*

The USGS concurs with the findings and recommendations and has begun developing corrective action plans to address the specific recommendations. The bureau has established an Office of Internal Controls and Quality Assurance (ICQA) that reports to the Deputy Chief Financial Officer. The ICQA has oversight responsibilities to monitor the operational effectiveness and implementation of bureau specific financial policies and procedures and to conduct training as needed. Additionally, the bureau is furthering use of the accounting system's functionality for automated billings based on pre-established billing cycles. USGS expects to have complied with the recommendations by June 30, 2004.

***B. Controls over Information Technology (IT) data security***

*KPMG Recommendations:*

1. Information Security and Logistical Controls - Review the assessment results that have been provided and ensure that appropriate corrective actions have been implemented to address the specific risks identified.

2. Information Security and Application Access Controls – Designate an independent management official to be responsible for T&A application security.

3. Entity-Wide Security Plan: Virus Scanning – Standardize and formalize virus-scanning procedures to ensure that all workstations are scanned at least once a week.

4. User Account Management – Require that periodic review of the access control listings to its various IT resource be performed to ensure that active users have valid business needs for such access and that the access privileges are not excessive.

5. Segregation of Duties: Access Controls – Ensure that a user cannot set the "Update" field to "yes" and improve accounts for the same cost center.

*USGS Comments:*

The USGS concurs the finding and recommendations. The bureau has developed specific milestones that address the five recommendations with full implementation by March 2004.

### *C. Policies, procedures and controls over property, plant and equipment*

*KPMG Recommendations:*

We recommend that USGS implement policies, procedures and controls to ensure that capital asset transfers from other federal agencies and personal property acquisitions are recorded in accordance with SFFAS No. 6, *Property, Plant and Equipment,* as well as existing USGS policies and procedures.

*USGS Comments:*

The USGS concurs with the recommendation and will revise existing policies and procedures to comply with SFFAS No.6, *Property, Plant and Equipment* by March 2004. The bureau will also provide additional on-going training to ensure that property managers understand the revised policies and procedures.

### *D. Policies, procedures and controls over intra-departmental eliminations*

*KPMG Recommendations:*

We understand that the Department of the Interior is developing an automated process to facilitate the reconciliation of intra-departmental eliminations. We recommend that the USGS implement this automated process.

*USGS Comments:*

The USGS concurs with the finding and recommendation. The bureau will implement the DOI automated process as soon as it is available.

# Appendices

# *Appendix A*

*Validation and Verification of Performance Measures*

## Appendix A:
## Validation and Verification of Performance Measures

| Performance Indicators | Verification | Validation |
|---|---|---|
| **Hazards** | | |
| Hazards monitoring networks maintained | Earthquake --Data are used by automatic, computer based, data processing and analysis software at regional and national data centers. The data are used to compute the magnitude and location of earthquakes. In these analysis routines, each station used is given a standard deviation. This parameter indicates the degree of error associated with the data from that station. Bad data is immediately recognizable by high values for the standard deviations. The automatic processing routines reject these data.<br>Volcano -- Data are collected automatically by electronic equipment at monitored sites and sent to the 5 U.S. Volcano Observatories. Each monitoring network is designed to meet the individual conditions at each volcano. Data are collected in standard modes, which are established within the scientific community.<br>Data are reviewed on a daily basis for natural variations related to volcanic unrest. Data are reviewed by network scientists. Data are compared to that from previous periods.<br>Landslides -- Scientists involved in data collection efforts check instruments periodically to verify operation. Each data collection activity is unique and generally involves only one project scientist. Data are checked before performing analyses.<br>Geomagnetism -- Data is collected automatically by electronic equipment at 14 remote sites and sent via satellite to the National Geomagnetic Information Center (NGIC). NGIC defines the data formats. All data is sent from remote sites to NGIC in a standard format using standard communication protocols. Data are reviewed on a daily basis for natural variations in the Earth's magnetic field and for equipment malfunctions.<br>Water Programs -- the number of hazards monitoring networks maintained (1) remains the same year after year. Procedures for data collection are documented by GPRA discipline coordinator and are available upon request. | The National Research Council (NRC) validated this performance measure in their finding that USGS is a "vitally important provider and coordinator of information related to critical issues in the natural sciences" and often refers to the USGS' future role as a "natural science and information agency." Monitoring availability of digital databases and infrastructure is fundamental to ensuring that this future role is attained. |
| Risk assessments delivered | Geology Hazard Assessments -- As formal USGS publications, Hazard Assessments are subject to rigorous peer and management review, which includes verification of any calculations, accuracy and consistency of data presented and appropriateness and validity of source information. Risk assessments are performed in areas of the country where hazard risk is high. The exact location for risk assessments is determined by project scientists, regional management and Program Coordinators. The project scientists follow an agreed upon methodology for performing risk assessments and collecting data. | The NRC validated this performance measure in their finding that USGS is a "vitally important provider and coordinator of information related to critical issues in the natural sciences" and often refers to the USGS' future role as a "natural science and information agency." Monitoring availability of research products is fundamental to ensuring that this future role is attained. Quality of research is captured in peer review |

