



National Cave and Karst Research Institute—Initial Activities

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Abstract

The National Cave and Karst Research Institute Act of 1998 mandated the National Park Service to establish the Institute. The Act stipulated that the Institute will be located in the vicinity of Carlsbad Caverns National Park in New Mexico and that the Institute cannot spend federal funds without a match of non-federal funds. The Interim Director for the Institute reported in July 2000 for a two-year period to define the purview and scope of operation, design an organizational structure, form partnerships, find funding sources, find a physical facility, and define research needs. The mission provides a framework for the Institute to achieve its congressionally defined goals and to guide development of an appropriate scope of activities in the national interest. The National Cave and Karst Research Institute furthers the science of speleology by facilitating research, enhancing public education, and promoting environmentally sound cave and karst management. The Institute will pass through several phases to reach full development. The Interim Phase of establishing the organizational structure and operating mode is anticipated to take until late 2002. The Gearing Up Phase, requiring an additional year (2003), will consist of staff recruitment and getting established in Carlsbad. The Basic Institute Phase, another one to two years (2004-2005), will see a gradual increase in the capacity of the Institute and accumulation of financial resources. The Fully Operational Phase, when the Institute becomes a significant resource in cave and karst research, education, and support of cave and karst management, should be attained by 2006.

Introduction

The National Cave and Karst Research Institute (the Institute) was mandated by act of Congress in 1998 (Public Law 105-325) under the organizational structure of the National Park Service. The 1998 Act was the culmination of many years of effort by the caving community, private and federal, to have legislation enacted that facilitated gaining a scientific basis for cave and karst management. Primary stipulations of the 1998 Act are that the Institute will be located in the vicinity of Carlsbad Caverns National Park in New Mexico (but not inside the Park boundaries), that the Institute may form a wide base of partnerships, and that the Institute cannot spend federal funds without a match of non-federal funds.

The Interim Director for the Institute reported in July 2000 for a two-year period to move forward with National Park Service efforts to establish the Institute by defining the purview and scope of operation, designing an organizational structure, forming partnerships, finding funding sources and a physical facility, and defining research needs.

Mission and Goals

The mission provides a framework for the Institute to achieve its congressionally defined goals and to guide development of an appropriate scope of activities in the National interest: The National Cave and Karst Research Institute furthers the science of speleology by facilitating research, enhances public education, and promotes environmentally sound

cave and karst management. The goals (purposes) of the Institute are enumerated in the text of the 1998 Act. These expanded statements of goals provide a broader view of the operational intent of the Institute:

- Further the science of speleology through coordination and facilitation of research.
- Provide a point-of-contact for dealing with cave and karst issues by providing analysis and synthesis of speleological information and serving as a repository of information.
- Foster partnerships and cooperation in cave and karst research, education, and management programs.
- Promote and conduct cave and karst educational programs.
- Promote national and international cooperation in protecting the environment for the benefit of caves and karst landforms and systems.
- Develop and promote environmentally sound and sustainable cave and karst management practices and provide information for applying these practices.

Time Line for Full Implementation

The Institute will pass through several phases before it becomes a recognized force in the research community with the ability to sponsor a wide range of activities. The *Interim Phase* is anticipated to span about three years (August 1999 to August 2002). This phase began when a Steering Committee was convened to articulate expectations for the Institute and to draft specifications for recruitment of an Interim Director and will end when the Interim Director completes the initializing tasks.

The *Gearing Up Phase* is likely to take one additional year (2003). It would consist of staff recruitment, the move into a building (possibly a temporary facility), initial operational setup, and the transition from the Interim Director to the Director. If funding is available, research grants could be distributed during this phase and the real work of the Institute can begin.

The *Basic Institute Phase* would take another one to two years (2004 and 2005) while the experience of the staff and the capacity of the Institute gradually increase and financial resources for full operation are accumulated. A grant process would be operational and results of research supported by the earliest grants may become available.

The *Fully Operational Phase* should be attained by 2006, when the Institute becomes a significant and recognized resource in cave and

karst research, education, and support of cave and karst management.

Activities During the Interim Phase

Define the purview and scope of operation

Discussions have been held with a variety of interested individuals and organizations to help determine the most appropriate activities for the Institute to undertake. The relation of the Institute to other organizations is being defined in conjunction with those groups. Partnerships with all types of cave and karst interest groups, agencies, and organizations are critical to the success and utility of the Institute and to creating a national and international focus on research, education, and information dissemination for better understanding and management of cave and karst resources. The Institute, at least in its initial form, will not conduct research internally but rather will guide, focus, and encourage research through grants and partnerships. An important function of the Institute will be to accumulate and organize data and information to make it accessible to investigators and for the Institute staff to use for synthesis of information on regional and national scales.

Design an organizational structure

Staffing would be based on the scope of operation determined for the Institute. An important factor in the size and scope is the level of funding available to support the operation. Business models of other research institutions are being studied for ideas and to determine the most appropriate model for this Institute to adopt. It is envisioned that the initial Institute would have a staff of about 12 people that, in addition to the Director, might include a Science Coordinator and Science Assistant, an Information Coordinator (or Librarian), Computer/Database Specialist, Geographic Information Specialist, an Education Coordinator and Education Assistant, and administrative and clerical staff. Voluntary advisory boards are likely to be part of the organization to advise on science, education, and management issues and programs.

