

**Salton Sea Research Management Committee**

**Request for Proposals**

**to Study**

**Sediment Nutrient Regeneration  
within the Salton Sea**

**DRAFT - April 19, 1998**

## **Study Site**

The Salton Sea is the largest body of water in California. It is a hypersaline lake located in a closed desert basin east of Los Angeles and San Diego. The Sea was initially formed in 1905-1907 by flooding on the Colorado River which breached an irrigation control structure allowing virtually the full flow of the river into the Salton Basin. The Sea's current existence is primarily due to agricultural drainage from the Imperial, Coachella, and Mexicali Valleys; smaller volumes of municipal effluent and stormwater runoff also flow to the Sea.

The aquatic ecosystem of the Salton Sea is extremely eutrophic and supports a highly productive sportfishery. The Sea, and its adjacent wetlands, are a critical part of the Pacific flyway providing habitat and seasonal refuge to millions of birds of hundreds of species. Several endangered species, including the desert pupfish and the Yuma clapper rail, inhabit the greater Salton Sea ecosystem.

The Salton Sea ecosystem is an ecosystem under stress. Inevitably increasing salinity (currently about 44 ppt) may be threatening the reproductive ability of some species, particularly the sportfish. High nutrient loading creates high productivity but also causes periods of low oxygen and possibly blooms of toxic algae. Elevated selenium (derived from the Colorado River water used to irrigate the agricultural areas of the basin) may be affecting the immunocompetence and/or reproduction of some bird species. DDT residues in Salton Sea sediment (from historical use) and occasional discharges of agricultural chemicals to irrigation drains leading to the Sea may also contribute to the overall ecosystem stress. These stresses probably contribute to the recurring fish and bird die-offs in recent years.

## **Background**

The Salton Sea Reclamation Act of 1998 (PL 105-572) provides funding for the scientific investigations necessary to make an informed decision on the best mechanism(s) for remediating the problems of the Salton Sea. The Act establishes two multiagency committees under the Secretary of the Interior to oversee Salton Sea science. The Research Management Committee is composed of representatives for the Secretary of the Interior, the Governor of California, the President of the Salton Sea Authority (SSA), and the Chairman of the Torres Martinez Indian tribe. The Science Subcommittee is composed of technical representatives from all of the above agencies plus representatives from federal and state resource agencies and the university community. The Science Subcommittee makes recommendations for science studies to the Research Management Committee. Recommendations endorsed by the Research Management Committee are forwarded to the SSA which acts as the contracting entity.

Despite its size, importance, and acknowledged problems, there has been surprisingly little biological/environmental research on the Salton Sea. Much of our knowledge of the Sea's ecology is dependent upon work dating back to 1961. This predates the introduction of tilapia, arguably the dominant fish species in the Sea. Since 1961, there has been additional work on salinity tolerances of the sportfish species, productivity of the sportfishery (creel surveys), and selenium concentrations in water, sediment, and biota. Many aspects of the Salton Sea's ecology however, remain largely unknown. To partially alleviate this deficiency a series of reconnaissance studies covering physical and biological limnology, sediment contaminants, algal toxins, and fish and avian communities were initiated in January 1999.

## **Description of Needs**

Inflows to the Salton Sea contain high levels of nutrients from both point (wastewater treatment plants) and nonpoint (agriculture) sources. It has been suggested that primary productivity in the Salton Sea

is phosphorus limited. There is strong public interest in improving the water quality and odor generation of the Sea, and thereby its public image, by controlling external nutrient loading. It is unclear however, whether reducing external loading will, by itself, reduce the productivity of the Sea. Because the Sea is a closed basin, all nonvolatile inputs to the Sea during its history have accumulated in either the water column or the sediment of the Sea. The rates of internal nutrient cycling, particularly the regeneration of nutrients from the sediment to the water column, are unknown. Therefore, the potential for continued eutrophication of the Sea, even if external nutrient loading were reduced, is uncertain.

Reconnaissance studies currently under way will produce current estimates of external nutrient loading and water column nutrient concentrations. This RFP is intended to solicit proposals which will estimate sediment nutrient concentrations and elucidate nutrient cycling within the Salton Sea. The work desired under this RFP falls within three phases.

The first phase is to determine the forms and concentrations of nutrients within the Sea's sediment. Salton Sea sediment should be sampled over the full range of sediment types and environmental conditions. Salton Sea sediment ranges from barnacle shell substrate to sulfide-rich organic muck. For much of the summer, the bottom half of the Sea is virtually anoxic. Sediment samples should be analyzed for nutrient forms which are normally limiting in inland water bodies or which may play significant roles in sediment-water column nutrient exchange. The sampling regime should include measurements of relevant physicochemical parameters, e.g. temperature, oxygen concentration, pH, and redox potential.

The second phase is the direct measurement of nutrient release from Salton Sea sediment. Although this form of experiment cannot be done with the same intensity as sediment nutrient analyses, it should still be performed over a selected variety of sediment types and depths representative of the Sea as a whole.

