DRAFT CVPIA Fiscal Year 2014 Annual Work Plan
April 29, 2013

Program Title: Trinity River Restoration Program (TRRP) - CVPIA Section 3406(b)(1) other/ (b)(23)

Responsible Entities

Staff Name	Agency	Role
Robin Schrock	USBR	TRRP Executive Director
Nancy Finley	USFWS	Arcata Field Office Supervisor

The Trinity River Restoration Program (TRRP) was founded in 2000 based on three comprehensive foundational documents: the Trinity River Flow Evaluation Final Report (TRFES; U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999); the Trinity River Environmental Impact Statement (TREIS/EIR; USFWS et al. 2000); and the Record of Decision (ROD; U.S. Department of the Interior 2000). These documents established a comprehensive science-based adaptive management program to restore the Trinity River's fishery resources.

Program Goals and Objectives for FY 2014

The TRRP is designed to restore the attributes of a healthy, alluvial river system by implementing variable annual instream flows, physical channel rehabilitation, sediment management, and watershed restoration. The Program's overarching goal is to restore anadromous fish populations to pre-dam levels. Fiscal Year 2014 (FY 2014) restoration activities include the continued implementation of the TRRP's restoration strategy. The Program will plan and implement restoration flow releases, construct up to three channel rehabilitation projects, augment coarse sediment, execute watershed restoration activities to manage fine sediment, and continue to implement a Decision Support System to integrate monitoring and evaluation results to inform future restoration efforts**.** Annual restoration flow releases will be based on water year type. Channel rehabilitation projects will include a combination of habitat improvement projects that will focus on side channel construction, floodplain lowering, woody debris placement, spawning gravel processing and augmentation, and juvenile fish habitat enhancements. Annual coarse sediment augmentations will be based on water year type, results of past augmentations, and 2-dimensional modeling runs. Watershed restoration projects will seek to reduce fine sediment contributions to the Trinity River.

In addition to the various restoration actions, 18 activities from the TRRP's Integrated Assessment Plan are proposed under six CVPIA Annual Work Plan categories: Environmental Compliance, Pre-Project Monitoring, Post-Project Monitoring, Monitoring (Programmatic), Research (Evaluations, Studies, Investigations), and Modeling. These activities are generally intended to (1) evaluate long-term progress toward achieving Program goals and objectives; and (2) provide short-term feedback to improve Program management actions by testing key hypotheses, and reducing management uncertainties. The activities relate to the influence of restoration actions on fish, wildlife, vegetation and the physical environment.

Status of the Program, 2000 through 2013

Since establishment in 2000, the TRRP has implemented many activities to improve anadromous fisheries habitat. In summary, Program activities include the following:

- Annual releases of restoration flows.
- Construction of 30 channel rehabilitation projects.
- Placement of 1,700 cubic yards of spawning gravel below Lewiston Dam.
- Partnership in many watershed projects.
- Implementation of infrastructure improvement projects to allow release of restoration flows.

The TRRP also collects scientific information to evaluate the influence of restoration actions on the Trinity River.

Implementation of the ROD-defined flow schedules is a cornerstone of the TRRP's outcome based fishery restoration goals. Restoration flows are intended to clean fine sediment from spawning gravels, build gravel/cobble bars that provide juvenile salmonid rearing habitat, scour sand out of pools, provide adequate temperature and habitat conditions for fish and wildlife at different life stages, control riparian vegetation, and perform many other ecological functions. The volumes of water (369,000-815,000 acre-feet) and peak releases (1,500-11,000 cubic feet per second) are based on five water year types (Critically Dry, Dry, Normal, Wet, and Extremely Wet) that are collectively designed to create inter-annual variability that mimics the pre-dam snowmelt driven hydrograph and contributes to the desired healthy river attributes identified in the TRFES. The TRRP has made progress toward meeting goals of the Program, although substantial additional effort and time is required to fully achieve performance goals. One of the major objectives of the ROD flows is to flush fine sediment and sand out of the substrate to improve habitat conditions. The most recent sediment budget update shows that the sand content of the channel bed and banks in the reaches downstream from Lewiston Dam has declined substantially since the 1980s, when dam-related impacts were at a maximum. This reduction in sand content indicates that ROD flows along with watershed restoration are meeting the Program's fine sediment objectives. For the 11 water years since the signing of the Record of Decision (Water Years 2001-2012) a total of 6.99 million acre feet of ROD water has been released. The river release allocation prior to the ROD was 340,000 acre-feet per year or 3.74 million acre feet for the 11 year pre-ROD period. Therefore, the ROD resulted in an additional 3.25 million acre feet of water being released over the last 11 years. However, there have not been enough instances of each water year type with flows high enough to adequately address the flow related adaptive management requirements of the Program.

Channel rehabilitation projects are designed to create dynamic alluvial river processes that create and maintain fish habitat. When construction of the current sites is complete, the TRRP will have completed more than half of the channel rehabilitation projects. The Program's Scientific Advisory Board (SAB) is completing a comprehensive evaluation of the completed channel rehabilitation projects to inform the remaining efforts. Pre- and post-project monitoring is also being conducted to determine if features and sites function as intended and will be used to plan future sites.

Coarse sediment augmentation is performed to reduce the coarse sediment deficit downstream of Lewiston Dam, promote bed mobility and fluvial dynamics, and increase spawning and rearing habitat availability. The most recent sediment budget update suggests that the coarse sediment deficit in the 13 river miles downstream from Lewiston Dam has been greatly reduced over the past decade.

In 2012 the TRRP began using project-specific and programmatic monitoring efforts to report several performance indicators. The indicators track many aspects of the river, its ecology, and Program restoration efforts. Findings from the performance indicators are included above (flow accounting, coarse sediment deficit, sand content) and also include:

- Temperature targets to improve spawning success of spring and fall-run Chinook salmon are generally met (indicator name: Temperature Target Performance).
- Increases of Chinook and Coho salmon rearing habitat have been observed at particular channel rehabilitation project sites but not system-wide (indicator name: Chinook and Coho Salmon Rearing Habitat).
- Naturally produced juvenile Chinook salmon abundance appears to have increased steadily from 2007 through 2010 (indicator name: Abundance of Naturally Produced Juvenile Chinook Salmon).
- Escapement of all species over time has been variable with no long term increase detected for naturally produced spring- and fall-run Chinook, or for naturally produced Coho salmon (indicator name: Spawning Escapement of Naturally Produced Salmonids).
- The mean distance downstream from Lewiston Dam that natural origin Chinook salmon redds are constructed appears to be increasing over time since 2002 (indicator name: Distribution of Natural-Origin Chinook Salmon Spawners).

It is recognized that the Trinity River and associated vegetation, fish, and wildlife system have only had a few years to respond to Program restoration actions. Performance indicators will continue to be updated as information is collected.

Adaptive Management

The Trinity River, like other alluvial river systems, is complex and dynamic. Our understanding of the Trinity River and how it will respond to restoration actions is continually improving. Adaptive Environmental Assessment and Management (AEAM), a fundamental element of the Trinity River restoration strategy, is a systematic approach for improving future management decisions by learning from outcomes of past actions and incorporating new knowledge into management actions.

As an example of the influence of AEAM in the TRRP, the coarse sediment augmentation program has evolved since the Program's foundation. The TRFES suggested an immediate infusion of gravel totaling 16,000 cubic yards was needed immediately below the Lewiston Dam and in the cableway reach. In addition, ranges of augmentation quantities to be added to the river over the long term were specified for each water year type. In 2008, based on an updated analysis using a sediment transport model and in consideration of logistical constraints, the gravel augmentation was revised to use an average rate of augmentation rather than water-year specific rates. The 2010 sediment budget report suggests that the long-term deficit has been reduced to near zero, except for immediately below the dam. TRRP physical scientists and fish biologists are currently reevaluating coarse gravel augmentation needs in light of the Program's habitat objectives. The effort will potentially lead to further refinement of the Program's coarse gravel augmentation approach.

