

FY20 Unspent Funds Options

As described in the ED report, we have a largely salary-savings driven surplus of funds (approximately **\$908,691.50**) for which the TMC has not designated a purpose. The following are a series of options which could be identified (ranked or unranked) for use of remaining FY20 funds as funds become available.

Program Administration

Refinements coordinator

The Scope of Work for this task is in development and has been approved by TMC to go to contracting. A cost estimate has not been developed; the dollar amount listed in the attached spreadsheet is solely a placeholder based on a very rough cost estimate provided by Chad Smith prior to SOW development.

Trimble survey gear

The program office maintains an array of field surveying gear that is used to support both internal and external projects in both the science and implementation realms. Our hardware is nearing the end of its useful service life as it will shortly be unable to receive modern software upgrades.

Implementation

Watershed restoration funding

In the March TMC meeting when the FY20 initial TRRP budget was approved, \$500k was set aside for watershed grants. In their June ranking, IDT included additional watershed funding (up to an additional \$500k) below science needs but above new SAB agreements. At present the FY20 Funding Opportunity Announcement has been sitting in DC awaiting review and approval for many weeks.

Sawmill gravel processing site close-out design

The Sawmill gravel processing location has been one of our two upriver coarse sediment sources for several years. Gravel extraction has proceeded to the degree that we are within probably two years of starting to excavate to the 100-year flood elevation. In order to dig below the 100 year flood elevation, we need to evaluate potential impacts to water surface elevations near private property, which requires having a design topography to evaluate. Following a recommendation by the Design WG on 11/21/2019, the program office requests funding for the development of conceptual, alternative, and construction-ready designs for a closed-out Sawmill processing site. The Yurok Design Team would be next in queue to develop a design.

On-site government inspector

The program office has tried with some success to assume the responsibilities of the required on-site government inspector at our channel rehabilitation sites. However, with attrition and slow progress in filling vacancies, we no longer have the capacity to fill this role. For the Dutch Creek project in summer of 2020, we will need to fund Reclamation's Willows Construction Office to send an inspector to fill this role.

Large wood

Acquisition of large wood is done the year prior (up to two years prior) to a construction project. The planned 2021 Chapman Ranch Phase B Channel Rehabilitation Project will require a substantial amount of wood.

Gravel processing

We have been doing extensive gravel processing at the Sawmill site but have concurrently been using a lot of gravel. Right now the Physical WG is investigating a handful of additional augmentation sites which would require additional gravel. Processed gravel is a non-perishable so there is little risk to generating a surplus.

Out-year channel rehabilitation projects

With recent developments around the Oregon Gulch project (and potentially other sites), there is the potential that we may have the ability to fund some initial site clearing, tailings excavation and processing or other out-of-channel work in this fiscal year. Approving the application of funds to out-year channel rehab projects would provide flexibility.

Science

Ranked science proposals

The following research/modeling questions, in ranked order, have preproposals in peer review. Assuming a favorable review outcome, any or all could be selected for funding. Excerpts from the pre-proposals are included below for reference.

Influence of Water Management on Variation in Timing of Juvenile Salmonid Outmigration on the Trinity River

“We hypothesize that water management in the Trinity River is a significant contributor to outmigration timing and survival of smolts through the lower Klamath River. Specifically, we expect that varying outmigration timing through water management practices can increase survival by reducing water quality issues and the incidence and severity of infection from *Ceratanova shasta* and *Parvicapsula minibicornis* during transit from the Trinity River confluence through the Klamath estuary. By comparing mortality risk from baseline conditions to that simulated with proposed flow scheduling, we will estimate how the Program might further improve survival and overall production of juvenile salmonids.”

Quantifying river flows that provide holding habitat in summer for adult spring chinook and water temperatures that optimize juvenile salmonid growth

“The proposed work will evaluate summer flows that stratify pools and provide holding habitat for adult spring Chinook and water temperatures in the published range that maximizes juvenile salmonid growth. Flows that meet these aims will be used to derive a flow to holding habitat volume relationship for the restoration reach of the Trinity River. The curve could be used to adaptively manage summer baseflow releases from Lewiston Dam to better meet fisheries goals and provide water savings for addressing other restoration objectives.”