The third phase is incorporation of the measured nutrient concentrations, measured nutrient regeneration rates, and other environmental measurements into a model estimating the Sea's total internal nutrient loading. This model can be an adaptation of an existing water quality model or a wholly new construction.

Proposals which go beyond the above specifications, such as measuring other nutrient transfer rates or expanding the scope of the water quality model, will be considered if they are deemed cost-effective and relevant to the remediation of the Salton Sea. The budgets of such proposals should clearly separate the costs of doing the specific work outlined above from the proposed additional work. The Science Subcommittee reserves the right to recommend approval of portions of proposals.

### **Time and Funding**

Study activities are expected to be initiated within 30 days of contract award. Study duration should be fully justified, particularly if it exceeds one year.

There is no set amount of funding set aside for this study. In the previous round of awards for reconnaissance studies, contract amounts ranged from \$50,000 to \$750,000.

### **Data Requirements**

Because of the high visibility of the Salton Sea project and the need for real-time information, the performance of these reconnaissance studies will be closely monitored:

- Investigators funded under this RFP are required to provide their findings to the Science Subcommittee through their project officer or directly to the Subcommittee as findings become available throughout the course of their investigations. The Science Subcommittee reserves the right to redistribute data to other

contractors for use in their studies before final reports are prepared by contractors originating the data. In doing so, the data and findings will remain confidential within the project and the ability of the investigators to publish their results in the scientific literature will be protected.

- Investigators are required to fully integrate their data into the Salton Sea database and to cooperate with other investigators working within the Salton Sea Reclamation project.
- All field data must be submitted in GIS-compatible format including GPS coordinates for all sampling sites and appropriate metadata. Information on Federal Geographic Data Committee metadata standards can be obtained from the National Geospatial Data Clearinghouse:

FGDC Secretariat  
c/o U.S. Geological Survey  
590 National Center  
Reston, VA 22092  
voice: (703) 648-5514  
fax: (703) 648-5755  
email: [gdc@usgs.gov](mailto:gdc@usgs.gov)  
web: <http://fgdc.er.usgs.gov>

### **Submission of Proposals**

The required proposal format is provided as attachment A to this RFP. Three paper copies of each proposal and one electronic version on 3.25" IBM-formatted diskette (WordPerfect 6.1 or earlier or Microsoft Word for Windows 6.0) should be submitted by mail postmarked no later than May 30, 1999 to:

Dr. John Elder, Science Coordinator  
Salton Sea Science Subcommittee  
U.S. Geological Survey  
8505 Research Way  
Middleton, WI 53562-3581  
email: [jfelder@usgs.gov](mailto:jfelder@usgs.gov)

Written questions regarding this RFP will be addressed. A record of the questions and responses will be posted on the Salton Sea page of the U.S. Bureau of Reclamation's Lower Colorado River Region website: <http://www.lc.usbr.gov>.

If this solicitation is amended then all terms and conditions that are not modified remain unchanged.

### **Evaluation of Proposals**

The Science Subcommittee will perform an initial screening of each proposal for general compliance with this guidance and relevance. Relevance shall be evaluated using the following criteria:

- 1) is the proposal responsive to the RFP, i.e. does it show understanding of the needs identified in the RFP?
- 2) will the proposed products provide information that significantly contributes to resolving the identified needs?
- 3) will the proposed products provide timely input to the NEPA/CEQA process? and
- 4) inclusion of an appropriate quality assurance statement.

Suitable proposals will then be reviewed in depth by at least two technical peer reviewers at least half of whom will be outside (non-Science Subcommittee member) reviewers with no direct stake in investigations or remediation of the Salton Sea. Technical peer reviewers will score each proposal for:

- 1) technical quality of the proposal and
- 2) quality of staff and facilities.

The Science Subcommittee will then consider the results of the technical peer reviews and develop recommendations to the Research Management Committee based on:

- 1) cost - is the cost of the proposed study reasonable, relative to the benefits of the products to be generated?
- 2) reliability - does the proposal submitter have a proven history of timely project completion? and
- 3) overall relevance - does the proposed study contribute significantly to the overall needs of the reconnaissance program?

The Science Subcommittee reserves the right to recommend approval of portions of proposals. Final funding decisions are made by the Research Management Committee.

### **Contract Obligations**

Receipt of a funding award will obligate the contractor to the following:

1) *Adherence to established standards:* The Research Management Committee and the Science Subcommittee are committed to high quality science. As key inputs to the decision-making process, environmental data must be accurate and reliable. Therefore, each proposal is expected to contain a Quality Assurance statement briefly describing how the proposed approach will produce valid and high quality data and how any limitations to the use of these data will be identified. All funded proposals will be required to produce an acceptable Quality Assurance Project Plan (QAPP) including periodic QA/QC review and evaluation prior to initiation of work. Additional guidance in preparation of the QA statement as well as the complete QAPP may be obtained from the QA coordinator:

Barry H. Gump, Ph.D.  
California Department of Water Resources  
1020 Ninth Street  
Sacramento, CA 95814  
voice: (916) 327-1750  
fax: (916) 327-1648  
email: bgump@water.ca.gov

or from *EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations, EPA QA/R-5, October 1997* which is available on the internet at:

[http://es.epa.gov/ncerqa/qa/qa\\_docs.html#R-5](http://es.epa.gov/ncerqa/qa/qa_docs.html#R-5).

