



Trinity River Restoration Program

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VIA ELECTRONIC MAIL ONLY

Memorandum

To: Trinity Management Council

From: James Lee
Science Coordinator

Subject: FY 2021 Status and Trend (Science) funding options

Based on the 08 July 2020 TRRP draft budget, if all Status and Trend monitoring projects that we intend to fund in FY 2021 see a 3% inflationary increase, their total is \$2,488,017.60 (Table 1: *FY 2021 Status Quo Subtotal*). Our total budget for this suite of projects is \$2,027,734.34, yielding a deficit of \$460,283.26.

The IDT met several times (15 May, 04 June, 12 June, 02 July) to discuss how to reconcile our data needs with the reduced FY 21 budget. No consensus was reached, but several alternatives were discussed and analyzed in detail. Four alternatives were selected to present to the TMC. The purpose of this memorandum is to inform the TMC of the alternatives so that they may select one to include in the FY 21 budget. The alternatives are:

Alternative 1a and 1b *Rank and Cut*: Rank the suite of projects and cut the projects that rank below the funding limit. Two projects tied for the last project to be funded, so there are two variations of this alternative.

Alternative 2 *Proportionate Reduction*: The budget for each project is reduced by an equal proportion, which is 18.5% less than the projected FY 21 cost.

Alternative 3 *Hybrid*: Cut the lowest ranking projects, and then distribute the remaining deficit among the remaining projects. This would most likely result in two projects being de-funded, and the remaining projects receiving a 10% cut.

Trinity Management Council

Justin Ly, Chair, National Marine Fisheries Service – Don Bader, Vice Chair, Bureau of Reclamation –
Scott Russell, USDA Forest Service – Mike Orcutt, Hoopa Valley Tribe – Dave Hillemeier, Yurok Tribe – Keith Groves, Trinity County –
Tony LaBanca, California Department of Fish and Wildlife – Dan Everson, US Fish & Wildlife Service –
Mike Dixon, TRRP Executive Director

Alternative 1- Rank and Cut (two variations)

On June 4, 2020, the IDT ranked the Status and Trend monitoring projects (Table 2). Each partner representative had six votes, and each project could only receive one vote per partner. The intent of the ranking exercise is to determine which projects rank high enough to fund. We can fund the top five projects. However, two projects tie on the funding line (Table 3), so there are two variations of this alternative depending on which project is funded.

The major benefit of the rank-and-cut approach is that of the projects that remain, the budgets are whole, and the projects can progress as they were originally scoped and budgeted. It is important to note that these projects are not necessarily independent, especially the harvest monitoring projects, which account for fish harvested before they reach the Willow Creek weir. It is also important to note that one of the variations of this approach does not leave one project budget whole.

Alternative 1a- Rank and Cut Redd/Carcass Surveys

This alternative would cancel the Lower Trinity Sport Harvest project (TRRP-2018-005), the Lower Klamath Sport Harvest project (TRRP-2018-010), and the Carcass and Redd Monitoring project (TRRP-2018-014). Cutting these projects would make an additional \$84,194.00 available for use elsewhere in the budget.

Omitting the sport harvest projects would reduce the Trinity River run size estimate because fish harvested before they reached the Willow Creek weir would be unaccounted for. Fish that spawn below the Willow Creek weir would not be accounted for, either. Carcasses and coded-wire tags would not be recovered from fish (both hatchery and natural-origin) that spawn in the Trinity River. One of TRRP's more informative metrics is the smolt:spawner ratio, and the precision of that estimate would be affected by the loss of data collected during the Carcass and Redd Monitoring project.

Alternative 1b- Rank and Cut Hoopa Tribal Harvest

This alternative would cancel the Lower Trinity Sport Harvest project (TRRP-2018-005), the Lower Klamath Sport Harvest project (TRRP-2018-010), and the Hoopa Tribal Harvest project (TRRP-2018-006). Cancelling these projects would still leave a \$32,424.00 deficit. Unless funding is reallocated from elsewhere in the TRRP budget, the Redd and Carcass monitoring project would need to be reduced by this amount.

Effects of this alternative are similar, overall, to 2a. The Hoopa Tribal Harvest Monitoring accounts for several thousands of fish annually, and these would be unaccounted for. However, much of the Redd and Carcass monitoring project would remain intact.

