

Science Excellence Initiative

Science Excellence Initiative	2003 Actual	2004 Estimate	Uncontrollable & Related Changes (+/-)	Program Changes (+/-)	2005 Budget Request	Change from 2004 (+/-)
Communities of Practice \$(000) FTE				+1,000	1,000 0	+1,000 0
Data Acquisition \$(000) FTE				+1,000	1,000 0	+1,000 0
Science Excellence Initiative \$(000) FTE				+2,000	2,000 0	+2,000 0

Program Overview

This initiative is the beginning of a renewed commitment to scientific excellence that will support the mission and employees of the U.S. Fish and Wildlife Service and the Secretary's 4 C's vision. This will be accomplished by expanding partnerships with organizations like the U.S. Geological Survey, universities, and professional societies; by applying scientific information to begin developing explicit population and habitat goals to better guide conservation efforts; and applying state-of-the-art tools and techniques, including models linking populations and habitats, spatial analysis, and more strategic survey and monitoring that supports adaptive management and research.

Scientific Excellence is the foundation of our mission success. In order for our employees to assure Resource Protection Goals 1.1 and 1.2 (healthy watersheds and landscapes, and sustainable biological communities), they need timely access to relevant scientific information. Likewise, the Service's goals for Recreation (Goal 3.1) depend on our ability to understand the ecological relationships between fish and wildlife populations and human use. To increase our effectiveness in meeting all of these goals, we must build a nationwide capability to identify science-based conservation strategies for habitat and population management, and we must strengthen the skills of Service employees in understanding, analyzing, applying and communicating complex scientific concepts and information.

The capability to access and apply science toward adaptive management has been identified as a *daily need* in all our programs (e.g., migratory bird hunting data, refuge fishing data, hatchery operations data, endangered species management data), and more importantly-has been requested by our partners, like State agencies. Science is the common language in conserving fish and wildlife. We will continue to strive to be credible scientists in all that we do. This initiative will allow us to be and produce leaders in scientific conservation of fish and wildlife.

The highest priority for the Service in this budget is the "Science Excellence Initiative," including "strategic information acquisition" estimated at \$1 million and \$1 million to build "Communities of Practice." This initiative will give our employees the ability to acquire strategic scientific information and provide them with the skills, and technical and technological support required to do 21st Century science. It is the beginning of a long-term investment and success will require commitment and sustained effort.

Justification of 2005 Program Changes

Subactivity		2005 Budget Request	Program Changes (+/-)
Science Excellence Initiative	\$(000) FTE	2,000 0	+2,000 0

The FY 2005 budget request for the Science Excellence Initiative is \$2,000,000 and 0 FTE, a net program increase of \$2,000,000 and 0 FTE from the 2004 enacted level.

Communities of Practice (+\$1,000,000)

The Service has a long and proud tradition of scientific excellence and by supporting Communities of Practice among our scientific professionals; we will be following Ben Franklin's admonition to invest in knowledge. Communities of Practice will build upon the existing expertise within the bureau and begin to increase our ability to access and apply the reservoir of knowledge that expertise represents. We believe that an essential element in our recommitment to strengthening science is the development of our scientific communities within the Service. The development of "Communities of Practice" is a well-researched and proven means of generating and transferring knowledge within an organization – in this case within the scientific communities in the Fish and Wildlife Service. With \$1 million dollars, three communities of practice will be identified, formed and supported within the Service to achieve several specific functions:

- 1) Bringing together the recognized leaders within a community to identify competencies needed by scientists at the entry, journeyman and mastery levels within the community, now and in the future;
- 2) Assessing the current level of competency at the various levels within the organization and identifying the gaps between future need and current capacity;
- 3) Developing a strategic workforce plan, in coordination with the Service's workforce planning effort, to address the gap through hiring, training and development;
- 4) Implementing the training and development programs to address the gaps;
- 5) Coaching and mentoring younger scientists within the community;
- 6) Identifying specific standards and levels of professional excellence within each community, and mechanisms to acknowledge and reward achievement against those standards;
- 7) Promoting best practices with the community, including peer review, publication and the development and sharing of information within the community;
- 8) Serving as a "virtual" source of problem sharing and problem solving within the community;
- 9) Identifying the gap between current level of knowledge and information versus that which is needed in the organization and identifying sources of information and means of developing knowledge to fill the gap;

- 10) Rebuilding a sense of commitment, on behalf of the Service, to the scientific excellence of our employees.

The ten functions enumerated above will play a significant role in achieving one of the key end outcome goals in the *DOI Strategic Mission Goal 5* of management excellence, which is to ensure that the workforce has job-related knowledge and skills necessary to accomplish organizational goals.

The first stage will begin to develop "Communities of Practice" by identifying 3 scientific communities. To do this, the Service Director will appoint a Service Science Committee, made up of selected Regional Directors, Assistant Directors, National Conservation Training Center (NCTC) Director, and the Senior Science Advisor. The Committee will be appointed during the second quarter of FY 2004. One of the initial tasks assigned to the Service Science Committee will be to consider and select the target scientific communities, and the order for each to begin the process of developing a Community of Practice. The process of selection and prioritization will begin during the third quarter and will be completed during the fourth quarter of FY 2004.