2) *Data sharing:* The nature of the Salton Sea Remediation Project requires conservation of effort in the forms of avoiding duplication of effort, taking advantage of information as it becomes available, and seeking synergistic opportunities for scientific productivity. Contractors are expected to convey significant findings to the Science Subcommittee and to each other as they make discoveries and to share baseline data as it is developed. The highest level of professional ethics is expected in the use of such information by all parties. Contractors are also required to share their data with the Science Subcommittee when specific requests are made.

3) *Participation in records and archiving systems:* Contractors will provide and follow a data records system and a materials archiving plan acceptable to the Science Subcommittee. The records system

is intended to provide data compatibility and accessibility among studies and the archiving plan provides reference material, standards, and samples for future Salton Sea investigations. Approval for approaches must be obtained prior to initiation of work.

4) *Equal opportunity employment and utilization of small, minority, and women's business enterprises in procurement:* This research is being supported via a contract between the Salton Sea Authority and the U.S. Environmental Protection Agency. Therefore, federal requirements regarding utilization of small, minority and women's business enterprises in procurements related to this contract apply. As a result all potential contractors need to briefly describe what their good faith efforts will be towards awarding a fair share of any sub-contracts and procurements to small business enterprises (SBEs), minority business enterprises (MBEs), and women's business enterprises (WBEs). The current negotiated "fair share rate" for California is 14% and 8% for MBEs and WBEs, respectively. All Salton Sea Authority contractors will be obligated to retain all records documenting their MBE/WBE efforts, and, in addition, will be required to report annually (in October of each year in which the contractor participates in this research until the project is completed) to the SSA on these efforts. Note: a fair share objective imposes an obligation by the recipient or contractor to exercise good faith efforts. Good faith efforts by a recipient or prime contractor mean efforts to attract and utilize SBEs, MBEs, and WBEs primarily through outreach, recruitment and race/gender neutral activities. [Summarized from *EPA Guidance for Utilization of Small, Minority and Women's Business Enterprises in Procurement* - 6010, 1997 Edition]

## Attachment A

### Format for Proposals

In general, proposals should be printed on 8.5 x 11 inch paper at 12 point font size with one inch margins. Maximum page lengths for each section are given parenthetically and are applicable per study area. Unnecessarily elaborate proposals beyond those sufficient to present a complete and effective response to this RFP are not desired and may be construed as an indication of lack of cost consciousness.

Proposers who include data which they do not want disclosed to the public must add the following statement to the title page:

“This proposal includes data that shall not be disclosed outside the reviewing government agencies and their agents and shall not be duplicated or used, in whole or in part, for any purpose other than to evaluate this proposal. If however, a contract is awarded to this proposer as a result of, or in connection with, the submission of these data, the government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting agreement. This restriction does not limit the Research Management Committee’s right to use information contained in these data if it is obtained from another source without restriction.”

Each page of the proposal which contains data the proposer wishes to restrict must be marked with the following legend:

“Use or disclosure of data contained on this page is subject to the restriction on the title page of this proposal.”

**Title Page:** Descriptive title of proposed study plus name and affiliation of principal investigator(s) and all contact information including mailing address(es), voice and fax phone numbers, and email address(es).

**Summary:** Brief description of proposed study. (1 page)

**Objectives:** Specific accomplishments to be realized. (1 page)

**Narrative:** The narrative should demonstrate a knowledge of the relevant published literature and clearly describe a technical approach that is both scientifically and statistically sound. Sufficient detail should be included such that moderately informed scientific peers can readily visualize the scope of the proposal. Sampling methodology and frequency should be specified. A quality assurance statement is required. (15 pages including bibliography, charts, maps and any other visual aids)

**Milestones and Products:** A schedule of key accomplishments, reports, datasets, and other tangible outcomes from the study. (2 pages)

**Staffing:** A table showing the proposed staffing, principal duties of each staff member, and the time allocation of all scientific staff must be included. Resumes should be provided for the principal investigator and all co-investigators and should focus on education, recent positions, relevant experience and accomplishments, and recent and relevant publications. (1 page + 3 pages for each resume)

**Experience:** A list of projects completed by the submitting entity and/or principal investigators which demonstrates the ability to complete projects on a timely basis. (1 page)

**Facilities:** The proposal should contain a description of the facilities and major pieces of equipment proposed for the research. The description should be sufficiently detailed to allow the technical peer reviewers to determine adequacy with respect to accomplishing the proposed objectives. (2 pages)

**Budget:** A comprehensive budget covering all proposed activities must be included. The budget must, at a minimum, include the following elements (2 pages):

- 1) Personnel - by staff member;
- 2) Travel - separate travel for field work from travel for other purposes;
- 3) Equipment - purchases and rental;
- 4) Supplies - major items or categories;
- 5) Contract services - itemize by purpose and subcontractor;
- 6) Indirect costs including overhead - provide basis for figure;
- 7) Other - substantial costs not included above.