Alternative 2- Proportionate Reduction

Reducing each project's budget by 18.5% (from a baseline that is 3% greater than its FY 20 budget) would balance the science budget. The IDT and project PIs spent most of their time considering how a reduction of this scale would affect each project. PIs were asked to present a

recommendation for a new SOW based on a reduced budget for each project. The initial estimate of the budget reduction was 20%, but it was revised a few times, ultimately settling on 18.5% as of 08 July 2020. Project PI's were asked to describe how their projects would change when the forecasted reduction was 15%; the information that they presented is included here. The advantage of this approach is that project infrastructures can remain in place while the FY 22 Science Workplan is developed. During the next year, several synthesis reports will be completed, the workgroups' objective and metric exercises will be completed, and parts of the Headwaters' refined science and monitoring plan task will be available to help develop a new suite of re-scoped and integrated status and trend monitoring projects. Projects were mostly viable with a 15% budget reduction; however, an 18.5% budget reduction was not evaluated by PIs.

TRRP-2018-012 (Outmigrant monitoring)

In order to operate with 85% of the budget, the PI proposed the following changes:

- Reduce Yurok Tribal Fisheries Program (YTFP) freeze-branding efforts at Trinity River Hatchery (TRH). U.S. Fish and Wildlife Service (FWS) will increase their efforts to offset the reduction by YTFP.
- Reduce the trapping season at the Willow Creek Rotary Screw Trap (RST) by 2 weeks
- Eliminate coded-wire tagging (CWT) of juvenile chinook salmon for freeze branding effort (freeze branding is done to calibrate population estimates; freeze-branded fish are tagged per State of California policy).
- Reduce per diem costs by making day trips to Pear Tree RST in January, February, July, and August
- Shorten sampling season at Pear Tree RST site by 5 weeks

There are several impacts that would result from these cuts. As FWS increases their freeze-branding effort to offset YTFP's reduction in effort, their costs will increase. This will reduce the amount that FWS may contribute to TRRP's overall budget in FY 22. Omitting CWTs on freeze-branded fish would require coordination with the California Department of Fish and Wildlife (CDFW), although this is not viewed as a serious obstacle. The reduction in sampling effort at both RSTs will have an uncertain effect on the precision of the population estimates. Finally, reducing per diem costs to operate the Pear Tree RST would be done by making day trips. This would increase the risk of damage to the RST through the accumulation of debris.

TRRP-2018-001 (Run-size estimation)

This project would remain largely intact with a budget of 85% of the status-quo. CDFW is able to absorb their reduction, as well as 7.5% of the cut to Hoopa Valley Tribal Fisheries Dept (HVTF) because a new contract with Reclamation allows them to shift some hatchery work that was previously included in the run-size line item. HVTF is able to handle the rest of their cut by reducing their participation in weir installation (CDFW personnel would simply take longer to install the weir). CDFW also would cut the angler tag return portion of the budget. Low angler tag returns are expected this year due to a low predicted run size.

TRRP-2018-014 (Redd/carcass survey)

The recommended changes to this project with 85% of the status-quo budget were:

- The first and final weeks of a normal survey schedule, when little to no redds/carcasses are typically observed, would be removed.
- Combining reaches into single survey days: Reaches 1 and 2 and Reaches 6 and 7 would be surveyed together in a single day during the first weeks of the season.
- Reducing the number of surveys in the lower reaches of the river: Reaches 12-14 are typically surveyed seven times throughout the survey season. These reaches would be reduced to 5 weeks of surveys.

A 15% reduction in the budget reduces survey days for YTFP and CDFW from 81 to 66, for HVT and USFWS from 68-55, and USFS from 33-27.

These proposed changes are based on the following assumptions:

- The Chinook run size will be relatively low this year.
- No or few carcasses and redds will be missed during the eliminated survey weeks.
- Reaches 1-2 and 6-7 can be combined into a single survey day for the predicted duration.

The proposed changes will have the following impacts:

- We do not yet know to what extent the reduction in data collected will affect the accuracy, precision, and bias of analyses.
- Due to the sparseness of data collected in Reaches 12-14, the data collected here may not be enough to be reportable. From this section of the survey, we hope to at least have a minimum number of redds that are constructed downstream of the Willow Creek Weir.
- In addition to continuing a valuable long-term data set, this survey serves to address the estimation of smolts produced per adult which is a primary TRRP goal, and changes to the survey will impact this key metric.

TRRP-2018-034 (Chinook CWT)

The PI was not able to meet a target of 85% of the status-quo budget, because most of the budget is allocated towards running a tagging machine that cannot change its output, and a specific rate (25% of hatchery production) of fish must be tagged. A 12% reduction was identified as possible by omitting much of the supervisory time and trusting the (well-experienced) technicians to perform this project with little oversight.