The next stage is initiating development of Communities of Practice. Initiation will be phased throughout the fiscal year, in order to allow NCTC to manage workload efficiently, and to ensure we can learn and improve this process of facilitation as we proceed with the initial steps of implementation. During the first quarter of FY 2005, NCTC will put in place the institutional foundations for the effort and launch development of the initial Community of Practice. During the third quarter of FY 2005, the second community will be launched; and during the fourth quarter, the third community will launch.

No Community of Practice will be fully operational during FY 2005, but it is anticipated the first community will be well underway, beginning to accomplish specific and self-determined goals, and involved in regular and coordinated communication. By the end of FY 2006, at least one community will be fully and independently operational and one will be nearing full and independent operation.

"Communities of Practice" models will help the Service address DOI Strategic objectives of *improving science and improved service to the American people*. Imagine that the knowledge of generations of Service scientists can be identified, accessed and applied to management of natural resources and not assembled, relearned, and disassembled each time an issue or opportunity is confronted. Building Communities of Practice will also help the Service in reaching out to the broader scientific community in other agencies, States, universities and Native American tribes, furthering the Secretary's Four C's, and building the professional relationships and partnerships needed to ensure that the Service continues to strengthen its scientific foundations and capabilities.

Implementation of this Communities of Practice initiative will be the responsibility of the National Conservation Training Center, and needs in 2005 will include:

Internal coordination and technical support for developing 3 communities	\$ 250,000
Travel for one initial and one follow-up meeting for each community	\$ 300,000
Ongoing computer/ technological support of "virtual communities"	\$ 200,000
Contract support to develop exportable model to serve future communities	\$ 100,000
Expanded access to knowledge and on-line scientific information	\$ 100,000
Connectivity to peer efforts (i.e. Society for Conservation Biology, American Fisheries Society, USGS)	\$ 50,000
Total Estimated Cost:	<u>\$1,000,000</u>

Data Acquisition (+\$1,000,000)

The second dimension of this initiative will invest in the ability of the Service to acquire the information essential to its mission success. The Service needs the ability to determine priority needs for the acquisition of scientific information and to pursue those needs by investing the energy and talent of our workforce, and by the direction of funding dedicated to the task.

Building Bridges

The bridge that allows cooperation between potential partners is communication. In the field of fish and wildlife conservation scientific information is the essential ingredient in effective communication. It provides a common currency that promotes positive discussion and resolution of complex and controversial subjects. In turn, that discussion also provides a bridge for information back to the field and our employees. Our primary focus right now is bridging information needs with the USGS, whom we are cooperating with to facilitate this effort. The USGS has provided a full-time staff person to the USFWS to support this effort. We are now underway to bridge that effort in using GAP analysis to provide a larger landscape analysis in our Refuges Comprehensive Conservation Plans (CCPs). [Note: The USGS has a matching initiative, addressed in their budget request, that focuses on the Great Lakes Deepwater Fisheries Large Vessels program to acquire and transfer data between the two bureaus.]

We are building positive relationships with the USGS built not on duplication but rather on complementarities and partnerships. That is perhaps best demonstrated by the extremely successful results from the recent first-ever combined meeting of the executive leadership of both bureaus. Another example was the recent GAP Program annual conference. The Service worked cooperatively with USGS in the planning and implementation of that conference, and as a direct result, several initiatives are underway with the goal of improving the relevance of GAP for Service programs and activities. We are setting clear expectations of employees at all levels of both bureaus for coordination and cooperation in the identification and execution of priority needs for scientific information acquisition. We will be working with other scientific organizations. For instance, we are working with scientific professional societies, like The Wildlife Society and the Society for Conservation Biology. We recently held a meeting with the leadership of the National Zoological Park to discuss scientific collaboration to support endangered and threatened species recovery and international conservation.

There are some very *concrete results* that we anticipate from this effort. For instance, scientific information acquisition and dissemination will allow us to *focus* cooperative efforts on building on capabilities at the bird banding laboratory to serve both bureaus. While this has been a principal source of friction and institutional conflict between the two bureaus, the ability to acquire information and use it to solve this problem, gives us an excellent example of what could be accomplished, given the funding for this portion of the scientific initiative. The two bureau directors recently held a meeting to bring together key agency personnel and put together a strategy to deal jointly with the issue.

Building on Leadership

There are many examples where strategic information acquisition would be useful in acquiring and translating science to the field and across the agencies. These include: (1) The USGS has offered, and the USFWS has accepted offers to attend key USGS planning meetings to improve agency communication and cooperation, (2) The USFWS is anticipated to participate in the upcoming BRD Extended Leadership Team Meeting, in Ft. Collins, Colorado. These are key meetings where USGS

establishes scientific priorities for the year, 2005 and into the 21st century and (3) the USFWS is cooperating in the USGS 5-year program reviews (e.g., global climate research program, national biological information infrastructure (NBII). Clearly, the two bureaus are taking unprecedented steps, within available resources, to improve cooperation and communication. The purpose of these joint discussions is to identify areas of common interest and priority, and additional resources will be necessary to support the scientific work needed to address them.

