4-1-2008

Limnological Assistance for the Lake Mead National Recreation Area in Meeting the Challenge of the Water 2025 Initiative: Quarterly Progress Report, Period Ending: April 1, 2008

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Executive Summary

Hiring

• A decision is anticipated in the upcoming weeks regarding the hiring of a limnologist. Two candidates were selected from among three qualified applicants for telephone interviews; they were subsequently interviewed in-person.

Project 1

• Review of the draft Boulder Basin Adaptive Management Plan is on-going. Meetings of the Systems Conveyance and Operations Program (SCOP) Technical Advisory Teams were attended.

Project 2

• Development of a white paper expressing the joint needs of the entities involved in Water 2025 projects is on-going; scientific review of data and reports related to bacteria in high-use areas of Lake Mead is underway.

Project 3

• Discussions and projects are underway to address immediate needs at Lake Mead National Recreation Area related to quagga mussels.

Project 4

• The Microsoft Access database, which organizes the results of an on-going comprehensive literature search of Lake Mead limnological studies, is being fine-tuned by a database programmer to maximize usability and transferability.

Project 5

• All six session summaries for the Lake Mead Science Symposium (January 13-15, 2009) have been finalized, a budget and preliminary schedule have been created, a save-the-date announcement has been distributed, and a logo and web site...
Project 6

- Eight of 10 Southern Nevada Public Lands Management Act (SNPLMA)-funded Lake Mead water resources projects have been reviewed and summarized.

Attachments

- Comprehensive Literature Search Access Database Core Table Identity Diagram and Core Table Verbalizations
- Revised Draft Memorandum of Understanding for a Lake Mead NRA Limnology Special Collection at the UNLV University Libraries
- Lake Mead Science Symposium Information Summary
- Lake Mead Science Symposium Save-the-Date Announcement
- Proposal for Consulting Services to Coordinate, Organize, and Manage Lake Mead Science Symposium

Program Development Activities

Hiring

The Public Lands Institute (PLI) is in the process of conducting a search for a limnologist to work with Dr. Gerstenberger in completion of Projects 1, 2, and 3 of this Task Agreement. The official position title is, “Research Assistant Professor in Environmental Health Science, A Joint Position between the Public Lands Institute and the Department of Environmental and Occupational Health.” This individual will have limnological and quagga mussel expertise. Three qualified individuals applied for the position. Of these, two were selected to be interviewed via telephone (February 4, 2008 and March 11, 2008). Following interviews, it was decided that both should be interviewed in person at UNLV. Interviews took place on March 18, 2008 and March 24, 2008. In addition to formal interviews, both candidates presented public seminars attended by Lake Mead National Recreation Area (Lake Mead NRA) staff, Interagency Water 2025 Group members, university faculty, and students. Candidates also were provided a brief tour of the UNLV campus and Lake Mead NRA Headquarters.

In the upcoming week the results of the interviews will be considered. Either a selection will be made and an offer prepared, or the selection committee will reconsider the application of the third candidate who was not interviewed.

Meetings

Five meetings were held during this quarter and are listed below. Minutes have been documented by PLI, distributed to attendees, and posted to GroveSite (www.grovesite.com):

January 8, 2008  Interagency Water 2025 Meeting, SNWA River Mountains Water Treatment Facility
January 17, 2008  Interagency Quagga Mussel Team Meeting, SNWA River Mountains Water Treatment Facility
February 11, 2008  NPS/PLI Project Meeting, Lake Mead National Recreation Area Headquarters
March 14, 2008  Agency Core Management Team for Quagga Mussels, Conference Call
March 21, 2008  Interagency Water 2025 Meeting, SNWA River Mountains Water Treatment Facility

Project 1 Technical Assistance to LAME with Interagency Monitoring Program
Principal Investigator Shawn Gerstenberger is in the process of familiarizing himself with the draft copy of the Boulder Basin Adaptive Management Plan (BBAMP). Substantive activity on this project will commence with the hiring of the research assistant professor (see Hiring, Page 2).

Principal Investigator Craig Palmer attended the February 25 and March 24, 2008 technical advisory team meetings of the Systems Conveyance and Operations Program (SCOP), which included sessions on:

1. Water Quality Objectives
2. Monitoring and Modeling
3. Selenium (February 25 only)

Project 2 Science Support for Water 2025 Interagency Monitoring & Research Initiatives
Substantive activity on this project will commence with the hiring of the limnologist (see Hiring, Page 2). Dr. Gerstenberger has continued the development of a brief document (i.e., a white paper) articulating agreed-upon, interagency needs for Water 2025 Interagency Monitoring Research Initiatives. As reported previously, Dr. Gerstenberger requested that the Interagency Water 2025 group members submit 3-4 needs per agency, to be tabulated and presented for discussion at the Interagency Water 2025 meeting on January 8, 2008. Few members contributed information; Dr. Gerstenberger plans to establish a working group to draft the needs assessment within the next two quarters. This activity is also applicable to Project 3, below.

The services of microbiologist Vanessa Stevens (UNLV Harry Reid Center for Environmental Studies, HRC), have been procured for the scientific review of data and reports related to bacteria in high-use areas of Lakes Mead and Mohave. Ms. Stevens will be working under the direction of Dr. Palmer.

Project 3 Technical Assistance related to Quagga Mussel and Other Nuisance Species
As reported previously, Kent Turner, chief of resources at National Park Service, Lame Mead National Recreation Area and Agency Technical Representative (ATR) for this project, initiated a call for proposals related to immediate needs and concerns for quagga mussel monitoring within Lakes Mead and Mohave. Submitted proposals were subjected to an external peer review process in early December 2007, which was coordinated by the Public Lands Institute. During the present quarter, the Agency Core Management Team
for Quagga Mussels (core team) met and decided that the available funding would be best spent on two activities: (1) quagga mussel monitoring and associated comprehensive documentation and (2) impact to benthos and fisheries/shad production at Lake Mead. Dr. Gerstenberger facilitated and participated in a conference call (March 14, 2008) to further develop the selected proposals. The intent of this meeting was to consolidate proposals, maximize resources, and identify critical data needed to address changes to the lake. Major discussion areas included benthic sampling and monitoring and fisheries (shad) sampling and monitoring.