| Performance Indicators | Verification | Validation |
|---|---|---|
| | Water Programs --Information reported is well defined by backup material maintained by GPRA discipline coordinator, who collects the data directly from the Water Resources Reports Tracking System (RTS). Risk assessments are not counted until they are logged in the RTS as being distributed to customers. Supporting documentation is available at a macro level through the GPRA discipline coordinator, and at both macro and micro levels in the RTS. | and evaluations. |
| Real-time streamgages on the internet (quarterly average) | Data definitions are well defined and distributed by staff who provide the information to the GPRA discipline coordinator and are aware that the "number of sites reporting real-time daily mean streamflow on the Internet during the quarter." The staff can demonstrate how they collect this data each quarter. | Validation that USGS continues to have real-time streamgages reporting on the internet can be obtained by looking at the real-time streamflow information available on the Web at: http://waterdata.usgs.gov/nwis/rt Performance measure must support specific decisions about future improvements to the streamgaging network. |
| Real-time earthquake sensors (cumulative) | Data are used by automatic, computer based, data processing and analysis software at regional and national data centers. The data are used to compute the magnitude and location of earthquakes. In these analysis routines, each station used is given a standard deviation. This parameter indicates the degree of error associated with the data from that station. Bad data is immediately recognizable by high values for the standard deviations. The automatic processing routines reject these data. | Performance measure must support specific decisions about future improvements to the earthquake monitoring network. Customers and stakeholders are engaged in the strategic planning of performance goals. |
| Stakeholder Meetings | Geology Programs --Program Coordinator or Associate Program Coordinator provides title of meeting, location, and dates; obtains from teams or their own offices a copy of the agenda or other documentation; and reports meetings that meet the definition criteria.<br>Geography Programs -- A single point of contact is established for the meeting; the Geography Chief of Staff is the responsible official. Consistent methods for stakeholder meeting data collection are applied and documented.<br>Water Programs -- At the time the quarterly data call is made, a detailed definition of what constitutes a stakeholder meeting is distributed to every reporting office/program each quarter. Offices/programs are asked to provide date, location, and purpose of meeting, and a list of participating agencies/groups/ individuals. GPRA discipline coordinator determines whether meetings should be classified as Hazards or Environment & Natural Resources, according to the stated purpose of each meeting and participating agencies. Offices and programs report only those | The NRC recommended that USGS do even more in reaching out and being responsive to our partners and customers. USGS has taken very positive steps with listening sessions and other venues to monitor those external voices. The strength of the USGS in large measure depends on the value that our customers and partners place on our science and the many ways in which our science impacts their work. USGS will continue to engage in more stakeholders meetings. This performance measure is an indicator of outreach. |

