

# Request for Statements of Interest

**Project Title:** Peer Review: Three Lakes Water Quality and Hydrologic Models. Grand Lake, Colorado

Responses to the Request for Statements of Interest (SOI) will be used to identify a potential lead to carry out a reviewer selection process to form two peer review panels to conduct review of a water quality model and hydrologic model (2 separate models), provide responses relative to aspects and issues provided by Reclamation, facilitate conversation amongst individual peer reviewers and panels prior to preparation of a single report of the expert peer review comments.

## **Background:**

The Three Lakes System, located in Grand County, Colorado is made up of Grand Lake, Shadow Mountain Reservoir, and Granby Reservoir. The Colorado-Big Thompson Project, which is owned by Reclamation and operated jointly with Northern Colorado Water Conservancy District, collects water from the headwaters of the Colorado River and uses the Three Lakes System as a conveyance system, moving an average of 230,000 acre-feet of water from the western slope to the eastern slope of Colorado annually. Water quality/clarity in the Three Lakes has been a local concern for decades. In 2016, the State of Colorado Water Quality Control Commission conditionally approved a narrative water quality standard to improve Grand Lake water clarity without adverse water quality effects on other water bodies or adverse yield effects on Reclamation's Colorado-Big Thompson (C-BT) Project while remaining consistent with primary project purposes outlined in Senate Document 80, 75<sup>th</sup> Congress, First Session, June 15, 1937.

Reclamation, Grand County, Northern Colorado Water Conservancy District, Northwest Colorado Council of Governments, and Colorado River Water Conservation District are currently working together under a Memorandum of Understanding (MOU No. 16-LM-60-2578) to establish and execute an adaptive management process to implement the narrative standard while Reclamation conducts a planning and National Environmental Policy Act (NEPA) process to analysis alternatives to improve Grand Lake's clarity. The purpose of the project is to assist with improving Grand Lake's clarity without causing long-term adverse water quality and other effects to Grand Lake, C-BT Project reservoirs and Project beneficiaries.

Since the early 2000s, system-wide modeling, including multiple model enhancements, has taken place, attempting to clarify issues of water quality and Grand Lake clarity. The current version of the water quality model was developed in CD-QUAL-W2 version 3.72 and is the Three Lakes Water-Quality Model-W2, version 1.0 (3LWQM-W2 v1.0). The 3LWQM requires output from an independent model, the C-BT Planning & Operations Model (C-BT P&OM). C-BT P&OM was developed using RiverWare version 6.8 and provides regulated flows into and out of the

3LWQM. Accordingly, the integrated operational 3LWQM will be used to evaluate adaptive management strategies for C-BT operations and assist in the analysis of alternatives.

The science informing the Three Lake clarity project is subject to unbiased peer review. Of specific concern is the adequacy of the modeling to spatially and temporally represent the Three Lakes System and predict impacts of the alternatives to improvement of Grand Lake Clarity. These impacts will inform the potential design and economic analysis defining the range of alternatives for improving water clarity in Grand Lake.

### **Brief Description of Anticipated Work:**

A selected lead will undertake the actions necessary to facilitate and document the independent peer review of two models - the C-BT Planning & Operations Model and the Three Lakes Water-Quality Model-W2, version 1.0. To accomplish this, the lead will:

- Complete a Reviewer Selection Process to form two peer review panels of 3-5 members each.
  - Water Quality Model Review Panel: Must be thoroughly familiar with CE-QUAL-W2 version 3.7 or higher and have a working knowledge of the format and significance of all W2 input, output, error, warning, and control files.
  - Hydrology Model Review Panel: Must contain expertise, familiarity with advanced RiverWare rulebased simulation methods and application to complex river / reservoir systems.

*It is recognized that the overlap of CE-QUAL-W2 and RiverWare expertise is unlikely to exist in an individual and at an expert level. Therefore, the team will necessarily require different individuals' focus on different aspects of the modeling but working together to consider the higher-level interactions.*

- The peer review panels must have expertise in factors affecting water quality including experience with high altitude mountain lakes affected by nutrients, aquatic vegetation, sediment, and seasonal water operations.
- Peer reviewers will have education, professional experience, peer recognition in their field, and have contributed to their field.
- Oversee the Peer Review Panels:
  - The lead will provide documents to the peer review panels, facilitate conversation between participants, and assist in the preparation and review of draft and final reports. Reclamation will provide research questions to be answered, report formatting requirements, reference materials, and deliverable dates.
- Deliver Findings:
  - The lead will facilitate the preparation of peer review panel report of findings at the completion of the review period. At a minimum, the report will include a

description of the peer review process, subject being reviewed, findings, recommendations, and references. The report will be provided in electronic and hardcopy format to Reclamation.

***Anticipate Review and Report preparation to occur March 1, 2017 – July 30, 2017.*** The Reviewer Selection Process can occur any time after the execution of the cooperative agreement and final completion of the models. However, it must be complete prior to the anticipated review and report preparation period.

Upon Reclamation's receipt of the final peer review comments report, the synthesis document will be posted on Reclamation's peer review website (<http://www.usbr.gov/main/qoi/peeragenda.html>).

**Project Funding:**

The funds available for the peer review process and completion of reports is approximately \$80,000. The funding includes the CESU overhead rate of 17.5 percent. The peer review process will be funded by the Bureau of Reclamation. Universities or organizations within the CESU network are preferred.

**Statement of Interest:**

The Statement of Interest (SOI) should describe your interest in the project, past experience with peer review teams or facilitation of teams that are similar in scope or form, relevant experience along with a copy of a resume or vita for the proposed lead, a detailed proposed budget, and any statements of conflicts of interest, if applicable. Please include your name, affiliated organization(s), and contact information. Please try and limit SOIs to 3 pages.

SOI should be sent to Anthony Curtis ([acurtis@usbr.gov](mailto:acurtis@usbr.gov)) no later than close of business, Friday, October 14, 2016. Questions can be answered by contacting Anthony Curtis, Resources Chief, Eastern Colorado Area Office, Bureau of Reclamation Great Plains Region at (970) 962-4341