TRRP-2018-026 (YT Harvest)

A 15% reduction would be met by offsetting the reduction with a different funding source.

TRRP-2018-006 (HVT Harvest)

A 15% reduction would be met by reducing 4 sampling days/week to 3 sampling days/week.

TRRP-2018-010 (State lower Klamath harvest)

A 15% reduction would be met by offsetting the reduction with a different funding source and small reduction of effort.

TRRP-2018-004 (Fall run chinook scale ageing)

There are two partners on this project, with slightly different approaches to a 15% budget reduction. However, the project would remain viable with such a reduction. YTFP would reduce effort consistent with the budget reduction, and at 15% would still remain within the recommended range of effort. YTFP is also funded through a different source, so a 15% reduction in TRRP funding is not equivalent to a 15% project budget reduction. HVTF felt that they could similarly handle a 15% budget reduction, but would need to coordinate with TRH to keep fall chinook spawning to two days/week instead of three.

TRRP-2018-005 (Lower Trinity Sport Harvest)

Reducing sampling days from 3/week to 2/week leads to 25% savings, then add sampling back in when fishing pressure increases to meet a 15% reduction.

Alternative 3- Hybrid between Rank-and-Cut and Proportionate Reduction

This alternative would cut the lower one or two projects and distribute the additional cuts among the other projects. For example, if the two lowest ranking projects were cut, the remaining projects would see 10% reductions to their budgets. Because the 15% budget reductions were mostly viable, 10% reductions would be viable as well.

Table 1. Potential FY 21 Status and Trend Monitoring Budget Options.

SCIENCE BUDGET	2019 Approved	2020 Approved	2021 Status Quo	2021 18.5% Across- the-board	2021 Rank and Cut A	2021 Rank and Cut B	2021 Hybrid
Status and Trend Monitoring <i>doesn't include FWS** salaries</i>							
TRRP-2018-001: Chinook Run-Size Est.(CDFW, HVT)	\$ 473,908.43	\$ 71,450.88	\$ 556,331.63	\$ 453,410.28	\$ 556,331.63	\$ 556,331.63	\$ 500,698.47
California Department of Fish and Wildlife	\$ 405,462.59	\$ -	\$ 482,548.00	\$ 393,276.62	\$ 482,548.00	\$ 482,548.00	\$ 434,293.20
Hoopa Valley Tribe	\$ 68,445.84	\$ 71,450.88	\$ 73,783.63	\$ 60,133.66	\$ 73,783.63	\$ 73,783.63	\$ 66,405.27
TRRP-2018-034: Chinook CWT-Fall Chinook (HVT)	\$ 189,413.47	\$ 193,141.51	\$ 198,310.51	\$ 161,623.07	\$ 198,310.51	\$ 198,310.51	\$ 178,479.46
TRRP-2018-004: Fall Run Scale Age (HVT, YT)	\$ 134,400.89	\$ 137,107.52	\$ 143,781.13	\$ 117,181.62	\$ 143,781.13	\$ 143,781.13	\$ 129,403.01
Hoopa Valley Tribe	\$ 89,401.66	\$ 91,805.30	\$ 97,119.84	\$ 79,152.67	\$ 97,119.84	\$ 97,119.84	\$ 87,407.86
Yurok Tribe	\$ 44,999.23	\$ 45,302.22	\$ 46,661.29	\$ 38,028.95	\$ 46,661.29	\$ 46,661.29	\$ 41,995.16
TRRP-2018-012:Outmigrant Monitor HVT, YT, FWS**	\$ 747,742.43	\$ 775,258.78	\$ 799,438.34	\$ 651,542.24	\$ 799,438.34	\$ 799,438.34	\$ 719,494.50
Hoopa Valley Tribe	\$ 525,944.00	\$ 455,088.60	\$ 469,663.05	\$ 382,775.39	\$ 469,663.05	\$ 469,663.05	\$ 422,696.75
Yurok Tribe	\$ 221,798.43	\$ 320,170.18	\$ 329,775.29	\$ 268,766.86	\$ 329,775.29	\$ 329,775.29	\$ 296,797.76
TRRP-2018-026: YT Harvest (Lower Klamath) (YT)	\$ 160,000.00	\$ 180,000.00	\$ 185,400.00	\$ 151,101.00	\$ 185,400.00	\$ 185,400.00	\$ 166,860.00
TRRP-2018-006: HVT Harvest (Lower Harvest) (HVT)	\$ 112,751.56	\$ 117,026.75	\$ 122,479.28	\$ 99,820.61	\$ 122,479.00	\$ -	\$ 110,231.35
TRRP-2018-014: Monitor redds distribution, abundance and densities CDFW, YT, HVT, FS, FWS**	\$ 166,385.39	\$ 179,597.43	\$ 239,096.74	\$ 194,863.85	\$ 25,000.00	\$ 147,000.00	\$ 215,187.07
California Department of Fish and Wildlife	\$ 48,495.49	\$ -	\$ 58,390.00	\$ 47,587.85			\$ 52,551.00
Yurok Tribe	\$ 69,779.19	\$ 74,328.49	\$ 76,558.34	\$ 62,395.05			\$ 68,902.51
Hoopa Valley Tribe	\$ 96,606.20	\$ 97,783.93	\$ 104,148.40	\$ 84,880.95			\$ 93,733.56
Forest Service	\$ -	\$ 7,485.01	\$ -	\$ -	\$ -	\$ -	\$ -
TRRP-2018-010: State Lower Klamath (CDFW)	\$ 199,181.57	\$ -	\$ 136,997.00	\$ 111,652.56	\$ -	\$ -	\$ -
TRRP-2018-005: Sport Harvest/Trinity CreelHVT	\$ 95,900.51	\$ 101,610.50	\$ 106,182.97	\$ 86,539.12	\$ -	\$ -	\$ -
TRRP-2018-030: ~Gravel Implementation*** Monitoring (TRRP Reclamation contract)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total	\$ 2,279,684.25	\$ 1,755,193.37	\$ 2,488,017.60	\$ 2,027,734.34	\$ 2,030,740.60	\$ 2,030,261.60	\$ 2,020,353.86