Under the direction of Dr. Gerstenberger, graduate assistant Sara Mueting (UNLV) has initiated quagga mussel substrate monitoring experiments (March 25, 2008). This component of the project is intended to assess best and worst substrates for quagga mussel attachment within Lake Mead. A number of substrate studies have already been conducted in the eastern United States, specifically on the Great Lakes, but those results are not necessarily applicable to conditions found in Lake Mead or other lakes in the west.

**Project 4 Strategic Data Mining for Lake Mead**

Under the direction of Jim Pollard (UNLV HRC), Gretchen Andrew is continuing work on database development to organize the results of a literature search on limnological research projects on Lakes Mead and Mohave. This quarter, Ms. Andrew met on three occasions with programmer Mark Stalling (UNLV HRC) to collaborate on database development and refinement using standard industry programming practices such as the use of top-down design, modular design, design reviews, reduction of duplicate or redundant entries (e.g., authors, publications, etc.), and other adjustments to improve usability and transferability of its contents to other databases as is anticipated. Author-provided abstracts are also now being added to the database. A scoring system has been added to the database to identify each record’s level of focus on Lake Mead, as well as a system to prioritize records for future data mining efforts. A preliminary draft of the documentation detailing the database design has been prepared (available at the Public Lands Institute and in the attached relationship diagram linking tables in the database and verbalization exercises used in database design).

During the upcoming quarter, Lake Mead NRA staff will be invited to review the documentation and provide comments or suggestions for improvement, particularly concerning the fields offered in the main Bibliographic Record table, the other core and junction tables offered, and the lookup table options constituting standardized lists. Explanations regarding database design in addition to those contained in the attached documentation are described below.

The list of 27 general topic areas (Subjects) reported in the Quarterly Report for the period ending October 1, 2007 has been expanded to 73 subjects. Ultimately, we anticipate uploading the database’s bibliographic records into NatureBib, the bibliographic database maintained by the National Park Service (NPS) for scientific citations. To accommodate future uploading into the NatureBib, the subject list was standardized according to NatureBib’s subject list. An additional four subjects were
added as follows: Benthic Organisms, Insects, Geochemistry, and Water Resources. The Research Location list was standardized pursuant to locational terminology used by Lake Mead NRA.

As of this reporting there are 1,136 bibliographical records stored in the database representing journal articles, agency reports, professional papers, theses and dissertations, maps, photographic collections, data sets, news articles, audio and visual recordings, bulletins, correspondence and memorandums, remote imagery, and other literature types. It is expected that the literature search will continue in the upcoming quarter and that a copy of the database will be provided to Mr. Turner and the Interagency Water 2025 group members, as appropriate, to begin prioritizing bibliographic records for data-mining efforts.

Any documents or works collected during the data-mining phase will be deposited into the UNLV Library Special Collection created as a clearinghouse for all rare documents identified and procured during this effort. Work to expand an existing Lake Mead Special Collection has continued this quarter. Jennell M. Miller (Public Lands Institute) has continued refinement of the previously reported draft Memorandum of Understanding (MOU; see attached Draft Memorandum of Understanding for a Lake Mead NRA Limnology Special Collection at the UNLV University Libraries) articulating the agreement between PLI, Lake Mead NRA, and UNLV Libraries to populate, manage, maintain, and make accessible a Lake Mead NRA limnology special collection. The draft MOU has been reviewed and edited by contracting specialist Judith Couch (NPS, Lake Mead NRA) to add standard National Park Service language (March 4, 2008). Dr. Miller is currently coordinating re-review by the university; it is anticipated that the draft will be finalized and signed in the upcoming quarter.

Project 5 Lake Mead Science Symposium
All six session summaries have been completed by session chairs for the 2009 Lake Mead Science Symposium; Dr. Miller has drafted the symposium schedule and Dr. Palmer has developed the budget; and three individuals have agreed to provide keynote addresses. (see attached Lake Mead Science Symposium Information Summary). An e-mail “save-the-date” announcement was distributed (February 21, 2008; see attached) following review by Mr. Turner. Individuals within relevant organizations agreed to forward the announcement to their members because, for privacy purposes, these groups do not provide member contact information to non-members (see below).

Lake Mead Science Symposium Save-the-Date distribution list:

- Arizona State Lower Colorado River Users (submitted to the organizational Listserv by Melissa Cheung)
- Lake Mead Boater’s Association (forwarded to the group e-mail list by Wen Baldwin)
- Nevada Water Resources Association (forwarded to the group e-mail list by Donna Bloom)
- North American Lake Management Society (forwarded to the group e-mail list by Jim LaBounty)
- University of Nevada, Las Vegas (forwarded to info@unlv.edu by Dr. Miller)
Lake Mead Limnology contact list (e-mailed by Dr. Miller to the approximately 80 individuals who attend or have attended any meeting associated with this project).
The announcement also was e-mailed to the following entities:
- Arizona State University, Department of Biology
- Northern Arizona State University, Biology Department
- Portland State University, Center for Lakes and Reservoirs
- University of California Davis, Tahoe Environmental Research Center
- Utah State University, Department of Watershed Sciences
- Water on the Web, a web-based educational program featuring Lake Mead developed by the University of Minnesota, Duluth and the Natural Resources Research Institute
- Relevant Lake Mead National Recreation Area research permit holders (past and present) as available on http://science.nature.nps.gov/research/ac/ResearchIndex

Individuals responding to the announcement and requesting to be added to the symposium e-mail list are recorded in an Excel spreadsheet for future communications.

A symposium logo has been designed, and Web Specialist Megan Iudice (Public Lands Institute) has procured the domain name and designed a web site for the symposium (see www.lakemeadsymposium.org). Limited content related to the symposium sessions is currently posted to the site. Ms. Iudice is developing the site further; she will add additional content as logistics are finalized and information is provided to her.

Dr. Palmer has accepted the proposal of Kaveh Zarrabi (Kinetix Incorporated) to assist in the delivery of the symposium (see attached Proposal for Consulting Services to Coordinate, Organize, and Manage Lake Mead Science Symposium).

Immediate tasks for the upcoming quarter include finalizing the process for symposium registration through the UNLV Division of Educational Outreach and preparing a call-for-sponsors communication. A Lake Mead Science Symposium Information Summary was prepared and distributed to Mr. Turner and the Interagency Water 2025 Group Members at the March 21, 2008 Meeting (see attached).

