

ENVIRONMENTAL MONITORING AND RESEARCH SUPPORT RELATED TO QUAGGA MUSSELS IN LAKES MEAD AND MOHAVE

General Information

Announcement Date:	March 16, 2010
Applicant Due Date:	April 20, 2010
Expected Number of Awards:	2 – 5 possible awards
Estimated Total Funding:	\$300,000

Purpose

The primary goal of funding available is to enhance monitoring or study of nuisance aquatic species, specifically the quagga mussel, as related to the ecological health of Lakes Mead and Mohave. Funding has been reserved as a one-time, short-term support fund for this effort.

Background

The Southern Nevada Public Lands Management Act (SNPLMA) authorized the National Park Service (NPS), Lake Mead National Recreation Area (Lake Mead) project entitled, Meeting the Challenge of the Water 2025 Initiative: Phase III, Assessment of Limnological and Aquatic Resources. The project has fostered an active water quality partnership including local, state and federal agencies with management interests on Lakes Mead and Mohave. The partnership created a sub team to enhance monitoring and understanding the ecological impact associated with the quagga mussel infestation.

The Lake Mead Interagency Quagga Mussel Team (Team) meets regularly to share information related to monitoring and research on quagga mussels in Lakes Mead and Mohave, to develop long term monitoring goals and objectives, and to seek partnership means to achieve those monitoring goals and objectives. The team developed the following “Scope of Interagency Interest in Quagga Mussel Monitoring and Study on Lakes Mead and Mohave”. The NPS is seeking proposals that will address the concerns listed within that scope. Elements within the scope are listed in relative priority.

Scope of Interagency Interest in Quagga Mussel Monitoring and Study on Lakes Mead and Mohave

- 1) Life History of quagga mussels under environmental conditions in Lakes Mead and/or Mohave.

Develop life history information for mussels from various basins within Lakes Mead and Mohave along with limnological drivers of life history. Linkages need to be made between resources available to mussel (food, temperature, habitat) and the life history of the mussel so the data can be used in a predictive capacity to determine growth and reproductive outputs across basins and depths and lakes.

Determine growth rates, filtration rates, recruitment(s), reproduction, tolerances for quagga mussels within Lakes Mead and/or Mohave.

Determine how temperature, food quality and quantity, light condition, and dissolved oxygen affect the growth, reproduction, feeding behavior, respiration rate, and nutrient excretion of quagga mussels within Lakes Mead and/or Mohave.

Determine distribution and apparent limitations in quagga mussel settlement. Are there limitations to quagga mussel establishment in the tributaries, for example, in Las Vegas Wash where it appears that densities are lower than elsewhere? Are the mussels as widely and evenly distributed as first assumed?

2) Benthic invertebrate survey, monitoring, and field oriented life history surveys and metric development.

Currently there is an extensive monitoring program for open water production however no monitoring of benthic biomass integrated with quagga mussels or production which can vary both by basin and depth in Lake Mead.

Determine baselines and status of benthic organisms through basic monitoring across basins (for example, but not limited to Las Vegas Bay, Overton Arm, and Boulder basin).

Determine differences among benthic organisms at variety of depths and substrates within sampled basins.

Samples must be identified to family, and enumerated. Conduct sampling at variety of seasons across the year to develop field life history (e.g., afdw/length/mass) studies as well as for metric development. Any potential life history developed in the laboratory should be measured with field samples.

Determine potential impacts of quagga mussels to the the lower food web directly by competition and also by disproportionate recycling of nutrients and creating patches of higher nutrients in some areas.

3) Develop metrics that can be used to track the health and condition of mussel populations across basins and depths.