Form partnerships

The Interim Director has met (and continues to meet) with a wide variety of agencies, universities, and other organizations working in or interested in cave and karst issues, and is making international contacts in order to lay a foundation for international collaboration in cave and karst research and information exchange. These meetings are the basis for forming formal and informal partnerships and

collaborations. An agreement has been signed between the Institute and New Mexico State University, which has a campus in Carlsbad, for a small amount of office space and administrative support during the interim and gearing up phases. New Mexico Tech and the City of Carlsbad also are important partners in getting the Institute operational in New Mexico. Several National Park Service agreements with other agencies and groups, although not specific to the Institute, are available for use by the Institute if needs arise.

Funding sources

Non-federal funds must match any federal funds spent to support the Institute's operations. An initial goal for base funding of the Institute is to accumulate enough recurring, non-federal matching funds to allow an adequate matching appropriation from Congress each federal fiscal year (which begins on October 1) to sustain a staff and operational expenses. Once adequate base funding is secure, the Institute can focus on funding to support research and educational activities. Significant progress was made when New Mexico Tech petitioned the New Mexico legislature for an annual appropriation to the school in support of the Institute. Because that petition was successful, Congress appropriated matching federal funds for the Institute for fiscal year 2002. Additional non-federal funding must be pursued, including private or corporate contributions that could support research and educational grants.

Find a physical facility

The City of Carlsbad and New Mexico Tech are collaborating to request building funds from the New Mexico legislature. The building would house offices, library, a basic laboratory, storage, and classroom/meeting facilities. In addition to offices for the resident staff, several offices will be available for visiting scientists who wish to conduct work in the Carlsbad area. If constructed, the value of annual rent and maintenance for the Institute building will constitute an in-kind match for federal funds.

Assess research needs

The Institute can provide a national scope and overarching goals to cave and karst research. A list of research needs is being compiled through informal and formal discussions with a wide variety of interest groups, scientists, and resource managers. This list is accessible on the Institute web site (<http://www2.nature.nps.gov/nckri/needs.htm>) for comment and additions. As a list

grows, groupings of research areas are emerging, which will form the basis for articulating national research needs.

Projects

The Institute currently is sponsoring and participating in a few initial projects that will provide useful products and will help publicize the existence of the Institute. These projects require a small amount of funding, but primarily are being conducted with voluntary contributions of time and expertise by participants. Some of the 2002 appropriation likely will be used to expand the Institute's involvement in projects.

The Institute and the Karst Waters Institute are sponsoring a collaborative project to produce a booklet entitled *Guidelines for Cave and Karst Management for America's Protected Lands*. Associates of Karst Waters Institute and staff of the National Park Service, Bureau of Land Management, U.S. Fish and Wildlife Service, and USDA-Forest Service are contributing written sections. The Institute and U.S. Fish and Wildlife Service provided funding for Karst Waters Institute to edit, publish, and distribute the booklet. The booklet, anticipated to be completed in late 2002, can be used as a handbook for resource managers to comply with the requirements of the Cave Resources Protection Act, as a source of information for interpreters, and as a training resource.

The Institute and the U.S. Geological Survey Ground Water Resources Program are collaborating to produce a U.S. Geological Survey Circular (a magazine-style publication) on the topic of cave and karst science and management in the United States. The focus will be on what is being done within federal agencies in order to narrow the scope of the report and to avoid replication of what other groups already have written. In addition to the Institute and the U.S. Geological Survey; Bureau of Land Management, U.S. Fish and Wildlife Service, USDA-Forest Service, and the Environmental Protection Agency will contribute sections to the report. Authors will contribute their writing time, the Interim Director will edit and compile the publication, and the Geological Survey will cover the cost of preparation, printing, and some distribution, which should occur in mid 2002.

The Institute and the National Park Service Cave Resources Management Program are supporting, with some funding, the ongoing karst mapping activities of the U.S. Geological Survey. Scientists and land use planners need better maps for a variety of applications. A karst

area map of the United States was published by Geological Survey in 1984, but considerable refinements still are needed. Maps also are needed on regional and local scales. The Institute is facilitating collaboration among USGS and private, state, and University scientists who have been working independently on karst area maps.

Author

Zelda Chapman Bailey is currently the Interim Director of the National Cave and Karst Research Institute in the National Park Service. After graduation from Indiana University in 1977, she began her career as a hydrogeologist with U.S. Geological Survey in Indiana and

later moved to Tennessee. Her area of specialization is ground water flow modeling applied to ground-water availability and contamination. Zelda was Assistant District Chief for Operations in the Caribbean District, and moved to Colorado as Associate District Chief for Hydrologic Studies. While in Colorado she also served extended assignments as Acting District Chief for Colorado and for Wyoming. Zelda is a Certified Ground Water Professional, Certified Professional Geologist in Indiana, and a Registered Professional Geologist in Tennessee. She serves on Boards of Directors for the American Water Resources Association Colorado Section and the Greater Denver Area Gem and Mineral Council.