| Performance Indicators | Verification | Validation |
|---|---|---|
| | meetings with a printed agenda, minutes, or other concrete documentation, for audit purposes. | |
| Customer Satisfaction | Source data are individual responses to survey questions. All are fully documented. The different aspects of each product for which satisfaction ratings are sought are clearly and simply defined on the questionnaire. Both data entry and aggregation methodologies are documented and approved. | The respondents themselves validate the usefulness of the surveys. Quality assurance is handled by the survey manager and by the responsible program specialists and managers. |
| **Environmental and Natural Resources** | | |
| Long-term data collection and data management efforts maintained and improved, and large data infrastructures supported | Biology Programs -- Definitions are provided in series of memoranda from Associate Director provided electronically in descriptive material at beginning of intranet website for reporting GPRA accomplishments. Consistent collection of data is ensured through uniform use of website for reporting quarterly accomplishments. All field stations are notified at the same time of a reporting requirement, and all use the same procedure for reports.<br>Geology Programs -- All calculations and data are checked to ensure accuracy and are re-checked against source information, and consistency checks are conducted, electronically when available.<br>Geography Programs -- Data definitions are defined and documented on website. Data control handbooks are online that define data specification standards. Working groups define protocols, methodology, and adherence procedures.<br>Water programs -- the number of large data collections maintained (4) remains the same year after year. | National program element reviews and reviews of individual research centers validate biological databases. The National Research Council (NRC) validated this performance measure in their finding that USGS is a "vitally important provider and coordinator of information related to critical issues in the natural sciences" and often refers to the USGS' future role as a "natural science and information agency." Monitoring availability of digital databases and infrastructure is fundamental to ensuring that this future role is attained. |
| New systematic analyses and investigations delivered to customers | Biology Programs -- Definitions are provided in series of memoranda from Associate Director provided electronically in descriptive material at beginning of intranet website for reporting GPRA accomplishments. Consistent collection of data is ensured through uniform use of website for reporting quarterly accomplishments. All field stations are notified at the same time of a reporting requirement, and all use the same procedure for reports.<br>Geology Programs -- GPRA discipline contact confirms that targets and actual numbers are accurate, that actual numbers exceeding or not meeting targets have been reported accurately, and re-checks the database information against the original information received from disciplines.<br>Water Programs -- Information reported is well defined by backup material maintained by GPRA discipline coordinator, who collects the data directly from the Water Resources Reports Tracking System (RTS). Risk assessments are not counted until they are logged in the RTS as being distributed to customers. | The NRC validated this performance measure in their findings that USGS is a "vitally important provider and coordinator of information related to critical issues in the natural sciences" and often refers to the USGS' future rule as a "natural science and information agency." Monitoring availability of research products is fundamental to ensuring that this future role is attained. Quality of research is captured in peer review and evaluations. |

## Appendix A:
## Validation and Verification of Performance Measures

| Performance Indicators | Verification | Validation |
|---|---|---|
| Decision support systems or predictive models developed or improved, and delivered to customers | Biology Programs -- Definitions are provided in series of memoranda from Associate Director provided electronically in descriptive material at beginning of intranet website for reporting GPRA accomplishments. Consistent collection of data is ensured through uniform use of website for reporting quarterly accomplishments. All field stations are notified at the same time of a reporting requirement, and all use the same procedure for reports.<br>Geology Programs -- Data are checked by contributing scientists once they are entered into the GEODE system and before they are released to the public. Files are checked for keywords and symbols. GEODE serves pre-existing databases and only obvious errors, seen when various layers of data are combined, are checked against original databases by contributing scientists.<br>Water Programs -- Information reported is well defined by footnotes on quarterly report, which describe the purpose/focus for each new/improved hydrologic model. GPRA discipline coordinator collects the data directly from the Website where new/revised hydrologic models are made available to the public for download.<br>Geography Programs -- Data definitions are defined and documented on website. Data control handbooks are online that define data specification standards. Long-term acquisition strategic component parts are available for peer review process including stakeholder representation. Working group defines the process.<br>Mapping centers and the GAM Program Coordinator are responsible officials. | Customers validate that the systems and models are acceptable and useful. The NRC validated this performance measure in their recommendation that multi-scale, multidisciplinary, integrated projects that use system modeling are the best way to address the Nation's complex natural resource problems.<br><br>Geography Program -- 100% of data validated through appropriate peer review. Customers validate that the systems and models are acceptable and useful. |
| University-based partnerships for natural system analysis | Biology Programs -- Definitions are provided in series of memoranda from Associate Director provided electronically in descriptive material at beginning of intranet website for reporting GPRA accomplishments. Consistent collection of data is ensured through uniform use of website for reporting quarterly accomplishments. All field stations are notified at the same time of a reporting requirement, and all use the same procedure for reports.<br>Water Programs --University-based partnerships are defined by the USGS Water programs as the 56 grants awarded annually to 54 State Water Resources Research Institutes. These grants are awarded to the same universities at approximately the same time every year. | The NRC program evaluation recommended that USGS do even more in reaching out and being responsive to our partners and customers. USGS continues to explore alternatives to the university based partnership measure to better capture cooperative activities. |
| Stakeholder meetings | Biology Programs -- Headquarters staff check all data before reporting to the Bureau. Website allows entry and editing by only two headquarters employees to prevent double entries or incorrect calculations.<br>Geology Programs --Program Coordinator or Associate Program Coordinator provides title of meeting, location, and dates; obtains from teams or their own offices a copy of the agenda or other documentation; and reports meetings that meet the | The NRC recommended that USGS do even more in reaching out and being responsive to our partners and customers. USGS has taken very positive steps with listening sessions and other venues to monitor those external voices. The strength of the USGS in large measure depends on the value that our customers and |