Project 6 Ecological Monitoring Plan for Lakes Mead and Mohave
As reported previously, Dr. Miller received copies of agreements for all Water 2025-related projects underway at Lake Mead NRA that were funded through Rounds 4-6 Conservation Initiatives category of the Southern Nevada Public Land Management Act. During this quarter, eight Interagency Agreements (IAAs) between the National Park Service and the US Geological Survey have been reviewed, summarized, and delivered to Mr. Turner electronically. Within the next couple of weeks, Dr. Miller will deliver similar review summaries to Mr. Turner for one agreement between the NPS Lake Mead NRA and the US Bureau of Reclamation and another between the NPS Lake Mead NRA and the Southern Nevada Water Authority. This information comprises the elements of existing monitoring programs on Lakes Mead and Mohave. In addition, a rough draft
outline of the future monitoring plan has been created with anticipated review by Mr. Turner and the Interagency Water 2025 group in the upcoming quarter.

Submitted by:

Margaret N. Rees, Project Administrator  Date

April 1, 2008
Attachments
Diagram used to plan relationships and connections between table data. Similar but not identical to the Microsoft Access Relationships window; it assists with migrating to more robust database programs (SQL Server, Oracle, MySQL).
Core Table Verbalizations

One Bibliographical Record focuses on many Subjects
One Subject categorizes many Bibliographical Records
Many Bibliographical Records focus on many Subjects
forces junction table

One Bibliographical Record contains many Research Locations
One Research Location is sampled in many Bibliographical Records
Many Bibliographical Records contain many Research Locations
forces junction table

One Bibliographical Record is assigned many Priorities by date
One Priority is assigned to many Bibliographical Records
Many Bibliographical Records are assigned many Priorities
forces junction table

One Bibliographical Record is published in one Publication
One Publication contains many Bibliographical Records
Many Bibliographical Records are published in many Publications
forces junction table

One Publication is issued by one Publisher
One Publisher issues many Publication
Many Publications are printed by many Publishers
forces junction table

One Bibliographical Record is written by many Authors
One Author writes many Bibliographical records
Many Bibliographical Records are written by many Authors
forces junction table

One Author is associated with many Affiliations
One Affiliation is associated with many Authors
Many Authors are associated with many Affiliations
forces junction table

One Bibliographical Record represents one Document Type
One Document Type characterizes many Bibliographical Records

One Bibliographical Record receives one LAME Score
One LAME Score is assigned to many Bibliographical Records

One Bibliographical Record is stored in one Article Location
One Article Location stores many Bibliographical Records

One Author has one Suffix to his or her name
One Suffix is shared by many Authors
Memorandum of Understanding
between
The United States Department of the Interior
National Park Service
and
University of Nevada, Las Vegas

This Memorandum of Understanding (MOU) is entered into by and between the National Park Service (NPS), United States Department of the Interior, acting through the Superintendent of the Lake Mead National Recreation Area (NRA), and the University of Nevada, Las Vegas (UNLV) and the University Libraries Department of Special Collections (Special Collections).

ARTICLE I – BACKGROUND AND OBJECTIVES

The objective of this MOU is for UNLV Special Collections, working cooperatively and collaboratively with the UNLV Public Lands Institute (PLI) to create a special collection titled, “Lake Mead NRA Limnology.”

Lake Mead, part of the Colorado River System, is located approximately 30 miles southeast of Las Vegas. It is the largest reservoir in the United States and the sole source of drinking water for 1.6 million Las Vegas residents. More than twenty million downstream users draw their drinking water from Lake Mead. Lakes Mead and Mohave are managed by the National Park Service as a National Recreation Area (NRA). The increasing urbanization of Las Vegas and the Southern Nevada Region raise concerns over potential impacts to the existing high water quality of the lakes, terrestrial wildlife, and fish that are dependent upon them. Limnological research supported by various entities has and continues to occur at Lake Mead National Recreation Area. It is crucial that documents associated with this research, past and present, be preserved in a central clearinghouse.

The Public Lands Institute and Lake Mead NRA entered into a cooperative partnership titled, “Limnological Assistance for the Lake Mead National Recreation Area in Meeting the Challenge of Water 2025.” As part of this agreement, the Public Lands Institute has agreed to conduct a data mining effort and make historic data more readily available. The first step in this process has been to uncover and amass literature and other materials related to Lake Mead NRA research. Found documents include original, historic reports. An interagency review team has agreed that UNLV University Libraries Special Collections is the ideal repository for housing and making historic Lake Mead-related documents more available.

Special Collections houses unique, rare, and specialized research material that documents the history, culture and physical environment of the city of Las Vegas, the Southern Nevada region, the gaming industry, and the University of Nevada Las Vegas. This project fits well within the mission of the Department of Special Collections.
ARTICLE II - AUTHORITY

The NPS authority for this Agreement is 16 U.S.C. 1-3. Need to identify and add relevant NEVADA STATE AUTHORITY as appropriate. (Peg has suggested that Nancy Flagg help us with this item).

ARTICLE III – STATEMENT OF WORK

The parties do mutually agree as follows:

1. UNLV Special Collections will work cooperatively and collaboratively with the Public Lands Institute (PLI) to create a special collection titled, “Lake Mead NRA Limnology” on behalf of the NPS Lake Mead NRA. This special collection will expand the collection of the UNLV Lake Mead Limnological Research Center reports already housed in Special Collections.

2. Using standard library and archival practices, Special Collections will preserve, conserve, and house materials submitted by PLI on behalf of Lake Mead NRA for the Lake Mead NRA Limnology special collection.

3. UNLV University Libraries will catalog all items or create finding aids/access tools as appropriate.

4. UNLV University Libraries may digitize selected documents and make them accessible through the Libraries’ website.

5. Should additional services be needed that require funds to complete, such funds will be transferred through an appropriate mechanism other than this MOU.

ARTICLE IV – TERM OF AGREEMENT

This MOU will be effective for a period of five years from the date of final signature, with an option to extend for any additional 5 years, unless it is terminated earlier by one of the parties pursuant to Article IX that follows.

ARTICLE V – KEY OFFICIALS

A. Key officials are essential to ensure maximum coordination and communication between the parties and the work being performed. They are:

1. For the NPS:

   Lake Mead National Recreation Area
   Bryan Moore, Biologist
   601 Nevada Way
   Boulder City, NV 89005
   E-mail: bryan_moore@nps.gov
   Telephone: (702) 293-8901
   Facsimile: (702) 293-8008
2. **For UNLV:**

   University of Nevada, Las Vegas Public Lands Institute  
   Margaret N. (Peg) Rees, Ph.D.  
   Executive Director  
   4505 S. Maryland Parkway  
   Box 452040  
   Las Vegas, NV 89154-2040  
   702-895-3890  
   peg.rees@unlv.edu

   University Libraries, Department of Special Collections  
   Peter Michel, Ph.D.  
   Director of Special Collections  
   4505 S. Maryland Parkway  
   Box 457010  
   Las Vegas, NV 89154-7010  
   (702) 895-2243  
   peter.michel@unlv.edu

B. **Communications** - UNLV will address any communication regarding this Agreement to the NPS Key Official with a copy to the NPS Signatory.