While numerical abundance is one approach to monitor mussels in each basin, it is likely that there will be highly variable, non scalable estimates of quagga within each basin due to the patchiness of populations at the lake bottom. Furthermore, if populations decline or increase over time, there is no direct parameter that is measured that can be tied to mussels if resource factors (e.g. chlorophyll biomass) change. Thus, the development of metrics that can be applied to mussels across depths and each basin is suggested. Factor development could include body condition (length to weight ratios), physiological- lipid to protein ratios, etc.. These indices can be developed in the laboratory during the life history studies or from field measurements to determine if linkages can be made from the laboratory to the field. The goal would be to come up with metrics that can be used to assess the overall health of quagga mussel populations across populations in each basin and depth.

Submissions

Proposals should not be more than five pages in length. Two additional pages may be submitted to outline the proposed budget and document the relevant experience of the Cooperators and investigators. All submissions must include:

- o A description of the environmental problem to be addressed;
- o How the monitoring or research helps to address questions within the scope of interagency interest stated in this announcement;
- o How the funds will be used including a detailed budget;
- o Expected results and timeframe;
- o Impacts/benefits to interagency monitoring and programs for quagga mussels on Lakes Mead and Mohave;
- o Identified collaborators and/or vendors; and
- o Brief statement of experience of proponents or investigators that demonstrates experience and demonstrated success in the arena of their proposal;

All proposals must be submitted to Barb Eschels, Lake Mead NRA, Boulder City, NV 89005 by 2:00 pm local time on April 20, 2010. Questions should be submitted to Barbara_eschels@nps.gov.

Process

In order to determine the best qualified projects and make efficient use of the limited time available, there will be three stages of the review process to determine the use of the available funds.

Administrative Review – An administrative review will be conducted following the receipt of all submissions to ensure that all requested information has been provided by the Cooperator. The submission shall include the business information of the Cooperator. The business information may include, but is not limited to, a valid DUNS number and the DBA information. In addition, the Cooperator must maintain an active CCR and ORCA registration for the life of the project. Registrations can be completed at www.ccr.gov and www.orca.gov. All submissions missing information or which would not provide a viable federal procurement mechanism will be eliminated from the process.

Technical Review – A panel of 3 – 5 subject matter experts involved in aquatic ecology and water management will be assembled by March 30 to review submissions that qualify from the administrative review. Panel members will be selected to avoid conflict of interest related to proposal outcomes. The proposal will be reviewed for technical merit based on the following guidelines:

- o The relevance of proposals to enhancing the understanding of ecological impacts of quagga mussels in Lakes Mead and Mohave;
- o The probability of achieving near-term results (i.e., ~18 months);
- o The utility and importance of the results;
- o Cooperative and leveraging opportunities to increase the impact of the funding;
- o Demonstrated knowledge or understanding of ongoing monitoring and research programs sufficient to avoid redundancies and seek opportunities to maximize results from combined efforts;

- o Demonstrated knowledge or understanding of ongoing monitoring and research programs sufficient to link new monitoring and studies to ongoing monitoring locations to enhance overall limnological understanding of the lakes; and
- o Accountability for the funds (i.e., commitment to reporting results).

The panel will receive submissions that qualify from the administrative review on April 30. Each member should submit brief comments for each proposal and a rank order for priority of funding by May 15. Feedback from each panel member will be shared with the entire panel for a teleconference to discuss recommendations approximately May 20. The funding recommendation from the Technical Review will be submitted to Senior Management for final decision on funding by May 30.

Senior Management Confirmation – Following the Technical Review a funding recommendation will be submitted to NPS Senior Management by May 20 for confirmation by approximately May 30 to announce recipients and implement process for project funding.

Approximate Timeline

March 15	Announcement of Funding Opportunity Released
March 28	Technical Review Panel Established
April 15	Submissions Due
April 30	Administrative Review Complete; Technical Review Begins
May 15	Technical Review Complete
May 20	Teleconference to Discuss Technical Review Feedback/Prioritize Recommendations
May 30	Recommendations Submitted to Senior Management for Award Confirmation
May 30	Senior Management Award Confirmation Complete
June 1 to July 15	Successful Proposals Processed for Implementation