Additionally, our AEAM program has recently guided changes in restoration flow releases. The water year 2013 flow release was developed as a proactive management approach to provide improved rearing conditions for fry and juvenile Chinook salmon during this dry water year that is preceded by exceptionally high natural Chinook salmon escapement and subsequent high emergence success and fry abundance. Monitoring is in place to continue assessing the effectiveness of this hydrograph modification.

Finally, as mentioned above, the Program's SAB is completing an evaluation of the completed channel rehabilitation projects in the broader geomorphic and hydrologic context of the Program to inform the remaining channel rehabilitation efforts. The report, which has been released in draft form, includes an evaluation of the change in juvenile fish habitat at individual channel rehabilitation sites and throughout the Program area, a description of the evolution in channel rehabilitation design, an analysis of Habitat-Geomorphic relationships, an evaluation of riparian vegetation dynamics, and the description of a decision support system (DSS). The SAB recommends the development of a DSS to strengthen adaptive management on the Trinity River. The results of the SAB's review will have application to the Trinity and other managed rivers.

Literature Cited

U.S. Department of the Interior. 2000. Record of Decision, Trinity River Mainstem Fishery Restoration, Final Environmental Impact Statement/Environmental Impact Report. 43 p.

U.S. Fish and Wildlife Service and Hoopa Valley Tribe. 1999. Trinity River Flow Evaluation — Final Report. U.S. Fish and Wildlife Service, Arcata Fish and Wildlife Office, Arcata, CA.

U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, Hoopa Valley Tribe, and Trinity County. 2000. Trinity River Mainstem Fishery Restoration Final Environmental Impact Statement / Environmental Impact Report.

Table 1. FY2014 Proposed Activities and Costs

CVPIA Section 3406 (b)(23)/(b)(1)other, Trinity River Restoration Program

	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014				
	Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
Total Funding	$2,000,000	$13,964,000	$1,736,672	$0	$17,700,672
Reclamation	$2,000,000	$13,964,000	$626,277		$16,590,277
Service	$0	$0	$1,110,395		$1,110,395
CA DFG				$0	$0
CA DWR				$0	$0

1.1	Program Management										
AWP Activity Number	Activity Name	Activity Description	Agency		Program Performance Goal	FY2014 Projected Performance	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014				
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
1.1.1	TRRP Management	Responsibilities include implementation of the Record of Decision (ROD) for the Trinity River Mainstem Fishery Restoration Final EIS/EIR signed December 2000. Program activities are performed under the authority of CVPIA Section 3406(b)(23) for provisions of the ROD associated with implementation of annual instream flows. Other activities not specifically identified in Section 3406(b)(23) are performed under the authority of 3406(b)(1)(other). Budget components for FY2013 include fully burdened personnel costs that include salary plus benefits, plus leave assessment and regional and office indirect overhead. Other budget allocations already reflect regional office indirect overhead and cover office administration and operations (printing, outreach materials), office lease, vehicle lease charges, IT, costs associated with Trinity Management council and Trinity Adaptive Management Working Group activities.	BOR	0.00				$500,000			$500,000
1.1.2	Program Manager, USBR co-lead	Management of TRRP program budget, activities, and Reclamation staff. Supervise administrative staff (Secretary and Acquisitions specialist), Monitoring and Analysis (science) staff and Implementation Branch Chief. Provide Executive Director (executive secretary) support to Trinity Management Council (TMC). Provide quarterly Executive Director reports to TMC and Trinity Adaptive Management Working Group, the federal FACA committee under USFWS oversight. Coordinate with USFWS co-lead or their representative on program execution and accountability. Conduct final reviews of all peer reviewed reports and TRRP products for sufficiency. Respond to all public and stakeholder queries and oversee public outreach efforts. Provide Trinity River Division accomplishment reports to Reclamation, and ensure accountability for the TRRP through CVPIA annual work plan and annual report, Reclamation PART, and TRRP annual reports and performance measures. (A30)	BOR	1.00				$261,083			$261,083

1.1.3	USFWS co-lead	Participation of Arcata Fish and Wildlife Office Field Supervisor as the co-chair of the Trinity Management Council, as the Designated Federal Official of the Trinity River Adaptive Management Working Group, and in other program management activities. (A1R)	FWS	0.00					$100,000		$100,000

	Sub-Total for Program Management, FY2014				
	Restoration Fund	**Water and Related Resources**	**Bay-Delta Fund**	**State Cash and In-Kind**	**Total All Sources**
Subtotal Funding	$0	$761,083	$100,000	$0	$861,083
Reclamation	$0	$761,083	$0		$761,083
Service	$0	$0	$100,000		$100,000
CA DFG				$0	$0
CA DWR				$0	$0

1.2	Program Support											
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2014 Projected Performance	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014				
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
1.2.1	Trinity Management Council	Reclamation and the Service serve as the Secretary of the Interior representatives on the Trinity Management Council. Although the Secretary retains ultimate authority over this program, by the Record of Decision, the Trinity Management Council guides overall implementation of the management actions of the Trinity River Restoration Program (TRRP). Members and alternates of the eight TRRP partner Federal, State, Tribe and local agencies (Reclamation, Service, NOAA, Forest Service, Hoopa Valley Tribe, Yurok Tribe, California Resources Agencies (DWR, CDFG) and Trinity County participate in four quarterly meetings and monthly teleconferences to determine TRRP program direction, activities and policies. (A30)	BOR	0.00				$451,448			$451,448
1.2.2	Technical Assistance to Tribes	Development and maintenance of Tribal capacity to fully and meaningfully participate in the TRRP technical and Adaptive Environmental Assessment and Management (AEAM) activities and the restoration of Trinity River Tribal Trust resources. Funds Tribals participation in TRRP implementation by funding administrative staff, fisheries staff, provides critical safety and technical training, office utility expenses, building maintenance, office supplies and equipment, and other critical non-project-specific operational support expenses. (A30)	BOR	0.00				$606,809			$606,809
1.2.3	Trinity Adaptive Management Working Group	The Trinity Adaptive Management Working Group (TAMWG) is a group of stakeholders providing an opportunity for stakeholders to give policy and management advice about restoration activities to the TMC. The TAMWG is chartered under the Federal Advisory Committee Act (FACA) under the USFWS Designated Federal Officer. TAMWG will hold at least two meetings per year of the full group, involving the public. The technical advisory committees may hold additional meetings with the TAMWG to discuss technical issues, review annual flow schedules, and RFP's for implementation activities. Stakeholders submit alternative hypotheses and/or alternative restoration actions to the TMC for consideration in their capacity as an advisory group. (A1R)	FWS	0.00					$30,000		$30,000
1.2.4	Work Group Participation	Consultants to Tribes: support to attend quarterly meetings of three technical workgroups. (A30)	BOR	0.00				$48,283			$48,283
1.2.5	Secretary	Carries out all office adminstrative duties for the TRRP including office automation, correspondence, timekeeping, and other routine administrative tasks. (A30)	BOR	1.00				$102,096			$102,096
1.2.6	Acquisition Support Specialist	Processes all acquisitions, agreements, contracts for the TRRP and monitors the TRRP budget. (A30)	BOR	1.00				$141,397			$141,397
1.2.7	Other Reclamation Offices	Regional charges to process purchase requests: assessment is based on number of purchase requests, contracts, grants and agreements processed. (A30)	BOR	0.00				$80,000			$80,000