C. **Changes in Key Officials** - Neither the NPS or UNLV may make any permanent change in a key official without written notice to the other party reasonably in advance of the proposed change. The notice will include a justification with sufficient detail to permit evaluation of the impact of such a change on the scope of work specified within this Agreement. Any permanent change in key officials will be made only by modification to this Agreement.

**ARTICLE VI – PRIOR APPROVAL**

Neither the NPS or UNLV may make any permanent change to this MOU without written notice to the other party reasonably in advance of the proposed change. The notice will include a justification with sufficient detail to permit evaluation of the impact of such a change on the scope of work specified within this Agreement.

**ARTICLE VII – REPORTS AND/OR OTHER DELIVERABLES**

Dr. Michel, would you please review this section? The deliverable of this agreement is to make available rare documents related to Lake Mead limnological studies. The contents of the Lake Mead NRA Limnology Special Collection will be made available to the parties of this agreement and the public according during normal business hours of the UNLV Libraries and according to the standard operating procedures of the Special Collections Library.
ARTICLE VIII – PROPERTY UTILIZATION

Dr. Michel, would you please add any restrictions that the library has regarding exhibition, photographs, reproductions, or study of the collection or removal from premises?

ARTICLE IX – MODIFICATION AND TERMINATION

A. This MOU may be modified only by a written instrument executed by the parties.

B. Either party may terminate this MOU by providing the other party with thirty (30) days advance written notice. In the event that one party provides the other party with notice of its intention to terminate, the parties will meet promptly to discuss the reasons for the notice and to try to resolve their differences.

ARTICLE X – STANDARD CLAUSES

A. Civil Rights

During the performance of this MOU, the participants agree to abide by the terms of U.S. Department of the Interior - Civil Rights Assurance Certification, non-discrimination and will not discriminate against any person because of race, color, religion, sex, or national origin. The participants will take affirmative action to ensure that applicants are employed without regard to their race, color, sexual orientation, national origin, disabilities, religion, age, or sex.

B. Promotions

UNLV will not publicize, or otherwise circulate, promotional material (such as advertisements, sales brochures, press releases, speeches, still and motion pictures, articles, manuscripts or other publications) which states or implies Governmental, Departmental, bureau, or Government employee endorsement of a product, service, or position which UNLV represents. No release of information relating to this MOU may state or imply that the Government approves of the UNLV work product, or considers UNLV work product to be superior to other products or services.

C. Public Information Release

1. Public Information

(a) UNLV will not publicize or otherwise circulate promotional material (such as advertisements, sales brochures, press releases, speeches, pictures, still and motion pictures, articles, manuscripts or other publications) which states or implies Federal Government, Departmental, bureau, or Federal Government employee endorsement of a product, service, or position which UNLV represents. No release of information relating to this MOU may
state or imply that the Federal Government approves of the work product of UNLV or considers UNLV’s work product to be superior to other products or services.

(b) UNLV will ensure that all information submitted for publication or other public releases of information regarding this project will carry the following disclaimer:

“The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the opinions or policies of the U.S. Government. Mention of trade names or commercial products does not constitute their endorsement by the U.S. Government.”

(c) UNLV will obtain prior NPS approval from the regional public affairs office for any public information release that refers to the Department of the Interior, any bureau or employee (by name or title), or to this MOU. The specific text, layout, photographs, etc., of the proposed release must be submitted to the NPS Key Official, who will forward such materials to the public affairs office, along with the request for approval.

(d) UNLV agrees to include the above provisions of this Article in any sub-award to any sub-recipient, except for a sub-award to a state government, a local government, or to a federally recognized Indian tribal government.

2. Publications of Results of Studies

No party will unilaterally publish a joint publication without consulting the other party. This restriction does not apply to popular publication of previously published technical matter. Publications pursuant to this MOU may be produced independently or in collaboration with others, however, in all cases proper credit will be given to the efforts of those parties contributing to the publication. In the event no agreement is reached concerning the manner of publication or interpretation of results, either party may publish data after due notice and submission of the proposed manuscripts to the other. In such instances, the party publishing the data will give due credit to the cooperation but assume full responsibility for any statements on which there is a difference of opinion.
ARTICLE XI – SIGNATURES

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the date(s) set forth below.

FOR THE NATIONAL PARK SERVICE: BRYAN, KENT OR BILL CAN SIGN THIS DOCUMENT.

Signature: _____________________________
Name: _______________________________
Title: ________________________________
Date: ________________________________

FOR THE UNIVERSITY OF NEVADA:

Signature: _____________________________
Name: _______________________________
Title: ________________________________
Date: ________________________________

FOR THE UNIVERSITY OF NEVADA, UNIVERSITY LIBRARIES, DEPARTMENT OF SPECIAL COLLECTIONS:

Signature: _____________________________
Name: Peter Michel, Ph.D.
Title: Dir., University Libraries, Dept of Special Collections
Date: ________________________________
Dates and Venue
2009 January 13-14 (public) and January 15 (session chairs)
UNLV Moyer Student Union
4505 S. Maryland Parkway
Las Vegas, NV 89154

Purpose
Lake Mead, the largest reservoir by volume in the United States, provides diverse recreational opportunities for local residents and tourists from all over the world; habitat for numerous wildlife species including several threatened and endangered species; and drinking water for millions of people in Southern Nevada, Southern California, and portions of Arizona as well as water for agricultural use. Of great concern are the challenges and issues such as drought and the introduction of invasive species currently facing Lake Mead and Lake Mohave, which is also part of Lake Mead National Recreation Area.

Numerous research and monitoring efforts have been conducted, are ongoing, or are in the planning stages for Lakes Mead and Mohave. We invite you to join us at this state-of-the-science symposium to share information and help synthesize these efforts.

