



Trinity River Restoration Program

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NC-150

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VIA ELECTRONIC MAIL ONLY

Memorandum

To: Trinity Management Council

From: Mike Dixon, Ph.D.
TRRP Executive Director

Subject: Recommendation to fund FY 22 Science Projects

Background

The FY 2022 TMC-approved TRRP budget reserved \$250,000 to fund short-term modeling and scientific research outside of the normal status and trend monitoring work that TRRP funds.¹ I proposed this specifically because the program was already working to overhaul our long-term approach to science through the refinements process but wanted to keep a dynamic science program in the interim to address emerging questions. During the budget discussions that occurred when the TMC met in June 2021, I proposed that the TRRP Interdisciplinary Team (IDT) would solicit proposals, rank them, and then TRRP's external Science Advisory Board (SAB) would review them², and the projects would then be funded in the order that they were ranked.

Based on this guidance, the IDT met twice to determine a process for selecting projects. This process was documented in a memorandum that the TRRP Science Coordinator sent to the IDT on 30 August 2021. The process was:

- 1) Workgroup coordinators will request priority topics from their workgroups. Up to three priority topics from each workgroup will be forwarded to the IDT. Each priority will have a one-page pre-proposal for a research or tool-development project associated with it. The pre-proposal identifies project collaborators, defines the hypothesis to be tested or the product to be submitted, includes a task list including a

¹ Since that time, I have told both the IDT and TMC that we could plan for up to \$350,000 due to salary savings from ongoing vacancies.

² Trinity Management Council Quarterly Meeting Minutes, June 16-17, 2021, Page 18 paragraph 3.

timeline, and a rough budget. The deadline for the proposals to be submitted to the TRRP Science Coordinator is 22 September 2021.

2) The Science Coordinator will compile the topics and pre-proposals and distribute them to the IDT by 24 September.

3) The IDT will finalize selection criteria for proposals, using the FY 20 Watershed FOA evaluation form as a template, during an October meeting.

4) The IDT will rank the pre-proposals after the conclusion of the Science Symposium in November. The ranked list and initial budgets will be compiled, and projects will be selected to request full proposals. These proposals will be submitted to the SAB for their review by 17 December 2021

5) SAB will complete reviews and return to Science Coordinator by 04 February 2022.

6) Project proponents will incorporate SAB feedback into proposals, adjust budget, and submit revised budget to IDT by 18 February 2022.

7) IDT will determine the final project list based on the November ranking and revised budgets by 25 February 2022.

8) Disbursement of funds through the appropriate funding mechanism (FA, AFA, Contract) will begin immediately³.

9) Full proposals that ranked below the funding line will be given immediate priority for funding if additional science funds become available.

The IDT received eight proposals (Table 1).

Table 1. Pre-proposals received by IDT

Proposal Number	Title
1	Trinity River Turbidity Monitoring
2	Development of a bed surface grain map
3	Mainstem Trinity River Bar Area Mapping
4	Effects of Scour and Inundation on Trinity River Aquatic Communities
5	Update and improvements to the RBM10 Model for predicting water temperatures in the Trinity River
6	Comparing physical and bioenergetic metrics of juvenile salmonid habitat at channel rehabilitation sites in the Trinity River
7	Development of SRH-2D as a tool used to inform project site design and performance
8	Wildfires and Stream Temperature

³ TMC approval was understood by IDT members to be a prerequisite to disbursement of funds according to Program SOP, so was not stated in the guidance memo.

Changes to the original plan and outcome

Concurrently with this process, the ongoing TRRP refinements project was addressing science priorities, conflicts of interest, and the role of the Science Advisory Board (SAB). This also coincided with the finalization of a winter variable flow proposal for TMC. These discussions did not provide direct guidance to the FY 22 science funding process, but they influenced it. TRRP partners asked that two changes be made to the plan: the SAB would also rank the pre-proposals, and the SAB would review both the pre-proposals as well as the full proposals. The Science Coordinator forwarded this request to the SAB, and the SAB provided a review of the pre-proposals and a ranking of them, which was sent to the IDT on 08 November 2021.

The IDT met on 08 November 2021 and ranked the proposals according to the original plan. Each partner provided their rankings of the projects and these were averaged into a composite ranking. The IDT and SAB rankings differed slightly. Of the pre-proposals that were likely to rank above the funding threshold, the IDT ranked pre-proposal 5 higher than the SAB did, and the SAB ranked proposal 2 higher than the IDT did (Table 2).

Table 2. Pre-proposal rankings by IDT and SAB. Rankings are shown in descending order.

IDT ranking	SAB ranking*
6	6
5	2
4	4
7	7
2	3
3	1
1	5
8	8

*Pre-proposal 2's ranking was caveated on the proponents making substantial changes to the proposal; pre-proposals 1, 5, and 8 were tied.

The pre-proposals had preliminary budgets. With the \$250,000 funding target in mind, and consistent with the original plan, IDT requested full proposals be developed from the top five IDT-ranked pre-proposals. The intent was to have the sum of proposal budgets exceed the funding limit so that we had one or two proposals ready in case additional funds became available later during the fiscal year. When the full proposals were completed, they were submitted to the SAB for their review.