1.2.8	USFWS Staff	Participation of Arcata Fish and Wildlife Office Fisheries and Conservation Partnership Program staff in the Trinity Management Council, in support of the Trinity River Adaptive Management Working Group, and in science program administration. (A1R)	FWS	0.00					$295,108		$295,108

	Sub-Total for Program Support, FY2014				
	Restoration Fund	**Water and Related Resources**	**FWS-Arcata Funds**	**State Cash and In-Kind**	**Total All Sources**
Subtotal Funding	$0	$1,430,033	$325,108	$0	$1,755,141
Reclamation	$0	$1,430,033	$0		$1,430,033
Service	$0	$0	$325,108		$325,108
CA DFG				$0	$0
CA DWR				$0	$0

1.3	Technical Support											
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2014 Projected Performance	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014				
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
1.3.1	Physical Scientist	Provides physical science support to TRRP: Conducts sediment and geomorphic sampling, analysis and modeling. Prepares reports and scientific publications. (A30)	BOR	1.00				$189,901			$189,901
1.3.2	Natural Resource Specialist	Conducts all compliance and permitting activities for program. Develops, evaluates, and recommends technically defensible strategies, priorities, and tasks, resulting in realistic and achievable schedules and budgets authorized by the TMC, to accomplish the NEPA/CEQA and environmental permitting requirements of implementation components of the program's adaptive environmental assessment and management (AEAM) program. (A30)	BOR	1.00				$195,386			$195,386
1.3.3	Supervisory Civil Engineer	Rehabilitation Implementation Branch Chief/supervisor: Supervises engineering staff, guides development of rehabilitation project design and implementation by coordinating among TRRP partner technical staff, provides technical (engineering) peer review of partner design team products, responsible for implementation of rehabilitation projects. (A30)	BOR	1.00				$184,653			$184,653
1.3.4	Hydraulic Engineer	Provides hydraulic engineering expertise to TRRP: Participates in planning and implementation of restoration flows, analyses and models alternative flow schedules, prepares statements of work for annual assessments, oversees stream gage information, and participates in preparation of annual report and performance measures. (A30)	BOR	1.00				$186,590			$186,590
1.3.5	Civil Engineering Tech	Civil engineering technician serves as project construction manager: plans all construction aspects of rehabilitation projects with design team, prepares construction solicitation packets, coordinates on the ground rehabilitation project construction with contractors and inspectors, ensuring onsite compliance with environmental permitting requirements.	BOR	1.00				$94,662			$94,662
1.3.6	Realty Specialist	Completes all right of access and realty actions necessary to implement 2013 rehabilitation projects, administers up to 25 well grants, prepares and presents project realty/mitigation updates at public meetings, assist TRRP Environmental Specialist with meeting all permit application submission requirements. (A30)	BOR	1.00				$107,232			$107,232
1.3.7	Project Manager	Civil engineering technician serves as project construction manager: plans all construction aspects of rehabilitation projects with design team, prepares construction solicitation packets, coordinates on the ground rehabilitation project construction with contractors and inspectors, ensuring onsite com0pliance with environmental permitting requirements. (A30)	BOR	1.00				$153,283			$153,283
1.3.8	Hydrologic Engineer	Hydrologic engineer support for TRRP: Provides half time support for coordination of temperature and flow modeling and analysis, coordinates with CVO, MP and R&D offices for specific expertise to meet TRRP objectives to meet temperature and flow targets. (A30)	BOR	0.50				$111,966			$111,966

1.3.9	Civil Engineer	Provides civil design engineering expertise for TRRP: Develops rehabilitation projects designs to implement mechanical channel rehabilitation and coarse sediment augmentation actions to achieve completion of planned projects in collaboration with TRRP partner technical staff. (A30)	BOR	1.00							$0
1.3.10	Service staff	Participation of Arcata Fish and Wildlife Office Fisheries and Conservation Program staff in technical workgroups, workgroup leadership, and data synthesis and reporting. This accounts for 4.25 FTEs. (A1R)	FWS	0.00					$685,287		$685,287

	Sub-Total for Technical Support, FY2014				
	Restoration Fund	**Water and Related Resources**	**FWS-Arcata Funds**	**State Cash and In-Kind**	**Total All Sources**
Subtotal Funding	$0	$1,223,673	$685,287	$0	$1,908,960
Reclamation	$0	$1,223,673	$0		$1,223,673
Service	$0	$0	$685,287		$685,287
CA DFG				$0	$0
CA DWR				$0	$0

2.1	Pre-Project Study, Research, Reconnaissance										
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2014 Projected Performance	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014				
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
2.1.1	Department of Water Resources (DWR) Technical Assistance	DWR will participate in design meeting and site visit, prepare detailed civil engineering designs for rehabilitation projects, survey sites in preparation for project designs and implementation, participate in value engineering studies for planned projects, and develop HEC-RAS models for flows for specific design features (A30).	BOR	0.00	Complete 47 Channel Rehab. Projects	Engineering design, surveying and HEC-RAS models		$151,850			$151,850
2.1.2	Bureau of Land Management (BLM) Technical Assistance and Wood	BLM coordinates with TRRP rehabilitation projects to identify trees for removal for large wood structures for rehabilitation projects, coordinates NEPA and permitting for tree harvest (A30).	BOR	0.00	Complete 47 Channel Rehab. Projects	Identify trees avaliable		$72,000			$72,000
2.1.3	Trinity County Department of Transportation (TC DOT) Technical Assistance	TC DOT works with TRRP staff in project planning and design development including baseline infrastructure inventories (bridges, roads), cultural resource evaluations, geological/mining input Management Indicator Species evaluations, ESA-wildlife consultation and Sensitive Species report writing, recreation management, and Wild and Scenic River consultation and impact analyses (A30).	BOR	0.00	Complete 47 Channel Rehab. Projects	Coordinate with non-TRRP resource managers		$70,000			$70,000
2.1.4	US Forest Service (USFS) Technical Assistance	USFS collaborates with TRRP on watershed projects on USFS land in Trinity River restoration corridor, develops environmental documents for permitting of projects, conducts surveys of cultural resources and indicator species, conducts wild and scenic river consultations and impact analyses (A30).	BOR	0.00	Annually reduce 10,000-20,000 CY of fine sediment	Identify projects that reduce fine sediment inputs to the Trinity River		$65,317			$65,317
2.1.5	United States Geological Survey (USGS) Technical Assistance	USGS develops site specific mercury monitoring plans and conducts mercury monitoring on two of three rehabilitation sites (A30).	BOR	0.00	Complete 47 Channel Rehab. Projects	Mercury sampling	$0	$30,000			$30,000
2.1.6	Hoopa Valley Tribe (HVT) Implementation Technical Assistance	Funds full participation of Hoopa Valley Tribe consultants participation in techncial work group meetings and project design activities (A30).	BOR	0.00	Complete 47 Channel Rehab. Projects	Tribes participate in rehab projects.		$40,080			$40,080
2.1.7	Yurok Tribe Implementation Technical Assistance	Support the Yurok Tribe and their consultant team to participate in the Design Team and other implementation tasks (A30).	BOR	0.00	Complete 47 Channel Rehab. Projects	Tribes participate in rehab projects.		$35,000			$35,000