Planned Conference Sessions
- Lake Management
- Limnology and Water Quality
- Aquatic Biota and Fisheries
- Riparian and Shoreline Resources
- Contaminants
- Emerging Issues

Addresses
Emcee and Introductions
To be determined

Keynote Addresses
The first address will focus on the “value” of Lake Mead, environmentally, recreationally, economically, and to the community (and the Southwest). This includes pointing out its key role in enabling the southwestern municipalities and economies, the many required and needed domestic and municipal water supply uses, the recreational uses and how that relates to quality of life in surrounding regions, and the recreational economy, and its environmental and resource values. The following two addresses will provide an overview that briefly summarizes the lake
Limnology and future trends, including anticipated changes in uses, probabilities of lake levels, and overview of what is known of the limnology – a brief “conceptual” model of the lake.

Mr. Alan O’Neill, Executive Director, Outside Las Vegas Foundation
aoneill@outsidelasvegas.org
Topic: Value of Lake Mead – a broad overview of the significance of Lake Mead in the West

Dr. Jim LaBounty, Aquatic Scientist, Southern Nevada Water Authority
Jim.Labounty@snwa.com
Topic: Limnological/Hydrological overview of Lakes Mead and Mohave

Dr. Terry Fulp, Boulder Canyon Operations Office Area Manager, Bureau of Reclamation
tfulp@lc.usbr.gov
Topic: Water Uses and Demands and Changes in lake levels

Participating Agencies

Participating agencies include the partners within the Southern Nevada Public Land Management Act funded Initiative entitled, “Assessment of Limnological and Aquatic Resources of Lakes Mead and Mohave.”

These organizations include:
- National Park Service
- Bureau of Reclamation
- US Fish and Wildlife Service
- US Geological Survey
- Nevada Department of Wildlife
- Southern Nevada Water Authority
- Clean Water Coalition
- University of Nevada, Las Vegas

Planning for the Lake Mead Science Symposium is funded by the Southern Nevada Public Land Management Act and administered by the UNLV Public Lands Institute on behalf of the National Park Service.

Potential Audience Groups

Other organizations that would likely be interested in attending the Lake Mead Science Symposium are:

- Arizona Game and Fish Department
- Arizona Water Company
- City of Henderson
- City of Las Vegas
- Clark County Water Reclamation District
- Coachella Valley Water District
- Environmental Protection Agency
- Imperial Irrigation District
- Lake Las Vegas Resort
- Las Vegas Valley Water District
Communications Distribution (to date)

- Arizona State Lower Colorado River Users ListServ (Melissa Cheung)
- Lake Mead Boaters Association (Wen Baldwin)
- Nevada Water Resources Association (Donna Bloom)
- North American Lake Management Society (Jm LaBounty)
- UNLV Info List (Jennell Miller)
- Project Contact List (80+ members; Jennell Miller)

Format

See Tentative Schedule Table
Day 1: Breakfast, keynote addresses, concurrent sessions
Day 2: Concurrent sessions
Day 3: Closed sessions

Session Summaries and Contacts

General
Numerous monitoring efforts have been conducted, are ongoing, or are in the planning stages for Lakes Mead and Mohave. This state-of-the-science symposium will provide the opportunity to share information and synthesize these efforts. It also will provide insight to assist with lake management and the development of an overall ecological monitoring strategy for the lakes. The symposium features six concurrent sessions for which we invite papers and poster presentations. An overarching goal of these sessions is to identify data gaps, increase coordination of the various efforts, and provide a foundation for future research endeavors. Selected papers will be considered for publication in a special issue of *Lake and Reservoir Management*.

Lake Management Session
The primary goal of this session is to document current management plans, initiatives, and frameworks for the overall programmatic management of resources within Lakes Mead and Mohave and their incorporating lower Colorado River region. This is an opportunity to aid in the development of an integrated understanding of the range of such activities underway by multiple agencies and organizations. Outcomes of this session are intended to support an interagency needs assessment of mutually beneficial management objectives and actions. A second goal of this session to disseminate information that will increase public understanding of the overall management objectives for Lakes Mead and Mohave and enhance the state of the knowledge in reservoir management.

Presentation topics include overall reservoir planning and management, including recreational planning, environmental planning, and water use and management planning. Examples of pertinent ongoing projects include, but are not limited to, the Systems Conveyance Operations Program Adaptive Management Plan process, the Lake Mead NRA Lake Management Plan, recreational economic and use studies, development of long term monitoring and research goals under the "Assessment of Limnological and Aquatic Resources of Lakes Mead and
Mohave” program funded by the Southern Nevada Public Lands Management Act, and quagga mussel management and response planning.

Please contact Kent Turner (Kent.Turner@nps.gov) or Chris Holdren (choldren@do.usbr.gov) for further details.

Limnology and Water Quality Session
Lake Mead has been described as the most studied reservoir in the world. Although many reservoirs have a much longer record of limnological and water quality data, the intensity of investigations during the past 15 years likely justifies this claim. Results from some of the investigations are found in peer-reviewed publications, others in agency reports, but a majority of data has not been formally presented. This session provides an opportunity for anyone who has or is collecting data on the limnology and/or water quality of Lake Mead and/or Lake Mohave to present their findings. This is an important step in coordinating investigations and integrating findings. There are many recent examples of how the results of investigations have been used. Examples include the use of limnological data for (1) the three-dimensional model developed to assist decisions for the Systems Conveyance Operation Program (SCOP), (2) positioning new SNWA water-supply intakes in Boulder Basin, and (3) providing timely information on various parameters to water resource managers from all agencies prior to actions related to both planning and operations. The existing and future data becomes even more important in light of the presence of the invasive quagga mussel. Information from other locations where quagga mussel introductions have occurred indicates that the limnology and water quality parameters of Lake Mead could be significantly altered due to the presence of this organism. A major intent of this session is to provide a forum for anyone to present information on the limnology and water quality of Lakes Mead and Mohave.

Please contact Jim Labounty (jim.labounty@snwa.com) or Mike Lico (mlico@uses.gov) for further details.

Aquatic Biota and Fisheries Session
Lakes Mead and Mohave support dynamic aquatic ecosystems, which provide a variety of habitats that sustain unique and economically important populations of aquatic dependent wildlife. Substantive ecosystem changes are occurring as a result of recent and ongoing stressors including invasive species, altered storage regimes, and other factors. This session is intended to address research and management topics on native fishes, sport fisheries, and other aquatic biota within the Lake Mead National Recreation Area. Research that describes the abundance and distribution of native/non-native aquatic fauna, fauna-relevant limnology, sensitive or federally listed species, recovery goals, management findings and recommendations, and other related topics for Lakes Mead and Mohave are areas of interest for this session.