Before the SAB review was completed, a TMC entity requested that the final selection of projects be advanced so TMC could make a funding decision in February. This was so that one of the projects that was likely to be funded could begin while Lewiston Dam releases were at 300 cfs, thereby advancing the completion date of the project by a full year. In order to accommodate the request, the Science Coordinator asked the SAB to complete their reviews a week early. In

hindsight, accommodating this request to advance the review schedule presented additional challenges that would become clear later.

The SAB reviews of full proposals were then provided to the IDT and all proposal authors on 08 February. The Science Coordinator asked proposal authors to read the reviews and revise their budgets accordingly so that a recommendation to fund projects could be made. Notably, ambiguity in the guidance to the principal investigators led to not all of the proposals being revised based on the SAB review. The rankings were provided to TMC according to the original plan (step 7 above) during the 10 February TMC meeting (Table 3).

Table 3. Budgets and running totals for proposals under consideration for funding

Proposal	Budget	Running Total
6 - Comparing physical and bioenergetic metrics of juvenile salmonid habitat at channel rehabilitation sites	\$27,405	\$27,405
5 - Update and improvements to the RBM10 Model for predicting water temperatures in the Trinity River	\$106,860	\$134,265
4 - Effects of Scour and Inundation on Trinity River Aquatic Communities	\$152,228	\$286,493
7 - Development of SRH-2D as a tool used to inform project site design and performance	\$26,346	\$312,839
2 - Development of a bed surface grain map	\$182,120*	\$494,959

*revisions to the proposal since the 10 February TMC meeting resulted in a budget of \$174,938, and the running total would then be reduced by a corresponding amount.

The TMC declined to approve funding for the recommended projects at that time due, among other things, to both project proponent and TMC level confusion about the review process.

Reconciling SAB and IDT rankings

The TRRP Implementation Plan defines the role of the SAB as follows:

- Scientific peer review of hypothesis testing, proposed annual flow schedules, short- and long-term monitoring plans, research priorities
- Periodic review (roughly every 5 years) of the overall AEAM Organization Review reports and recommendations produced by the Technical Modeling and Analysis Group.
- Review suggestions for new or alternate hypotheses and methods of testing existing hypotheses

Note that making annual funding decisions for TRRP is not part of SAB's charge, which they energetically expressed to the Science Coordinator; rather, their role is to provide strategic direction to our science program. So, when a TMC member (at the September TMC meeting) asked that the SAB rank the projects concurrently with the IDT's ranking, the Science Coordinator assumed that the SAB rankings should be used to influence long-term science planning in the spirit of the original implementation plan. It was valuable to see how much the two rankings had in common, and the differences were enlightening as well. In their reviews, the

SAB praised the high quality of the proposals, positively commented on their integration, and did not say that any one of them should *not* be funded (although they did recommend revisions).

The two projects that differed between the rankings, at least at a realistic level of funding during FY 22, were Proposals 2 and 5. Proposal 2 is an update to RBM-10, which is a flow and temperature model that not only has applications on its own but is also an input to numerous other models that the Program relies on to predict how annually-developed hydrographs will help the Program meet its objectives. The update is driven by unpredicted changes in annual precipitation and the needs of other projects such as the ongoing pool stratification study. In subsequent discussions with the SAB, it came to light that the proposal inadequately emphasized the degree to which the RBM-10 model is foundational to multiple other models; SAB interpreted it as a one-off effort instead of an expansion of the utility of an existing tool, which drove their lower ranking based on communication with the lead reviewer for that proposal.

Proposal 5 is an update to a map of sediment grain size (i.e., facies) in the restoration reach of the Trinity River. Both groups recognize the value of this work to collect baseline data for many other studies. However, again due to shortcomings of the project proposal, the SAB did not know that this was an effort to replicate previous data collection; and recommended that the project be revised as a smaller proof-of-concept pilot study with a much-reduced budget. Their ranking was based on it being reduced to a smaller pilot study, which was not the intent of the project.

Recommendation: I recommend that the program fund the following proposals (Table 4) for a total of \$312,839. Proposal 2, which was well received by both SAB and IDT, should not be funded through this one-off research and modeling effort because it supports what should be a recurring long-term monitoring strategy. I recommend that Proposal 2, or a version of it, be incorporated into the Science and Monitoring Plan and prioritized for funding in FY23.

Table 4. Executive Director’s recommendation

Proposal	Budget	Running Total
6 - Comparing physical and bioenergetic metrics of juvenile salmonid habitat at channel rehabilitation sites	\$27,405	\$27,405
5 - Update and improvements to the RBM10 Model for predicting water temperatures in the Trinity River	\$106,860	\$134,265
4 - Effects of Scour and Inundation on Trinity River Aquatic Communities	\$152,228	\$286,493
7 - Development of SRH-2D as a tool used to inform project site design and performance	\$26,346	\$312,839
2 - Development of a bed surface grain map	\$174,938	Incorporate into Science Plan