2.1.8	Remote Sensing	Digital orthorectified aerial photography to assess changes in physical habitat of rehabilitation projects to measure program sucees as increases in desirable habitat for the full 42 mile area on the Trinity River; aircraft-based LiDAR terrestrial topography data and true-color aerial photography for the full 42 mile project area; site specific aircraft-based LiDAR; and ground or sonar based terrestrial and bathymetric topographic surveys of the TRRP 42 mile area (A30).	BOR	0.00	Complete 47 Channel Rehab. Projects	Remote sensing images of the 42-mile area on the Trinity R.		$250,000			$250,000

	Pre-Project Study, Research, Reconnaissance, FY2014				
	Restoration Fund	**Water and Related Resources**	**FWS-Arcata Funds**	**State Cash**	**Total All Sources**
Subtotal Funding	$0	$714,247	$0	$0	$714,247
Reclamation	$0	$714,247	$0		$714,247
Service	$0	$0	$0		$0
CA DFG				$0	$0
CA DWR				$0	$0

2.3	Outreach and Public Involvement										
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2014 Projected Performance	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014				
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
2.3.1	Public Education and Outreach	Public meetings and informational materials for information transfer about rehabilitation projects, environmental assessment and compliance, monitoring and evaluation, and partnership activities (A30).	BOR	0.00	n/a	Report on all TRRP activities per partner, stakeholder and public request		$80,000			$80,000
							Sub-Total for Outreach and Public Involvement, FY2014				
							Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
						Subtotal Funding	$0	$80,000	$0	$0	$80,000
						Reclamation	$0	$80,000	$0		$80,000
						Service	$0	$0	$0		$0
						CA DFG				$0	$0
						CA DWR				$0	$0

2.4	Environmental Compliance											
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2014 Projected Performance	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014				
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
2.4.1	Map and quantify riparian vegetation	Map and quantify changes in riparian floodplain vegetation (e.g., species, age-class, initiation success, structural attributes) at channel rehabilitation sites and system-wide. The TRRP is required to replace riparian vegetation that is removed during channel rehabilitation project implementation. This activity tracks whether that condition is being met. (A30)	BOR	0.00	Improve the Riparian Corridor	0		$100,681			$100,681
2.4.2	Riparian and riverine bird monitoring	Restoration-associated changes in fish abundance and riparian habitat complexity are expected to affect riparian and riverine bird communities on the Trinity River. This project includes a multi-scale, multiple methodology monitoring program designed to meet and assess compliance requirements by tracking avian response to restoration actions. (A30)	BOR	0.00	Improve the Riparian Corridor	0		$44,319			$44,319
2.4.3	Environmental Compliance and Permitting	Develop Environmental Assessments (NEPA/CEQA) to support rehabilitation implementation projects. (A30)	BOR	0.00	n/a	0		$201,853			$201,853
2.4.4	Native Seed Supply	Harvest and supply of native grass seeds to support restoration projects for mitigation of disturbance or removal of riparian vegetation as required by permitting agencies. (A30)	BOR	0.00	Improve the Riparian Corridor	0		$20,000			$20,000
2.4.5	Biological Opinion	Develop new Biological Opinion to support Environmental Compliance Documentation (A30)	BOR	0.00	n/a	0		$40,000			$40,000
							Sub-Total for Environmental Compliance, FY2014				
							Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
						Subtotal Funding	$0	$406,853	$0	$0	$406,853
						Reclamation	$0	$406,853	$0		$406,853
						Service	$0	$0	$0		$0
						CA DFG				$0	$0
						CA DWR				$0	$0

2.5	Design											
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2014 Projected Performance	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014				
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
2.5.1	Channel Rehabilitation Design for Mainstem Restoration Project	2014 channel rehabilitation activities will occur at Lower Junction City, Bucktail and Dutch Creek. Design development and technical assistance (private consultant) to support channel rehabilitation implementation initiatives. Tasks include: Digital Terrain Model (DTM) – existing/finish ground surface development, Hydraulic modeling, design analyses, drawings and report development, cross-sectional surveys, topographic design surveys, validation surveys for project constraints, participation of value engineering studies, design evaluation and review, design team meeting presentations, etc. (A30)	BOR	0.00	Complete 47 Channel Rehab. Projects	0		$95,000			$95,000
2.5.2	Channel Rehabilitation Design for Mainstem Restoration Project	Design development and technical assistance (tribal governmental organization) to support channel rehabilitation implementation initiatives. Tasks include: Digital Terrain Model (DTM) – existing/finish ground surface development, Hydraulic modeling, design analyses, drawings and report development, cross-sectional surveys, topographic design surveys, validation surveys for project constraints, participation of value engineering studies, design evaluation and review, design team meeting presentations, etc. (A30)	BOR	0.00	Complete 47 Channel Rehab. Projects	0		$86,046			$86,046
2.5.3	Revegetation Design	Revegetation Design to support channel rehabilitation projects. Tasks include: revegetation on-site planning, drawing development, technical memorandum/design report development, plant material quantities, cost estimate, on-site plant identification and marking for salvage or save. (A30)	BOR	0.00	Improve the Riparian Corridor	0		$70,000			$70,000
2.5.4	Large Wood Design	Large Wood Placement Design to Support Channel Rehabilitation Projects. Tasks include: Digital Terrain Model (DTM) – existing/finish ground surface development, Hydraulic modeling, design analyses, drawings and report development, cross-sectional surveys, topographic design surveys, validation surveys for project constraints, participation of value engineering studies, design evaluation and review, design team meeting presentations, etc. (A30)	BOR	0.00	Complete 47 Channel Rehab. Projects	0		$58,548			$58,548
2.5.5	Design Guide Update	Development of updated chapters for the existing Channel Design Guide manual developed by the Hoopa Valley Tribe. Chapter development may include technical information regarding large wood, side channels, alternative design analysis process, etc. (A30)	BOR	0.00	Complete 47 Channel Rehab. Projects	0		$10,800			$10,800
							Sub-Total for Design, FY2014				
							Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
						Subtotal Funding	$0	$320,394	$0	$0	$320,394
						Reclamation	$0	$320,394	$0		$320,394
						Service	$0	$0	$0		$0
						CA DFG				$0	$0
						CA DWR				$0	$0

2.6	Pre-Project Monitoring											
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2014 Projected Performance	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014				
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
2.6.1	Channel rehabilitation: Assessing effects on rearing and spawning habitat	Pre-construction quantification of Chinook and Coho Salmon habitat at future channel rehabilitation site to establish baseline conditions. In the short-term this information is used to help guide project design. Ultimately, this information will also be used to evaluate project performance. (A1R)	BOR	0.00	62,000 Fall-run Chinook Natural Escapement	increase in natural escapement			$106,642		$106,642
2.6.2	Gravel implementation monitoring	Establish baseline physical conditions at future gravel augmentation sites. In the short-term this information is used to help guide project design. Ultimately, this information will also be used to evaluate project performance. (A30)	BOR	0.00	Annually 10,000 CY of coarse sediment	5000 cy coarse gravel used in projects		$21,550			$21,550
2.6.3	Map and quantify riparian vegetation	Map and quantify pre-construction riparian floodplain vegetation (e.g., species, age-class, initiation success, structural attributes) at future channel rehabilitation sites to establish baseline conditions. In the short-term this information is used to help guide project design. Ultimately, this information will also be used to evaluate project performance. (A30)	BOR	0.00	Improve the Riparian Corridor	improve acreage and river miles of riparian corridor		$100,681			$100,681
2.6.4	Riparian and riverine bird monitoring	Pre-construction riparian bird monitoring at future channel rehabilitation to establish baseline conditions. In the short-term this information is used to help guide project design. Ultimately, this information will also be used to evaluate project performance. (A30)	BOR	0.00	Improve the Riparian Corridor	improve acreage and river miles of riparian corridor		$44,585			$44,585
							Sub-Total for Pre-Project Monitoring, FY2014				
							Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
						Subtotal Funding	$0	$166,816	$106,642	$0	$273,458
						Reclamation	$0	$166,816	$106,642		$273,458
						Service	$0	$0	$0		$0
						CA DFG				$0	$0
						CA DWR				$0	$0