Please contact Jon Sjoberg (sjoberg@ndow.org), Erik Orsak (Erik.Orsak@fws.gov), or Tom Burke (tburke@ic.usbr.gov) for further details.

Riparian and Shoreline Resources Session
Riparian and shoreline areas interact with the lotic ecosystems of Lakes Mead and Mohave. Rivers and washes provide inputs to these lakes, in the form of water, sediment, nutrients, propagules of exotic invasive species, and others. Shorelines interface with these lakes, inputting vegetative matter, soil, and minerals, and as focal points for human recreational activities. Riparian and shoreline areas also provide unique habitat for plants and animals of management interest. For example, sand dunes on the shorelines of Lakes Mead and Mohave support populations of several rare plant and animal species, some endemic to this region, and rare bird species such as the southwestern willow flycatcher occupy and breed in riparian zones. The shoreline, shallow waters, as well as the nutrient-rich inflows from adjacent rivers and washes are important migratory habitat for numerous waterfowl, aquatic birds, and shorebirds. The riparian and shoreline resources session invites presentations on the ecology
and ecological management of the shorelines of Lakes Mead and Mohave and associated riparian areas. Example topics could include, but are not limited to, riparian and shoreline utility and restoration as wildlife or native plant habitat, exotic plant distribution monitoring and treatment, mesquite ecology and management, effects of changes to washes leading into these lakes and management of these changes, effects of changing lake water levels on wildlife and plant habitat, and endangered species surveys and monitoring efforts within riparian and shoreline habitats.

Please contact Scott Abella (scott.abella@unlv.edu) or Jef Jaeger (jef.jaeger@unlv.edu) for further details.

Environmental Contaminant Issues Session

Environmental contaminants in Lake Mead have a wide variety of sources as the surrounding watershed has been developed since the 1930s. This session is looking for research on any aspect of environmental contaminants in Lake Mead including trace elements, legacy pesticides, industrial compounds, and especially emerging contaminants like pharmaceuticals, hormones, and personal care products. Specific topics to be addressed include (1) sources and origins; (2) fate and transport; (3) spatial and temporal distribution; (4) effects on aquatic biota; and (5) reducing sources and remediation of effects. Research on environmental contaminants in all media including water, bed sediment, and biota is appropriate.

Please contact Michael Rosen (mrosen@usgs.gov) or Steve Goodbred (goodbred@usgs.gov) for further details.

Emerging Issues Session

This session provides the opportunity for a diverse group of researchers to identify emerging issues at the Lake Mead National Recreation Area related to human and ecological health. One of the main objectives of this session is to facilitate communication among state, local, and federal government, private industry, environmental groups, municipalities, and the academic community regarding emerging issues. Information from this symposium will be useful in formulating collaborative investigations that contribute to enhancing the management of the resource. Specific examples of emerging issues include, but are not limited to, the recent introduction of the quagga mussel and gizzard shad, infrastructure changes in Lake Mead, and drought.

Please contact Peggy Roefer (Peggy.Roefer@snwa.com) or Shawn Gerstenberger (shawn.gerstenberger@unlv.edu) for further details.

Website

The address of the symposium web site available is: http://www.lakemeadsymposium.org/. Currently posted are session summaries and contact information. The full site will be launched upon finalization of additional logistic details (e.g., on-line registration, on-line abstract submission, etc.)

Potential Sponsors

A call for sponsors remains to be developed along with sponsorship levels. To date, the following organizations have been suggested as potential sponsors:

- YSI
- REI
- Participating Agencies

Information Summary 3/20/2008
<table>
<thead>
<tr>
<th>TIME</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30</td>
<td>Registration Desk</td>
<td>Registration Desk</td>
<td>Meeting of session chair.</td>
</tr>
<tr>
<td>8:30 - 11:45</td>
<td>Continental Breakfast - Pre-Function Area</td>
<td>Concurrent Session - Aquatic Biotic &amp; Fisheries (6 papers + panel) - Room 208 - Coffee Break - Pre-Function Area</td>
<td>Concurrent Session - Riparian &amp; Shoreline Resources (6 papers + panel) - Room 208 - Coffee Break - Pre-Function Area</td>
</tr>
<tr>
<td>11:45 - 13:15</td>
<td>Lunch - Dining Commons (Vouchers)</td>
<td>Lunch - Dining Commons (Vouchers)</td>
<td>Lunch - Room 207 - Coffee Break - Pre-Function Area</td>
</tr>
<tr>
<td>1:15 - 4:45</td>
<td>Concurrent Session - Limnology (6 papers + panel) - Room 208 - Coffee Break - Pre-Function Area</td>
<td>Concurrent Session - Emerging issues (6 papers + panel) - Room 208 - Coffee Break - Pre-Function Area</td>
<td>Concurrent Session - Lake Management (6 papers + panel) - Room 208 - Coffee Break - Pre-Function Area</td>
</tr>
<tr>
<td>4:45 - 6:00</td>
<td>Cocktail Party and Poster Session</td>
<td>Cocktail Party and Poster Session</td>
<td>Run &quot;Lake Management on Day 2&quot;</td>
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</tbody>
</table>
### Lake Mead Science Symposium Draft Budget (1/2/08)

<table>
<thead>
<tr>
<th>Expenses</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials -- production</td>
<td>$10,000 Sponsors</td>
</tr>
<tr>
<td>Materials -- printing</td>
<td>$40,000 200 participants @ $200 ea</td>
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<tr>
<td>Giveaways 300 @ $20 ea</td>
<td>$50,000 Total</td>
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<tr>
<td>Badge holders</td>
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<tr>
<td>Décor, other supplies</td>
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</tr>
<tr>
<td>Invited speaker expenses</td>
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<tr>
<td>Facilities</td>
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</tr>
<tr>
<td>Parking 300 @ $6</td>
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</tr>
<tr>
<td>Poster stand rental 25 @ $100</td>
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</tr>
<tr>
<td>Marketing &amp; Mailing 300 @ $15</td>
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</tr>
<tr>
<td>Wayfinding Signage</td>
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</tr>
<tr>
<td>Photography/Video</td>
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<tr>
<td>Food (see breakdown below)</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$50,000</strong></td>
</tr>
</tbody>
</table>

#### Food Breakdown

- Continental Breakfast $3,000
- Breaks 4 @ $1700 $6,800
- Cocktail Party (no host) $6,000
- Lunch Vouchers 300 @ $7 for 2 days $4,200

**TOTAL** $20,000

---

To be determined:

Sponsors and sponsorship levels
Save the Date!