*** Not proposed or ranked by IDT

Table 2. IDT tallies for Status and Trend Monitoring Projects. June 4, 2020.

Project	Status Quo Cost	TOTAL	USFWS	USBR	USFS	NOAA	CA	HVT	YT	County
TRRP-2018-014: Monitor redd distribution, abundance and density	\$239,096.74	3	1	1				1		
TRRP-2018-012: Outmigrant Monitor HVT, YT, FWS**	\$799,438.34	5	1	1			1	1	1	
TRRP-2018-034: Chinook CWT-Fall Chinook (HVT)	\$198,310.51	6	1	1		1	1	1	1	
TRRP-2018-001: Chinook Run-Size Est.(CDFW, HVT)	\$556,331.63	6	1	1		1	1	1	1	
TRRP-2018-026: YT Harvest (Lower Klamath) (YT)	\$180,000.00	5	1	1		1	1		1	
TRRP-2018-006: HVT Harvest (Lower Harvest) (HVT)	\$122,479.28	3				1		1	1	
TRRP-2018-010: State Lower Klamath (CDFW)	\$136,997.00	2				1	1			
TRRP-2018-004: Fall Run Scale Age (HVT, YT)	\$143,781.13	6	1	1		1	1	1	1	
TRRP-2018-005: Sport Harvest/Trinity CreelHVT	\$106,182.97	0								
Agency vote total check			6	6	0	6	6	6	6	0

Table 3. Project rankings, costs, and cumulative costs.

Project	Rank	Cost	Cumulative Cost*
TRRP-2018-001 Chinook Run-Size Est.	1 (tie)	\$556,331.63	\$556,331.63
TRRP-2018-034 Chinook CWT	1 (tie)	\$198,310.51	\$754,642.14
TRRP-2018-004 Fall Run Scale Age	1 (tie)	\$143,781.13	\$898,423.27
TRRP-2018-012 Outmigrant Monitoring	2 (tie)	\$799,438.34	\$1,697,861.61
TRRP-2018-026 YT Harvest	2 (tie)	\$180,000.00	\$1,877,861.61
TRRP-2018-012 Redd/Carcass Monitoring	3 (tie)	\$239,096.74	\$2,116,958.35
TRRP-2018-006 HVT Harvest	3 (tie)	\$122,479.28	\$2,239,437.63
TRRP-2018-010 State Lower Klamath Harvest	4	\$136,997.00	\$2,376,434.63
TRRP-2018-005 Sport Harvest/Trinity Creel	5	\$106,182.97	\$2,482,617.6

*Approximately \$2,028,000 is available for funding these projects.