2.7	Construction/Implementation											
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2014 Projected Performance	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014				
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
2.7.1	Channel Rehabilitation for Mainstem Restoration Projects	Implementation of three large scale channel rehabilitation projects along the mainstem Trinity River. Potential projects include: Lower Junction City, Limekiln Gulch and Bucktail. Final selection of projects is dependent on cultural resources, environmental compliance, landowner access agreements, and other factors. (H37) (A30)	BOR	0.00	Complete 47 Channel Rehab. Projects	complete 3 rehab projects	$1,766,667	$2,554,615			$4,321,282
2.7.2	Gravel Processing	Material processing of floodplain terraces to produce appropriate size class of gravels. This product will support gravel augmentation along the Trinity River mainstem during high flow releases in May-April timeframe (A30)	BOR	0.00	Annually 10,000 CY of coarse	process 5000 CY gravel		$100,000			$100,000
2.7.3	Gravel Augmentation	On-site gravel augmentation along the Trinity River to promote geomorphic processes and habitat development. Gravel augmentation takes place during high flow events. (A30)	BOR	0.00	Annually 10,000 CY of coarse	augment 5000 CY gravel		$95,405			$95,405
2.7.4	Watershed Restoration Implementation	Construction of Watershed Restoration Project Sites (H37) (A30)	BOR	0.00	Annually reduce 10,000-20,000 CY of fine	complete ~5 watershed restoration projects with partners	$233,333	$266,667			$500,000
2.7.5	On-site Construction Inspector	Procurement of on-site inspectors through the Technical Service Center (TSC) Inspection Contract. Inspectors are to support channel rehabilitation work full time during the months of July through December. (A30)	BOR	0.00	Complete 47 Channel Rehab. Projects	rehab projects pass inspections		$308,000			$308,000
2.7.6	Large Wood Supply	Supply of large wood to support implementation of channel rehabilitation project sites. Large wood supply includes harvesting, hauling, and stockpiling of large wood materials from strategic upland areas within the Trinity River watershed. (A30)	BOR	0.00	Complete 47 Channel Rehab. Projects	sufficient large wood for rehab projects		$155,000			$155,000
2.7.7	Construction Equipment	Strategic construction support equipment for geologic investigations to detemine siting and implementation approach of rehabilitation projects . Equipment may include safety gear, survey equipment, digital cameras, documentation software, surveillance and monitoring apparatus, laboratory testing, or other types of equipment (A30)	BOR	0.00	Complete 47 Channel Rehab. Projects	Procure equipment		$50,000			$50,000
2.7.8	Geological Investigations	Perform on-site geological investigations to support channel rehabilitation project sites. Task includes: On-site excavation of soil pits, installation of ground water monitoring wells (piezometers), ground water and soil substrate field mapping, gravel quantity calculations, and geological investigation report including soil test pit descriptions. (A30)	BOR	0.00	Complete 47 Channel Rehab. Projects	complete 3 rehab projects		$40,000			$40,000
2.7.9	Revegetation Implementation	Implementation of revegetation materials at three channel rehabilitation projects along the mainstem Trinity River. Potential projects include: Lower Junction City, Dutch Creek, and Bucktail. Final selection of projects is dependent on cultural resources, environmental compliance, landowner access agreements, and other factors. (A30)	BOR	0.00	Improve the Riparian Corridor	revegetate TBD area of riparian corridor		$700,000			$700,000

2.7.10	Hoopa Valley Tribe (HVT) On-Site Implementation Support	Perform on-site technical assistance for construction support at channel rehabilitation projects. On-site technical discussions regarding changes to the design terrain model, or other associated construction modifications for both informal and formal changes. (A30)	BOR	0.00	Complete 47 Channel Rehab. Projects	complete 3 rehab projects		$22,332			$22,332

	Sub-Total for Construction/Implementation, FY2014				
	Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
Subtotal Funding	$2,000,000	$4,292,019	$0	$0	$6,292,019
Reclamation	$2,000,000	$4,292,019	$0		$6,292,019
Service	$0	$0	$0		$0
CA DFG				$0	$0
CA DWR				$0	$0

2.8	Post-Project Monitoring											
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2014 Projected Performance	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014				
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
2.8.1	Channel rehabilitation: Assessing effects on rearing and spawning habitat	Quantify post-construction Chinook Salmon and Coho Salmon habitat at channel rehabilitation sites. Compare pre- and post-construction habitat to help evaluate project performance. (A1R)	BOR	0.00	Complete 47 Channel Rehab. Projects	assessment of completed projects			$106,642		$106,642
2.8.2	Gravel implementation monitoring	Post-augmentation physical monitoring activities needed to evaluate the transport and deposition of gravel introduced into the channel via high-flow injection or low-flow placement. (A30)	BOR	0.00	Annually 10,000 CY of coarse	account of gravel augmented		$21,550			$21,550
2.8.3	Map and quantify riparian vegetation	Riparian floodplain vegetation monitoring (e.g., species, age-class, initiation success, structural attributes) at channel rehabilitation to document post-construction conditions and evaluate project impact. (A30)	BOR	0.00	Improve the Riparian Corridor	site specific and systemwide transects and maps		$100,681			$100,681
2.8.4	Riparian and riverine bird monitoring	Riparian bird monitoring at channel rehabilitation to document post-construction conditions and evaluate project impact. (A30)	BOR	0.00	Improve the Riparian Corridor	monitoring of avian response to riparian rehab		$44,319			$44,319
							Sub-Total for Post-Project Monitoring, FY2014				
							Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
						Subtotal Funding	$0	$166,550	$106,642	$0	$273,192
						Reclamation	$0	$166,550	$106,642		$273,192
						Service	$0	$0	$0		$0
						CA DFG				$0	$0
						CA DWR				$0	$0

3.1	Land or Water Acquisition or Water Conveyance											
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2014 Projected Performance	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014				
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
3.1.1	Realty Agreements with Private Landowners	Development of realty agreements to support construction access and alteration of private property during implementation actions. (A30)	BOR	0.00	Complete 47 Channel Rehab. Projects	complete 3 rehab projects		$100,000			$100,000
3.1.2	Conservation Easement	Development of conservation easements to support construction access and alteration of private property during implementation actions (A30)	BOR	0.00	Complete 47 Channel Rehab.	complete 3 rehab projects		$150,000			$150,000
							Sub-Total for Land Acquisition, FY2014				
							Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
						Subtotal Funding	$0	$250,000	$0	$0	$250,000
						Reclamation	$0	$250,000	$0		$250,000
						Service	$0	$0	$0		$0
						CA DFG				$0	$0
						CA DWR				$0	$0