What: Lake Mead Science Symposium
When: January 13-14, 2009
Where: University of Nevada, Las Vegas
Why: To explore the ecological health of Lakes Mead and Mohave

Lake Mead, the largest reservoir by volume in the United States, provides diverse recreational opportunities for local residents and tourists from all over the world; habitat for numerous wildlife species, including several threatened and endangered species; and drinking water for millions of people in Southern Nevada, Southern California, and portions of Arizona as well as water for agricultural use. Of great concern are the challenges and issues such as drought and the introduction of invasive species currently facing Lake Mead and Lake Mohave, which is also part of Lake Mead National Recreation Area.

Numerous research and monitoring efforts have been conducted, are ongoing, or are in the planning stages for Lakes Mead and Mohave. We invite you to join us at this state-of-the-science symposium to share information and help synthesize these efforts. Planned Conference Sessions include:
- Lake Management
- Limnology and Water Quality
- Aquatic Biota and Fisheries
- Riparian and Shoreline Resources
- Contaminants
- Emerging Issues

Selected papers will be considered for publication in a special issue of Lake and Reservoir Management. Additionally, sessions will provide insight to assist with lake management and the development of an overall ecological monitoring strategy for the lakes.

Participating agencies include the partners within the Southern Nevada Public Land Management Act funded initiative entitled, “Assessment of Limnological and Aquatic Resources of Lakes Mead and Mohave.” These organizations include: National Park Service, Bureau of Reclamation, US Fish and Wildlife Service, US Geological Survey, Nevada Department of Wildlife, Southern Nevada Water Authority, Clean Water Coalition, and the University of Nevada, Las Vegas. Planning for the Lake Mead Science Symposium is funded by the Southern Nevada Public Land Management Act and administered by the UNLV Public Lands Institute on behalf of the National Park Service.

Contact Jennell Miller at jennell.miller@unlv.edu to join our symposium e-mail list and receive future updates.

More to come: Watch for the Call for Abstracts!

Learn more at www.lakemeadssymposium.org
Proposal for Consulting Services to Coordinate, Organize and Manage Lake Mead Science Symposium

Las Vegas, Nevada
January 13-15, 2009

Contact: Kaveh Zarrabi
A. summary

Kinetix, Inc. is presenting this proposal for consulting services to Coordinate, Organize, and Manage the Lake Mead Science Symposium to take place in Las Vegas, Nevada, in January 2009.

The key elements of the project are as follows:

**Venue Coordination**
- Prepare banquet event orders (BEOs) that detail audio-visual equipment and all other room needs
- Coordinate food and beverage services
- Organize classes/room assignments for all sessions
- Request facilities to pick up litter around the university both mornings of the symposium
- Prepare, distribute, and collect evaluation forms
- Assist in identifying tasks for volunteers and coordinate volunteer activities during the symposium

**Abstract submission and retrieval**
- Set up and troubleshoot online abstract submission and retrieval
- Prepare instructions for the electronic submission of abstracts
- Provide committee and session chairs access to review all submissions
- Manage submissions of abstracts for poster sessions
- Following committee’s acceptance of presentations/posters, assist in incorporating this information on the symposium schedule and provide to PLI to post on the symposium web site

**On-site registration**
- Provide on-site presence throughout the symposium to help with on-site registration and last minute name badge printing

**Poster session**
- Create instructions for poster presentation (e.g., dimensions, set up times, etc)
- Obtain accepted poster abstract submissions from concurrent session chairs for poster session
- Coordinate with poster presenters to confirm their acceptance
- Develop a poster program with identified locations, organized by topic
- Act as poster presentation liaison for the symposium as needed, including assisting presenters with set up during symposium
- Arrange leasing, installation, and removal for 25* poster boards/frames (*or other number as space and budget allows)
- Manage selection and presentation of student poster awards

**Presenters’ Coordination**
- Prepare and distribute presenter/speaker confirmation letters
- Organize and manage symposium schedule matrix of committee-approved presentations and posters
- Prepare and distribute name badges, which are distinguished from attendee badges by a ribbon or other device to presenters and committee members
- Provide on-site presence during symposium to assist with presenters’ questions and needs

**Communications and Printed Materials**
- Prepare instructions for submission of papers for symposium proceedings
• Produce all print-ready and electronically distributed materials associated with the symposium including the “Call for Paper” pamphlet, registration guide, symposium program, and all other committee requested materials
• Locate competitive priced printing company for production of all printed materials, check all printing proofs, and arrange for mass mailing of marketing materials (as requested).
• Prepare print-ready symposium evaluation forms, per committee request
• Cooperate with PLI Web Specialist and Marketing Specialist to ensure that information posted on the symposium web site is accurate and current

Marketing
• Identify and acquire relevant free email lists
• Assist in drafting and sending email blasts
• Prepare and submit free advertisements on the Internet per committee’s suggestion

Exhibitors/Sponsors
• Identify and recruit potential exhibitors and sponsors
• Assist in identifying floor area, layout, and space costs for exhibitors as appropriate

Progress Reporting
• Develop and maintain a master matrix of all symposium tasks and associated deadlines
• Provide monthly progress reports on all symposium activities and budget status
• Meet monthly with project manager until one to two months prior to the event date, then meet weekly or as necessary
• Provide a synthesis of the submitted symposium evaluation forms at the final monthly meeting

B. Experience

Kinetix provides consulting services in the areas of conference management, event planning, and training. Since 2005, the company coordinated, organized, and managed the HazMat Explo Conference and Exposition at the Orleans Hotel & Casino for the Clark County Office of Emergency Management. The following is a list of the major activities performed for the conference:
• Identified, contracted, and organized 40 exhibitors, 73 courses, and 50 instructors for seven-track course offerings for a 4-day conference for over 600 attendees
• Maintained and enhanced the database for prospective conference attendees, exhibitors, and instructors
• Maintained and enhanced existing conference website and on-line registration
• Produced all sales materials associated with conference including the conference course registration guide and program guide
• Prepared banquet event orders in cooperation with the conference site
• Produced souvenirs for retail sale and produced a CD of conference material for attendees
• Produced instructor evaluation reports
• Prepared and distributed thank you letters
• Attended regular meetings and provided monthly progress reports to the conference project manager
• Offered certificates documenting completion of continuing education hours for appropriate training classes
• Built on experience from website management to improve the existing website
• Operated within the budget.