| Performance Indicators | Verification | Validation |
|---|---|---|
| | definition criteria.<br>Geography Programs -- A single point of contact is established for the meeting; the Geography Chief of Staff is the responsible official. Consistent methods for stakeholder meeting data collection are applied and documented.<br>Water Programs --At the time the quarterly data call is made, a detailed definition of what constitutes a stakeholder meeting is distributed to every reporting office/program each quarter. Offices/programs are asked to provide date, location, and purpose of meeting, and a list of participating agencies/groups/ individuals. GPRA discipline coordinator determines whether meetings should be classified as Hazards or Environment & Natural Resources, according to the stated purpose of each meeting and participating agencies. Offices and programs report only those meetings with a printed agenda, minutes, or other concrete documentation, for audit purposes. | partners place on our science and the many ways in which our science impacts their work. USGS will continue to engage in more stakeholders meetings. This performance measure is an indicator of outreach. |
| Customer Satisfaction | Source data are individual responses to survey questions. All are fully documented. The different aspects of each product for which satisfaction ratings are sought are clearly and simply defined on the questionnaire. Both data entry and aggregation methodologies are documented and approved. | The respondents themselves validate the usefulness of the surveys. Quality assurance is handled by the survey manager and by the responsible program specialists and managers. |

Fresh breaks and angular blocks of stone at the right abutment indicate relatively recent rock falls on the Devils Garden Trail in Arches National Park, Utah. The ground beneath the arch is covered by slope wash from a small landslide, and the slick rock member is buff in color because of a smaller content of iron oxide.

# *Appendix B*

*Program Evaluation*

***Management Control Automated Surveys***

In addition to the discipline, region, and office specific reviews, management control automated surveys were sent to employees of the Amphibian Research and Monitoring Initiative (ARMI), the Missouri Water District, and the Columbia Environmental Research Center (CERC). The employees were asked to evaluate 6 aspects of management control in their center or district:

- Organizational Control and Environment

Are the goals, objectives, policies, and procedures conducive to achieving sound management controls? Does management place a high level of importance on management integrity and ethics?

- Risk Management

Do employees and managers identify, assess, and consider the consequences of events that could prevent the achievement of its goals and objectives, and result in significant loss of resources?

- Program Effectiveness

Does the center or district have a strategic planning system that employs performance measures to provide for comparison of planned outcomes and results against actual outcomes and results?

- Resource Stewardship

Are resources safeguarded and managed in a manner consistent with the center or district's mission and laws and regulations?

- Regulatory Compliance

Does the center or district's operations comply with the applicable laws, regulations, and executive orders?

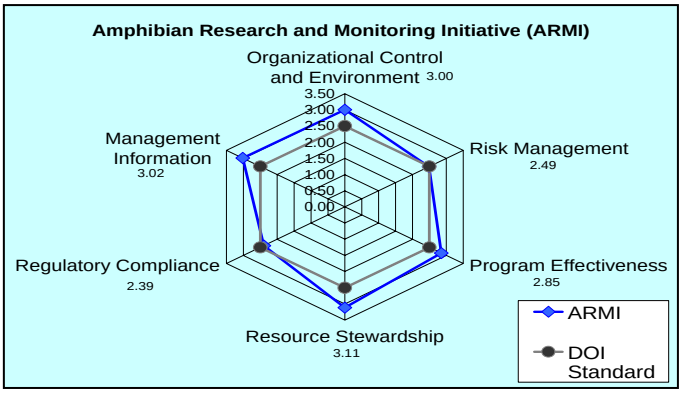
- Management Information

Is reliable and timely information obtained, maintained, reported, and used for decision making at all levels of the center or district?