4.1	Monitoring (Programmatic)										
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2014 Projected Performance	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014				
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
4.1.1	Streamgaging	Stream Gaging network to provide real-time and final, quality controlled data for the Trinity River and tributaries. (A30)	BOR	0.00	Maintain ROD flows 369-815 TAF	develop and implement ROD flow schedule		$210,000			$210,000
4.1.2	Channel rehabilitation: Assessing effects on rearing and spawning habitat	Evaluate the effects of restoration on Chinook Salmon and Coho Salmon habitat at multiple spatial and temporal scales. (A1R)	BOR	0.00	Complete 47 Channel Rehab. Projects	quantify change post constuction			$106,642		$106,642
4.1.3	Monitor adult escapement of hatchery and naturally produced fish	Spring and fall Chinook and coho salmon and fall-run steelhead run-size estimation using mark-recapture methods. Includes Trinity River Hatchery Chinook Coded Wire Tagging. (A30)	BOR	0.00	62,000 Fall-run Chinook Natural Escapement	adult run size estimate of spring and fall Chinook		$1,000,000			$1,000,000
4.1.4	Juvenile salmonid outmigrant monitoring program	Quantitative assessment of juvenile salmonid production in the Trinity River. (A30) (A1R)	BOR	0.00	62,000 Fall-run Chinook Natural Escapement	monitoring data of outmigrant fish		$555,815	$192,709		$748,524
4.1.5	Mainstem Chinook salmon spawning survey	Monitor spring and fall Chinook salmon spawning in the mainstem Trinity River. (A30)	BOR	0.00	62,000 Fall-run Chinook Natural Escapement	report spring and fall Chinnok spawning numbers		$228,706			$228,706
4.1.6	Monitor harvest of naturally produced fall Chinook	Includes the following fall Chinook harvest monitoring projects: Yurok Tribal Harvest, Hoopa Tribal Harvest, Lower Trinity River Sport Harvest Survey, Lower Klamath River Creel Census. (A30)	BOR	0.00	62,000 Fall-run Chinook Natural Escapement	report natural fall Chinook		$394,003			$394,003
4.1.7	Gravel implementation monitoring	Monitoring activities needed to support a comprehensive evaluation of gravel augmentation activities. (A30)	BOR	0.00	Annually 10,000 CY of coarse	report on gravel augmentatio		$21,550			$21,550
4.1.8	Map and quantify riparian vegetation	Map and quantify changes in riparian floodplain vegetation (e.g., species, age-class, initiation success, structural attributes) system-wide. (A30)	BOR	0.00	Improve the Riparian Corridor	map/ quatify riparin vegetation		$100,681			$100,681

4.1.9	Riparian and riverine bird monitoring	Restoration-associated changes in fish abundance and riparian habitat complexity are expected to affect riparian and riverine bird communities on the Trinity River. This project includes a multi-scale, multiple methodology monitoring program designed to track avian response to restoration actions. (A30)	BOR	0.00	Improve the Riparian Corridor	monitoring of avian response to riparian rehab		$44,319			$44,319
4.1.10	Juvenile salmonid density monitoring	Assess the spatial and temporal distribution and density of juvenile salmonids in the mainstem Trinity River restoration reach, Lewiston Dam to confluence with North Fork Trinity River. (A30)	BOR	0.00	62,000 Fall-run Chinook Natural Escapement	assess the distribution and density of juvenile salmonids		$426,509			$426,509
4.1.11	Sediment monitoring	Sediment transport monitoring to develop total sediment load estimates (for gravel and sand) associated with the annual high flow releases. (A30)	BOR	0.00	Annually reduce 10,000-	develop total sediment load		$310,000			$310,000
4.1.12	Expert review	External peer review of investigation plans or reports. (A30)	BOR	0.00	n/a	reviews of program plans or reports		$10,000			$10,000

	Sub-Total for Monitoring (Programmatic), FY2014				
	Restoration Fund	**Water and Related Resources**	**FWS-Arcata Funds**	**State Cash and In-Kind**	**Total All Sources**
Subtotal Funding	$0	$3,301,583	$299,351	$0	$3,600,934
Reclamation	$0	$3,301,583	$299,351		$3,600,934
Service	$0	$0	$0		$0
CA DFG				$0	$0
CA DWR				$0	$0

4.2	Research (Evaluations, Studies, Investigations)										
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2014 Projected Performance	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014				
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
4.2.1	Water Year Specific Evaluations	To address water year specific objectives or questions as developed by te Flow workgroup (e.g. additional adult fish health monitoring in critically dry years, additional sediment monitoring in extremely wet years). (A30)	BOR	0.00	Maintain ROD flows 369-815 TAF	develop water year specific hydrograph		$25,000			$25,000
4.2.2	Scientific Advisory Board	Five scientists, recognized as experts in the disciplines of fisheries biology, fluvial geomorphology, hydraulic engineering, hydrology, riparian ecology, wildlife biology, or aquatic ecology, form a Scientific Advisory Board (SAB). They are currently evaluating channel rehabilitation actions. (A30)	BOR	0.00	n/a	Provide oversight in DSS mgmt		$140,000			$140,000
							Sub-Total for Research, FY2014				
							Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
						Subtotal Funding	$0	$165,000	$0	$0	$165,000
						Reclamation	$0	$165,000	$0		$165,000
						Service	$0	$0	$0		$0
						CA DFG				$0	$0
						CA DWR				$0	$0

4.3	Modeling											
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2014 Projected Performance	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014				
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
4.3.1	Temperature modeling	Annual Trinity River Division (TRD) operations are reviewed in the context of providing suitable water temperatures in the Trinity River throughout the year. Reservoir and river temperature models use forecast TRD operations, river flow, and meteorology to predict (and evaluate) forecast target water temperature regimes in the Trinity River basin. (A30)	BOR	0.00	Maintain ROD flows 369-815 TAF	compare river temps at different flows to targets			$7,000		$7,000
4.3.2	Channel rehabilitation: Assessing effects on rearing and spawning habitat	Model the effects of restoration on Chinook Salmon and Coho Salmon habitat at future channel rehabilitation sites to help guide project design. (A1R)	BOR	0.00	Complete 47 Channel Rehab. Projects	assess fish habitat at multiple spatial and temporal scales			$106,642		$106,642
4.3.3	Gravel implementation monitoring	Model the fate of gravel introduced into the channel via high-flow injection or low-flow placement to support the planning and design of future gravel augmentation activities (A30)	BOR	0.00	Annually 10,000 CY of coarse sediment	evaluate transport and deposition of gravel		$21,550			$21,550

	Sub-Total for Modeling, FY2014				
	Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
Subtotal Funding	$0	$21,550	$113,642	$0	$135,192
Reclamation	$0	$21,550	$113,642		$135,192
Service	$0	$0	$0		$0
CA DFG				$0	$0
CA DWR				$0	$0

4.4	Data Management											
AWP Activity Number	Activity	Activity Name & Description	Agency Name	Agency Fractional FTE	Program Performance Goal	FY2014 Projected Performance	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014 Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
4.4.1	Data Management and Maintenance	Serves as data manager for TRRP ensuring QA/QC and metadata for all data. GIS applications of data. (A30)	BOR	1.00	n/a	data mgmt and information transfer		$164,199			$164,199
							Sub-Total for Data Management, FY2014				
							Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
						Subtotal Funding	$0	$164,199	$0	$0	$164,199
						Reclamation	$0	$164,199	$0		$164,199
						Service	$0	$0	$0		$0
						CA DFG				$0	$0
						CA DWR				$0	$0

4.5	Adaptive Management										
AWP Activity Number	Activity	Activity Name & Description	Agency Name	Agency Fractional FTE	Program Performance Goal	FY2014 Projected Performance	3406 (b)(23)/(b)(1)other Requested Funding for FY 2014 Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
4.5.1	DSS Implementation	Per SAB recommendation, develop an integrated suite of predictive models to support restoration activities (A30).	BOR	0.00	62,000 Fall-run Chinook	Flow release, gravel placement		$500,000			$500,000
							Sub-Total for Adaptive Management, FY2014				
							Restoration Fund	Water and Related Resources	FWS-Arcata Funds	State Cash and In-Kind	Total All Sources
						Subtotal Funding	$0	$500,000	$0	$0	$500,000
						Reclamation	$0	$500,000	$0		$500,000
						Service	$0	$0	$0		$0
						CA DFG				$0	$0
						CA DWR				$0	$0

Outyear activities are estimates of funding capability only and do not reflect the future Congressional Appropriations process.