Based on the success of the conference in 2005, Kinetix was requested to manage the conference again in 2006. See Appendix A for a letter of recommendation from the HazMat
Explo project manager. (Reference: Carolyn Levering, Clark County Office of Emergency Management, (702) 455-5710.)

Before co-founding Kinetix, Dr. Zarrabi was the program chair for Two-Year Community College Conference at the Community College of Southern Nevada (2001). The conference was attended by about 200 educators and professionals. The conference was a successful event, with the highest presence of companies in the conference’s history. Tabulation of the results from the conference evaluation survey revealed better than 93% approval. The conference was conducted slightly under budget.

Dr. Zarrabi was the workshop organizer for a conference titled Site Specific Performance Evaluation Materials at the University of Nevada Las Vegas (1992). The workshop was a success, with over 800 scientists and professionals in attendance. Dr. Zarrabi was responsible for all aspects of this project, including initial planning and coordination with US EPA (sponsoring agency), marketing and advertisement for the event, evaluation and identification of expert panel and speakers, and scheduling and management of the workshop.

Kinetix, Inc. is a registered corporation in the State of Nevada. Kinetix is a woman-owned company.

C. staff qualifications

Dr. Susan LeStrange, President of Kinetix, brings over 15 years of experience as an engineer and project manager, with the last 10 years working in Las Vegas. She is a Professional Engineer and a Certified Environmental Manager in the State of Nevada. She was the conference coordinator for the HazMat Explo Conference & Exhibition at the Orleans (2005-2007). She has been a project manager on environmental leaking underground storage sites, and a technical lead in geochemical modeling for the site investigation of Yucca Mountain.

Dr. Zarrabi, Vice-President of Kinetix, has been a resident of Clark County for the past 19 years. His professional activities encompass research, teaching, and consulting in the areas of chemistry and environmental sciences (see attached resume). Dr. Zarrabi was program manager for three conferences here in Las Vegas: the HazMat Explo at the Orleans (2005-2007), the Two-Year Community College Conference at the Community College of Southern Nevada (2001) and the Site Specific Performance Evaluation Materials conference at the University of Nevada Las Vegas (1992).

See the resumes in Appendix B. In addition, the Kinetix team will include a project coordinator dedicated to the conference, a website manager, and graphic artist.

d. Work plan and Cost

Following tables contains details of tasks and costs that we are proposing to support Lake Mead Science Symposium 2009.

**Table 1: List of Tasks, Description, and Percentages for Lake Mead Science Symposium.**

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venue Coordination</td>
<td>• Prepare banquet event orders (BEOs) that detail audio-visual equipment and all other room needs</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>• Coordinate food and beverage services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Organize classes/room assignments for all sessions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Request facilities to pick up litter around the university</td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
</tbody>
</table>
| Abstract submission and retrieval                                   | - Set up and troubleshoot online abstract submission and retrieval  
- Prepare instructions for the electronic submission of abstracts  
- Provide committee and session chairs access to review all submissions  
- Manage submissions of abstracts for poster sessions  
- Following committee’s acceptance of presentations/posters, assist in incorporating this information on the symposium schedule and provide to PLI to post on the symposium web site |
| On-site Registration                                                 | - Provide on-site presence throughout the symposium to help with on-site registration and last minute name badge printing                                                                                           |
| Poster Session                                                       | - Create instructions for poster presentation (e.g., dimensions, set up times, etc)  
- Obtain accepted poster abstract submissions from concurrent session chairs for poster session  
- Coordinate with poster presenters to confirm their acceptance  
- Develop a poster program with identified locations, organized by topic  
- Act as poster presentation liaison for the symposium as needed, including assisting presenters with set up during symposium  
- Arrange leasing, installation, and removal for 25 poster boards/frames  
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| Presenters’ Coordination                                             | - Prepare and distribute presenter/speaker confirmation letters  
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- Prepare and distribute name badges, which are distinguished from attendee badges by a ribbon or other device to presenters and committee members  
- Provide on-site presence during symposium to assist with presenters’ questions and needs |
| Marketing                                                            | - Identify and acquire relevant free email lists  
- Assist in drafting and sending email blasts  
- Submit free advertisements on the internet per committee’s suggestion |
| Exhibitors/Sponsors                                                  | - Identify and recruit exhibitors and sponsors  
- Assist in identifying floor area, layout, and space costs for exhibitors as appropriate |
| Communications and Printed Materials                                | - Prepare instructions for submission of papers for symposium proceedings  
- Produce all print-ready and electronically distributed materials associated with the symposium including the “Call for Paper” pamphlet, registration guide, symposium program, and all other committee requested materials.  
- Locate competitive priced printing company for production of all printed materials, check all printing proofs, and arrange for mass mailing of marketing |
Progress Reporting

- Prepare print-ready symposium evaluation forms, per committee request
- Cooperate with PLI Web Specialist and Marketing Specialist to ensure that information posted on the symposium web site is accurate and current
- Develop and maintain a master matrix of all symposium tasks and associated deadlines
- Provide monthly progress reports on all symposium activities and budget status
- Meet monthly with project manager until one to two months prior to the event date, then meet weekly or as necessary
- Provide a synthesis of submitted symposium evaluation forms at final monthly meeting

Table 2: Kinetix Hourly and Total Charges for the Lake Mead Science Symposium

<table>
<thead>
<tr>
<th>Kinetix Team</th>
<th>Hourly Rate ($)</th>
<th>Total ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Coordination/Marketing</td>
<td>30</td>
<td>8,640</td>
</tr>
<tr>
<td>Web Content Assistance and On-line Abstract Submission</td>
<td>42</td>
<td>1,260</td>
</tr>
<tr>
<td>Poster Session</td>
<td>42</td>
<td>2,100</td>
</tr>
<tr>
<td>Graphic Art</td>
<td>42</td>
<td>2,100</td>
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<tr>
<td>Project Management</td>
<td>78</td>
<td>4,680</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>18,780</strong></td>
<td></td>
</tr>
</tbody>
</table>

Kinetix will submit invoices on a monthly basis, based on the percentages of each task completed, with payment requested within 30 days of receipt of invoices.

Note that the appendices referenced with in this proposal are available at the Public Lands Institute.