Quantifying entrainment thresholds and bed load transport on the Trinity River with paired measurements of bed load and the acoustic noise of mobile sediment

This project is intended to provide for calibration data collection to allow for a passive, rather than active, sediment transport monitoring program to be implemented using hydrophones. If successful, this would result in a substantially less expensive means of sediment transport monitoring.

“The proposed work will enable evaluation of the effects of management actions on bed load entrainment thresholds and loads and to provide information needed to design annual gravel augmentations. The latter is applied adaptive management that is needed to restore the sediment transport characteristics of a healthy alluvial river, scaled to the post-TRD hydrology. Relevant IAP (2009) objectives for the proposed work are provided in Appendix A.”

Monitoring intermittently connected off-channel features for growth and use by juvenile salmonids on the Trinity River, CA

“The proximate goal of this study is to improve our understanding of potential differences in short-term and seasonal growth patterns of fish using intermittently connected off-channel features in comparison to fish using the mainstem river, with an ultimate goal of informing adaptive management of flow releases from Lewiston Dam. The objectives of the study are to document differences in growth rates and seasonal growth trajectories of juvenile Chinook Salmon between off-channel features and the mainstem Trinity River. Results of the study could be used to justify flow releases from Lewiston Dam above currently prescribed baseflows during the critical rearing period (February to April) that would allow fish access to constructed and natural off-channel features.”

Estimation of consumption by juvenile salmon in the Trinity River using the S3 model

“As part of the Trinity River Restoration Program (TRRP) the U.S. Fish and Wildlife Service (USFWS) have identified a need to evaluate the consumptive behavior of juvenile Chinook salmon within the Trinity River, CA, using the Stream Salmonid Simulator (S3) model. In particular, resource managers want to know how different flow regimes during Dry, Normal, and Wet water years might affect fish consumption and growth. The S3 model has been developed for the Trinity River by the U.S. Geological Survey (USGS) and the model is well suited to estimate fish growth and consumption for natural and hatchery-produced juvenile Chinook salmon as they migrate downstream to the ocean. To date, the S3 model has estimated growth using an assumed value for optimal fullness as the estimate of the fish’s average proportion of food consumed relative to maximum consumption (i.e., $p(C_{max})$). In consultation with USFWS, USGS will use the S3 model to estimate fish movement, survival, and consumption using data from 2006 to 2017. These years provided a wide range from Dry to Wet water years to compare parameter values and S3 output <which>... will enable the TRRP and USFWS to assess the effect of different water years on juvenile Chinook salmon survival, movement, and growth over wide range of river flows and water year types.”

Modeling the potential for scour of chinook salmon redds and unspawned streambeds in the Trinity River

“We propose to describe the relationship of flow magnitude to shields stress, which can be used to predict both redd scour and stream bed disturbance in the restoration reach of the Trinity River, through the use of existing models and data. Information available will be used to estimate the proportion of redds and stream bed that are scoured by a range of flows. Shields stress values that predict a depth of scour will be taken from literature (May et al. 2009; and others). We hypothesize that salmonids place redds in areas that are not prone to scour over a large range of flows, and that scouring flows affecting significant portions of the stream bed, altering invertebrate communities, can be

achieved during the incubation period without posing significant risk to a substantial proportion of redds constructed in a given spawning year.”

Unranked science proposal

Following the June IDT meeting where the previous proposals were ranked, a preproposal for an additional synthesis report was submitted.

Flow synthesis report

“A synthesis of ROD flow release management outcomes was omitted in the 2018 synthesis reports. After 16 years of full ROD flow release implementation, a comprehensive review of what we have learned, identification of future flow flexibility needs, and recommended flow refinements is clearly needed.... The TRFE suggested that variable flows and increased volumes could restore natural fluvial processes and when implemented in concert with mechanical bank manipulation and gravel additions would lead to recovered fisheries. The ROD adopted changes based on the findings of the TRFE. This synthesis will look at the implementation of the ROD flows and evaluate hypothesized effects of those ROD volumes... The products from the proposed synthesis will provide a state of knowledge assessment using past hydrographs and present a recommendation as to whether the TRRP should maintain the same practices we currently employ for flow scheduling.”

SAB agreements

At present, the biometrician Chris Jordan’s agreement expires 7/22/2020. Fish habitat biologist Andrew Paul’s agreement has expired and he is working under a volunteer service agreement for the time being. Geomorphologist John Buffington’s agreement expires 7/28/2020. The riparian ecologist and additional fish biologist slot are vacant.