In addition, respondents were asked if there were any other management control issues or concerns they would like to bring to the attention of senior management, and if there were any management control best practices they think should be shared with other offices in the Bureau.

The results of the self-assessment survey will assist the ARMI and CERC and MO district managers to improve the effectiveness of center or district management, and will also be used to support the conclusions expressed in the Director's Annual Assurance Statement to the Secretary of the Interior. This is one in a series of on-going reviews of management practices in USGS programs and organizational units. The results of the surveys are detailed in the following pages.

Amphibian Research and Monitoring Initiative (ARMI) – The Amphibian Research and Monitoring Initiative (ARMI) monitor trends in amphibian populations on DOI lands and study the causes of declines. ARMI includes efforts from three USGS disciplines: Biology, Hydrology, and Geography, as well as cooperation with the National Park Service, Fish and Wildlife Service, and Bureau of Land Management. The monitoring program is coordinated by USGS herpetologists who collaborate with USGS hydrologists and geographers in seven regions across the country. Data are managed jointly by the Patuxent Wildlife Research Center and the Western Ecological Research Center. Oversight is provided by a Steering Committee from outside the USGS.



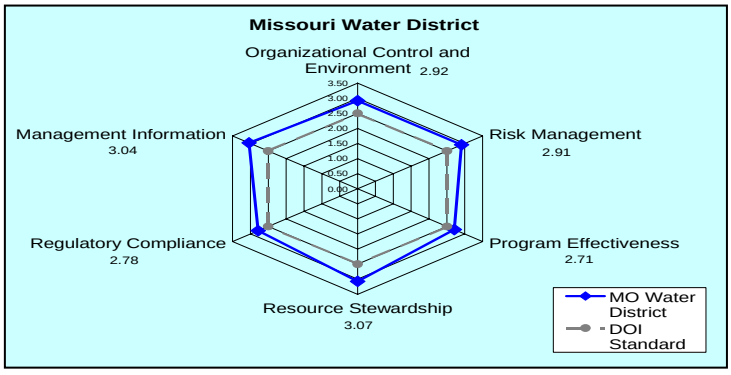

An automated management control survey was sent to 52 ARMI employees spread across 10 science centers and 3 disciplines; 38 employees responded with a participation rate of 73 percent. ARMI respondents rated above the DOI standard in four areas (Organizational Control and Environment, Program Effectiveness, Resource Stewardship, and Management Information); but were at or slightly below in two areas (Risk Management and Regulatory Compliance).

There are no management control concerns in the areas of Resource Stewardship or Management Information. There was broad agreement with all statements from all respondents.

***A message from ARMI National Coordinator:***

"The results of the ARMI Management Control Self-Assessment reveal that most USGS investigators and managers consider it to be an effective program that delivers relevant and timely scientific information. This is a testament to the dedication and professionalism of everyone involved in ARMI-sponsored research and monitoring projects nationwide. Nevertheless, it is clear that more work needs to be done in developing a common vision of where ARMI is heading and how it "fits in" with other USGS science programs. You can expect to see and hear more about this in the months ahead!"

There are pockets of management control concerns in the areas of Organizational control and environment and Program effectiveness. In the area of Organization Control and Environment some employees disagreed that there are clearly defined key areas of authority and lines of reporting. Some employees also expressed doubt that management provides needed training or the proper amount of supervision. In the area of Program effectiveness, some employees disagreed that the ARMI program has an effective reward system or appropriate performance measures.