The Service will focus not solely on the acquisition of information, but on its availability and use, in creating knowledge that will help set priorities for the implementation of our conservation programs. In this effort, we will A) seek a growing partnership with the National Biological Information Infrastructure, to ensure that information is widely accessible, within the Service, and among our conservation partners. This data acquisition will support *DOI Resource Protection Goal 1* to sustain biological communities by improving the information base used in decision making.

The following six areas are examples of the kind of strategic information needs that can be supported with this increased funding. In each case, it would not be the Service acting alone, but in concert with partners, like the USGS, universities, State agencies, tribes, and others.

Endangered Species/Population Biology – The challenge inherent in conservation of threatened and endangered species has never been greater and never more intertwined with the need for scientific information. Population genetics has proven determinative or problematic in numerous instances (e.g., Atlantic salmon, Red wolf, and Black-footed ferret) and is increasingly vital in our ability to deal with complex listing and recovery issues.

Migratory Bird Conservation – Greater understanding of how bird populations respond to various environmental changes, occurring across the breadth and duration of their annual migratory journeys is essential in developing effective conservation strategies and partnerships. We need increasing access to expanding scientific information on the relationship between migratory birds and their environment. Improving our understanding of avian ecology and relationships to human activities, development of habitat and population goals for key migratory bird species, more sophisticated decision support tools, and easier access to existing and developing information and technologies are areas where the Service could apply this funding in ways that will greatly enhance migratory bird conservation on national and international scales.

Invasive Species Control – Invasive species are causing catastrophic economic and environmental problems throughout the United States and the world. While it is most efficient to keep invasive species from entering the environment, that approach is increasingly impractical in today's global economy. Therefore, we need to develop improved and new methods to control and eradicate invasive species. Since little is known about the biology of these species and since the efficacy of existing pesticides, biological and cultural controls are unknown we need to join with others to develop a better base of information and improved control technologies. A partnership approach to developing information and technology is essential and the funding proposed here could be used to drive such a partnership. The outcome would be that control and/or eradication of important invasive species could be achieved, with benefits to large scale landscapes in a short period of time.

Aquatic Species Conservation -- Despite Herculean conservation efforts by the Service and others, aquatic resources continue alarming declines. While ESA-listed species are well cataloged, there is no comparable catalog of aquatic species that are depleted or declining, but not listed as endangered or threatened. The Service's Fisheries Program is working to meet this need within its Fisheries Information System (FIS). The FIS "Populations Module" will catalog aquatic populations of Federal management concern, including current status and trend, status of management or restoration plan,

quality and currency of population assessment data, and associated habitat information. In addition, information must be gathered as the crucial last step in completing the Fish Passage Decision Support System, which will identify priority watersheds and allow the Service to play a more direct role in the design, acquisition, and dissemination of information to make management decisions. Using this information the Service's Fishery Resources Offices will work with states and other partners across the nation to scientifically assess aquatic species populations and develop cooperative plans for management, restoration, and recovery. The Service and partners will use this information to prioritize needs for scientific assessment of aquatic species populations, and to focus efforts on critical needs, such as restoration planning or habitat restoration.

Managing Risk and Uncertainty – Inherent in every aspect of modern conservation is risk and uncertainty. Decision analysis techniques are now in wide use with the medical and military fields to assist decision makers facing complex decisions in the context of limited information. Today's fish and wildlife managers must have better tools to understand and assess risk and uncertainty in the context of their decisions. It will help to increase our decision making confidence and that of the public as our decision process is more easily documented and communicated. Identification of techniques and technologies applied by other institutions, formulation of best practices, and demonstration and training regarding how those practices can be applied to refuge management, endangered species conservation, migratory bird permitting, habitat restoration and other activities holds promise to greatly improve decision making and communication of our decisions.

The items listed above are examples. The key challenge to the Service and its partners will be the identification of areas where our collective efforts will create knowledge that will change the implementation and even the direction of our conservation programs. This initiative will provide the investment in institutional capability and information acquisition that is long overdue if the Service is to continue its long history of scientific excellence in support of conservation.

The focus of this proposed FY 2005 initiative is to support *DOI Resource Protection Goal 2, Sustain Biological Communities* by improving the information base used in decision making. The "Communities of Practice" development and collaborative elements of the science initiative reflect a new and positive relationship with the public, partners, and many State and Federal agencies. In particular, we look to the USGS to provide scientific research, to support our mission responsibilities, and through our strengthened institutions and more highly trained workforce. These collaborative efforts will also help us to rebuild our weakened institutional and personal relationships with the Survey.

The Service recognizes however, the specific need for the Service to have its own capability to direct the collection of essential information, particularly to analyze the status and trends of populations and their habitat. We must also invest in the institutional capacity to manage, direct, understand, assess and communicate scientific priorities and information. This initiative marks the beginning of a new approach and a renewed commitment to scientific excellence within the Service; and provides the funding needed to feed science and fuel new directions in fish and wildlife conservation.