Table 2. FY2015 Proposed Activities and Costs
CVPIA Section 3406 (b)(23)/(b)(1)other,
Trinity River Restoration Program

	3406 (b)(23)/(b)(1)other Requested Funding For FY 2015				
	Restoration Fund	Water and Related Resources	FWS-Arcata Fund	State Cash & In Kind	Total All Sources
Total	$2,000,000	$14,000,000	$1,615,105	$0	$17,615,105
US Bureau of Reclamation	$2,000,000	$14,000,000	$1,615,105		$17,615,105
US Fish and Wildlife Service	$0	$0	$0		$0
California Dept of Fish and Wildlife				$0	$0
California Dept of Water Resources				$0	$0

			Federal Costs($)					
Task	**Project Name**	**Project Description**	**BOR Restoration Fund**	**BOR W&RR Fund**	**FWS Arcata Fund**	**FWS Restoration Fund**	**FWS W&RR Fund**	**Total Costs ($)**
Program Mgmt & Support								$0
Project 1	Program Management	Provides for USBR and USFWS co-leads and program management costs.		$761,083	$100,000			$861,083
Project 2	Program Support	Provides for partner technical participation in TRRP.		$1,400,000	$325,108			$1,725,108
Project 3	Technical Support	Provides for USBR and USFWS staff participation.		$1,200,000	$685,287			$1,885,287
Project 4	Pre-Project Study, Research, Reconnaissance	Supports the development of channel rehabilitation sites.		$700,000				$700,000
Project 5	Outreach and Public Involvement	Supports outreach contract.		$80,000				$80,000
Project 6	Environmental Compliance	Compliance and permitting for all restoration actions.		$407,000				$407,000

Outyear activities are estimates of funding capability only and do not reflect the future Congressional Appropriations process.

Task	Project Name	Project Description	Federal Costs($)					Total Costs ($)
			BOR Restoration Fund	BOR W&RR Fund	FWS Arcata Fund	FWS Restoration Fund	FWS W&RR Fund	
Project 7	Design	Design of channel rehabilitation sites.		$320,000				$320,000
Project 8	Pre-Project Monitoring	Baseline assessment of channel rehabilitation sites.		$150,000	$126,177			$276,177
Project 9	Construction/Implementation	Implementation of channel rehabilitation sites, high-flow gravel augmentation, and watershed restoration projects.	$2,000,000	$4,117,917				$6,117,917
Project 10	Post-Project Monitoring	Post-construction assessment of channel rehabilitation sites.		$150,000	$126,177			$276,177
Project 11	Land or Water Acquisition or Water Conveyance	Development of agreements and easements to support construction access and implementation.		$250,000				$250,000
Project 12	Monitoring (Programmatic)	Multiple activities to support system-wide evaluation of restoration actions.		$3,500,000	$126,178			$3,626,178
Project 13	Research (Evaluations, Studies, Investigations)	Targeted studies related to key uncertainties.		$165,000				$165,000
Project 14	Modeling	Development , maintenance and implemnentaion of predictive models.		$135,000	$126,178			$261,178
Project 15	Data Management	USBR data steward.		$164,000				$164,000
Project 16	Adaptive Management	DSS maintenance and use.		$500,000				$500,000

Outyear activities are estimates of funding capability only and do not reflect the future Congressional Appropriations process.

Table 2. FY2016 Proposed Activities and Costs
CVPIA Section 3406 (b)(23)/(b)(1)other,
Trinity River Restoration Program

	3406 (b)(23)/(b)(1)other Requested Funding For FY 2016				
	Restoration Fund	Water and Related Resources	FWS-Arcata Fund	State Cash & In Kind	Total All Sources
Total	$2,000,000	$14,000,000	$1,502,048	$0	$17,502,048
US Bureau of Reclamation	$2,000,000	$14,000,000	$1,502,048		$17,502,048
US Fish and Wildlife Service	$0	$0	$0		$0
California Dept of Fish and Wildlife				$0	$0
California Dept of Water Resources				$0	$0

			Federal Costs($)					
Task	**Project Name**	**Project Description**	**BOR Restoration Fund**	**BOR W&RR Fund**	**FWS-Arcata Fund**	**FWS Restoration Fund**	**FWS W&RR Fund**	**Total Costs ($)**
Program Mgmt & Support								$0
Project 1	Program Management	Provides for USBR and USFWS co-leads and program management costs.		$761,083	$100,000			$861,083
Project 2	Program Support	Provides for partner technical participation in TRRP.		$1,400,000	$325,108			$1,725,108
Project 3	Technical Support	Provides for USBR and USFWS staff participation.		$1,200,000	$684,940			$1,884,940
Project 4	Pre-Project Study, Research, Reconnaissance	Supports the development of channel rehabilitation sites.		$700,000				$700,000
Project 5	Outreach and Public Involvement	Supports outreach contract.		$80,000				$80,000

Outyear activities are estimates of funding capability only and do not reflect the future Congressional Appropriations process.

Task	Project Name	Project Description	Federal Costs($)					Total Costs ($)
			BOR Restoration Fund	BOR W&RR Fund	FWS-Arcata Fund	FWS Restoration Fund	FWS W&RR Fund	
Project 6	Environmental Compliance	Compliance and permitting for all restoration actions.		$407,000				$407,000
Project 7	Design	Design of channel rehabilitation sites.		$320,000				$320,000
Project 8	Pre-Project Monitoring	Baseline assessment of channel rehabilitation sites.		$150,000	$98,000			$248,000
Project 9	Construction/Implementation	Implementation of channel rehabilitation sites, high-flow gravel augmentation, and watershed restoration projects.	$2,000,000	$4,117,917				$6,117,917
Project 10	Post-Project Monitoring	Post-construction assessment of channel rehabilitation sites.		$150,000	$98,000			$248,000
Project 11	Land or Water Acquisition or Water Conveyance	Development of agreements and easements to support construction access and implementation.		$250,000				$250,000
Project 12	Monitoring (Programmatic)	Multiple activities to support system-wide evaluation of restoration actions.		$3,500,000	$98,000			$3,598,000
Project 13	Research (Evaluations, Studies, Investigations)	Targeted studies related to key uncertainties.		$165,000				$165,000
Project 14	Modeling	Development , maintenance and implemnentaion of predictive models.		$135,000	$98,000			$233,000

Outyear activities are estimates of funding capability only and do not reflect the future Congressional Appropriations process.