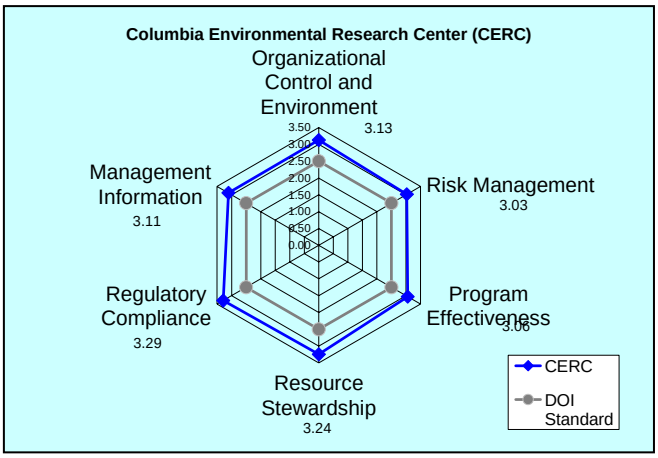
There were some management control concerns in the areas of Risk Management and Regulatory Compliance. In the area of Risk Management, some employees disagreed that the ARMI program has identified risks or implemented appropriate checks and balances. In the area of Regulatory Compliance few employees reported having been trained about the relevant laws, regulations, and executive orders. Some employees disagreed that the ARMI program could identify or resolve instances of non-compliance.

Missouri Water District -- The mission of the Missouri District of the Water Resources Division of the U.S. Geological Survey is to provide the hydrologic information and understanding needed for optimum utilization and management of water resources throughout the State.

***A message from Missouri Water District Chief:***

"I want to thank everyone who took the time to complete this survey, especially since it came during the field season when you are extremely busy. We will evaluate the results and implement actions to address the areas of concern, particularly the regulatory/compliance and human resources areas."

An automated management control survey was sent to all employees and managers in the Missouri Water District. A total of 64 employees were surveyed; 58 employees responded to the survey for a participation rate of 87.5 percent. The respondents rated above the DOI standards in all six management control areas addressed in the survey. There were some pockets of concern in program effectiveness (some employees disagreed that there were appropriate performance feedback or effective rewards) and regulatory compliance (some employees disagreed that non compliance issues were identified or resolved).




**Columbia Environmental Research Center** (CERC) is a USGS research facility located in Columbia, Missouri. The Center provides scientific information and data needed to address national and international environmental contaminant issues, and effects of habitat alterations on aquatic and terrestrial ecosystems. The Center has a unique capability for conducting multidisciplinary research that includes large river floodplains, coastal habitats, wetlands, streams, and lakes. Scientists at CERC form partnerships with national, state, and local agencies, nongovernmental organizations, and universities to enhance scientific information needed for management of the nation's resources.

A management control survey was sent to all employees in the CERC; a total of 99 employees. This included 82 employees at Columbia and 17 employees at 6 field stations. Of the 99 employees, 62 responded to the survey for a participation rate of 63 percent; 55 responses came from employees located at Columbia (67%: 55 of 82) and 7 responses came from employees located at 3 of the 6 field stations (41%: 7 of 17). The respondents rated above the DOI standards in all six management control areas addressed in the survey. There were no significant areas of concern.


People
...our most valuable resource


Make it Happen!

## Appendix C:
## FY2003 Significant Accomplishments by USGS Employees

**USGS Receives Government Communications Awards:** USGS publications, authors, and editors were recognized and honored with awards at the National Association of Government Communicators (NAGC) conference in New Orleans, La., April 9-11, 2003. The NAGC will be presented the USGS with awards in the Blue Pencil and Gold Screen categories for outstanding achievement in the field of government communications. The USGS received awards for "Beyond the Golden Gate, Oceanography, Geology, Biology, and Environmental Issues in the Gulf of the Farallones" (Circular 1198); "The Effect of Selected Cleaning Techniques on Berkshire Lee Marble: A Scientific Study at Philadelphia City Hall" (Professional Paper 1635 on CD-ROM); and the video production of "Molten Paradise: Kilauea Volcano" in the documentary category.

**National Park Service Awards USGS Scientist:** USGS scientist Caroline Rogers won the National Park Service 2003 Southeast Region Research Award, which recognizes outstanding contributions to natural resource research. The award recognizes Rogers' commitment of more than 20 years to the understanding and protection of coral reef ecology in the Caribbean and Western Atlantic. Her research has led to the development of monitoring protocols and analytical methods that have been used in the western Atlantic and have been adopted worldwide.

**USDA Honors USGS Scientist:** On June 13, Secretary of Agriculture Ann Veneman presented a certificate to USGS scientist Brian McCallum, the 2003 recipient of the 54th Annual William A. Jump Award, in recognition of his work in Louisiana and Georgia. The ceremony took place at the U.S. Department of Agriculture in Washington, D.C. The award was established in 1950 in honor of the late William A. Jump, Budget and Finance Officer of the USDA, to promote interest, growth, development and high-level performance of work in public administration. Nominees must demonstrate leadership; creativity and resourcefulness; close adherence to the basic principles of enlightened public service; integrity; and dedication to duty.

**USGS Scientist Elected to National Academy of Sciences:** On April 29, during the annual meeting of the National Academy of Sciences, USGS scientist James Dieterich was elected to membership in the Academy in recognition of his distinguished and continuing achievements in original scientific research. Election to membership in the Academy is considered one of the highest honors that can be accorded a U.S. scientist or engineer. The National Academy of Sciences is a private organization of scientists and engineers dedicated to furthering science and its use for the general welfare.

**USGS Scientists Honored:** USGS scientists were honored at the December 2002 annual meeting of the National Ground Water Association. USGS scientist Warren Wood received the M. King Hubbert Award for his contributions to understanding recharge in arid and semi-arid regions of the United States and the world. USGS scientist David Parkhurst received the John Hem Excellence in Science and Engineering Award from the Division of the Association of Ground Water Scientists and Engineers in recognition of his development of geochemical models, which have had a beneficial impact on the work of ground water scientists.

**USGS Scientist Selected as Distinguished Lecturer:** USGS scientist Barbara Bekins has been selected as the 27th Birdsall-Dreiss Distinguished Lecturer (BDDL) by the Geological Society of America. The BDDL customarily lectures at 30-50 North American academic institutions during the course of a 1-year term. Bekins will lecture on microbial degradation of contaminants as well as plate-boundary hydrogeology. Bekins also recently served as a Distinguished Visiting Lecturer for the Joint Oceanographic Institutions and is currently serving as a lecturer in the Water Resources Research Lecture Series.

**USGS Earthquake Specialist Honored:** USGS scientist Waverly Person was awarded the American Association of Petroleum Geologist's Special Award at their annual meeting in Salt Lake City, Utah, May 11-14. Person was recognized for his contributions to the field of earthquake studies, his work in establishing the USGS National Earthquake Information Center and his skill in communicating information about damaging earthquakes. Previous recipients include Harrison H. "Jack" Schmitt (Apollo astronaut and the only geologist to land on the moon) and USGS geologist Eugene Shoemaker.


**Snowy Plover Stewardship Award:** USGS scientist Kevin Lafferty received the Natural Areas Association 2003 Resource Stewardship Award on September 27, in Madison, Wisconsin for helping to protect snowy plovers. Lafferty will be honored for his conservation efforts resulting in a balance between local recreational activities and protection of the first plover fledglings since 1970 on Coal Oil Point Reserve near Santa Barbara, California.

**Making a Difference for Women in Science:** USGS scientist Lucile Jones was recognized for her achievements as a leadership figure for women in science at the annual meeting of the Camino Real Region of the Soroptimist International organization in Monrovia, Calif., May 2-3. Jones was presented the Women of Distinction Award, which honors women who demonstrated leadership in their fields and served as role models. Jones was cited for her distinguished accomplishments as a seismologist and for being widely recognized as a role model for women in scientific and technical careers.

**USGS Scientist Recipient of National Wilderness Award:** The U.S. Forest Service named USGS scientist Jan van Wagtendonk recipient of a 2002 National Wilderness Award, in the category of excellence in wilderness stewardship research. The award recognized van Wagtendonk's career of over 30 years in wilderness science. His research at Yosemite National Park has assisted in the development of wilderness fire management and visitor use management programs for the Park that has contributed substantially to interagency wilderness stewardship programs in the Sierra Nevada. His work on fuels dynamics, fire prescriptions, remote sensing, and GIS application to fire management has made major contributions to wilderness fire programs. USFS Chief Dale Bosworth presented the award to van Wagtendonk at the USFS Annual Chief's Awards Ceremony in Arlington, Va., June 12.

**Librarians Honor USGS Geographic Names Information System:** The American Library Association cites the USGS Geographic Names Information System (GNIS) as one of the best online reference sources in its fourth annual *Best Free Reference Web Sites 2002*. GNIS at http://geonames.usgs.gov/gnishome.html contains information about 2 million physical and cultural geographic features in the United States. GNIS is searchable by name, State, county, or territory, feature type (e.g., cemetery, beach, hospital), elevation, and population. Results provide longitude and latitude, USGS map names, elevation (if applicable), estimated population of cities and towns, and links to online maps.

**USGS Scientist Honored by AAAS:** The American Association for the Advancement of Science elected USGS scientist David P. Hill to the rank of AAAS Fellow. The election of an AAAS Fellow began in 1874 and honors those whose "efforts on behalf of the advancement of science or its applications are scientifically or socially distinguished." Hill was honored for his research on volcano and tectonic systems, for outstanding leadership as Chief Scientist for the USGS Long Valley Observatory, and for superb skill in communicating volcanic hazards information to the public. Hill was formally inducted during the AAAS Fellows Forum during the AAAS Annual Meeting in Denver in February 2003.

**USGS Scientist Selected as Darcy Lecturer:** USGS scientist Allen M. Shapiro has been selected by the National Ground Water Association (NGWA) to be the Distinguished Darcy Lecturer for 2004. The Darcy Lecture Series is intended to foster interest and excellence in ground water science and technology. Annually, NGWA selects an outstanding research scientist to share their research with peers and students in lectures at universities and research institutes in North America and internationally. Shapiro will offer two lectures from his research in fractured rock environments. Many areas of the United States, especially areas experiencing population growth in the Northeast, Southeast, and mountainous regions of the West, rely on fractured-rock aquifers for water supply. Fractured rock aquifers also are viewed as potential repositories for radioactive and other types of waste, where it is desirable for the ground water to be inaccessible or move at a very slow rate.


**USGS Geographer Inducted into Royal Geographical Society:** USGS Geographer Joseph Kerski has been inducted as a Fellow into The Royal Geographical Society and the Institute of British Geographers (RGS). The Society, founded in 1830 for the advancement of geographical science, is the largest geographical society in Europe and one of the largest in the world, with a membership of over 13,000. The Society supports research, education, and training and is headquartered in London, England. The society voted to make Dr Kerski an RGS Fellow because of his role in fostering international educational partnerships, for his research contributions in geography education, and for teaching over 40 workshops annually for the past decade.

**USGS Scientist Recognized with Award:** USGS scientist Jim Estes was honored at the Monterey Bay National Marine Sanctuary Symposium, on March 15, at California State University, Monterey Bay. Estes gave the Ed Ricketts Memorial Lecture created to honor individuals for contributions to the field of marine science. Estes is an international expert on sea otters and a specialist in the role of top-level predators in the marine environment See http://montereybay.nos.noaa.gov/ for information.

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**USGS Scientist to Lead National Wildfire Task Group:** The National Wildfire Coordinating Group (NWCG), formed in 1974 to expand cooperation between the Department of the Interior and the Department of Agriculture on wildland fire management, has established working teams and advisory groups to address specific issues pertaining to wildland fire. The Social Science Task Group, whose primary goal is to link social science research with fire management, will be co-chaired by USGS scientist Jonathan G. Taylor and Bureau of Land Management Field Office Manager Aden Seidlitz. Some of the next steps include determining priorities where future social science research and applications will do the most good for the fire management community.

**USGS Scientist Appointed Department of State Embassy Science Fellow:** USGS scientist Bob Finkelman was awarded a competitive appointment to become Department of State Embassy Science Fellow for South Africa. Finkelman will provide expertise, advice, and assist with science and technology issues in southern Africa and will meet with representatives of the South African geoscience, environmental science and public health communities to help develop a medical geology infrastructure. He will also work with the South African coal science community to create a publicly available coal quality database and explore ways to improve coal science education through links between African and U.S. universities and the USGS. He will also be a visiting lecturer at Witwatersrand University in Johannesburg, South Africa.

**We Welcome Your Comments!**

**Thank you for your interest in the U.S. Geological Survey's FY2003 Annual Financial Report. We welcome your comments on how we can make this report a more informative document for our readers. We are particularly interested in your comments on the usefulness of the information and the manner in which it is presented. Please send your comments to:**

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**Reston, VA 20192**

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