Task	Project Name	Project Description	Federal Costs($)					Total Costs ($)
			BOR Restoration Fund	BOR W&RR Fund	FWS-Arcata Fund	FWS Restoration Fund	FWS W&RR Fund	
Project 15	Data Management	USBE data steward.		$164,000				$164,000
Project 16	Adaptive Management	DSS maintenance and use.		$500,000				$500,000

Table 3, Monitoring

Streamgaging	
Project Description:	Streamgaging network to provide real-time and final, quality controlled flow data for the Trinity River and tributaries.
FY 2014 Project Complete?	No.
CVPIA annual work plan subtask number:	4.1.1
Scope of the monitoring effort:	Trinity River mainstem, Lewiston Dam to the North Fork Trinity River.
Product/deliverable:	Provisional real-time and final quality controlled flow data are available via the USGS website. Final flow data typically becomes available in February for the preceding water year. For select gages, the USGS provides final flow data on Sept. 1 to facilitate sediment transport computations and reporting.
Cost:	$210,000
Questions posed:	Multiple questions associated with other site specific and systemic monitoring efforts and assessments. For example, how do riparian vegetation, aquatic habitat quantity/quality, or sediment routing vary as a function of flow?
Objectives:	Document flows.
Results – expected or actual:	Flow data.
Data collection methods:	USGS streamgage network.
Data management:	Principal Investigator will provide organized and documented data packages plus final reports for the Trinity River Restoration Program Information Repository; non-sensitive information may be posted to Trinity River Restoration Program's Online Data Portal (http://odp.trrp.net).
Assessment:	Multiple assessments associated with other site specific and systemic monitoring efforts; for example, assessments of change in riparian vegetation, aquatic habitat quantity/quality, and sediment routing as a function of flow.
Use of information in future decision making:	Data is used for a variety of purposes throughout the Trinity River Restoration Program (hydrology and hydraulic modeling, site design, sediment transport computations, habitat mapping, smolt outmigration, etc.).

Assessing Effects of Restoration on Chinook Salmon and Coho Salmon Rearing and Spawning Habitat	
Project Description:	Evaluate the effects of restoration on Chinook Salmon and Coho Salmon habitat at multiple spatial and temporal scales.
FY 2014 Project Complete?	No.
CVPIA annual work plan subtask number:	4.1.2
Scope of the monitoring effort:	Trinity River mainstem, Lewiston Dam to the North Fork Trinity River.
Product/deliverable:	Report documenting systemic habitat mapping along with associated data packages.
Cost:	$106,642
Questions posed:	Are restoration actions creating and maintaining rearing and spawning habitat?
Objectives:	Assess changes in the quality and quantity of Chinook Salmon and Coho Salmon Rearing habitat due to program actions system-wide.
Results – expected or actual:	Annual quantification of system-wide change in habitat.
Data collection methods:	Field habitat mapping. Application of guild definitions to delineate areas that meet the specific criteria.
Data management:	Principal Investigator will provide organized and documented data packages plus final reports for the Trinity River Restoration Program Information Repository; non-sensitive information may be posted to Trinity River Restoration Program's Online Data Portal (http://odp.trrp.net).
Assessment:	Annual and multi-year assessment of system-wide change in juvenile salmonid rearing habitat
Use of information in future decision making:	Considered in the comprehensive evaluation of the influence of restoration actions.

Monitor Adult Escapement of Hatchery and Naturally Produced Spring and Fall Chinook, Coho and Fall Steelhead	
Project Description:	Spring and fall Chinook and Coho salmon, fall-run Steelhead adult run-size estimation using mark and recapture methods.
FY 2014 Project Complete?	No.
CVPIA annual work plan subtask number:	4.1.3
Scope of the monitoring effort:	Trinity River mainstem, Lewiston Dam to the North Fork Trinity River.
Product/deliverable:	Annual report documenting the results of the run-size estimation.
Cost:	$1,000,000
Questions posed:	Has the in-river adult salmonid run size shifted with ROD flows? Has escapement changed with rehabilitation or ROD flows?
Objectives:	Monitor influence of rehabilitation efforts on natural and hatchery escapement.
Results – expected or actual:	As conditions in river improve we predict that in river adult salmonid run size, escapement and harvest will increase. Trend analyses over a 10 year period may be used to answer the above questions.
Data collection methods:	Weirs, carcass/redd surveys, sport and tribal harvest surveys, coded wire tagging (CWT) of 25% of hatchery Chinook, 100% marking of hatchery Steelhead and Coho. Scales collected and analyzed.
Data management:	Principal Investigator will provide organized and documented data packages plus final reports for the Trinity River Restoration Program Information Repository; non-sensitive information may be posted to Trinity River Restoration Program's Online Data Portal (http://odp.trrp.net).
Assessment:	In river run size, escapement and harvest numbers for adult Chinook, Coho, and Steelhead. Proportion of hatchery spawners in wild, separation of fall and spring Chinook, separation of different aged Chinook using scales and CWT.
Use of information in future decision making:	Considered in the comprehensive evaluation of the influence of restoration actions.

Juvenile Salmonid Outmigrant Monitoring Program	
Project Description:	Quantitative assessment of juvenile salmonid production in the Trinity River.
FY 2014 Project Complete?	No.
CVPIA annual work plan subtask number:	4.1.4
Scope of the monitoring effort:	Trinity River basin to Willow Creek.
Product/deliverable:	Annual final report documenting the result of the monitoring activity.
Cost:	$748,524.00
Questions posed:	Has timing of outmigration and / or peak period of outmigration shifted with ROD flows? Has abundance changed in response to ROD flows or rehabilitation efforts? How has the smolt to adult ratio shifted in response to rehabilitation actions?
Objectives:	To monitor the influence of rehabilitation efforts on smolt production.
Results – expected or actual:	As conditions in river improve we predict that outmigration numbers will increase. Trend analyses over a 10 year period may be used to answer the above questions.
Data collection methods:	Rotary screw traps.
Data management:	Principal Investigator will provide organized and documented data packages plus final reports for the Trinity River Restoration Program Information Repository; non-sensitive information may be posted to Trinity River Restoration Program's Online Data Portal (http://odp.trrp.net).
Assessment:	Timing of outmigration, peak period of juvenile salmonid outmigration, estimate of abundance during peak period.
Use of information in future decision making:	Considered annually in flow scheduling. Also considered in the comprehensive evaluation of the influence of restoration actions.

Mainstem Chinook Salmon Spawning Survey	
Project Description:	Monitor spring and fall Chinook salmon spawning in the mainstem Trinity River.
FY 2014 Project Complete?	No.
CVPIA annual work plan subtask number:	4.1.5
Scope of the monitoring effort:	Trinity Mainstem, Lewiston Dam to Weitchpec.
Product/deliverable:	Weekly in-season updates and final annual report.
Cost:	$228,706
Questions posed:	We postulate that the spatial distribution of returning spawners (hatchery fish excluded) is influenced not only by the spatial distribution of spawning habitat, but by the distribution of deposited eggs that successfully emerge, rear, and recruit to adulthood. The mainstem spawning distribution of natural origin Trinity River Chinook salmon upstream of the Burnt Ranch Gorge is currently skewed toward Lewiston Dam; the distribution of hatchery origin fish much more so. As the success of redds constructed in the mainstem increases in response to improved rearing habitat conditions, we expect spawning distribution to be driven increasingly by distribution of habitat further down the mainstem, rather than by proximity to the hatchery.
Objectives:	Document anadromous fish response to restoration actions.
Results – expected or actual:	We expect spawning distribution to be driven by distribution of habitat rather than proximity to the hatchery.
Data collection methods:	Redd/Carcass surveys.
Data management:	Principal Investigator will provide organized and documented data packages plus final reports for the Trinity River Restoration Program Information Repository; non-sensitive information may be posted to Trinity River Restoration Program's Online Data Portal (http://odp.trrp.net).
Assessment:	Temporal and spatial response of mainstem spawning to restoration through time.
Use of information in future decision making:	Considered annually in channel rehabilitation project design. Also being considered in the comprehensive evaluation of the influence of restoration actions.

Monitor Harvest of Naturally Produced Fall Chinook	
Project Description:	Includes the following fall Chinook harvest monitoring projects: Yurok Tribal Harvest, Hoopa Tribal Harvest, Lower Trinity River Sport Harvest Survey, Lower Klamath River Creel Census.
FY 2014 Project Complete?	No.
CVPIA annual work plan subtask number:	4.1.6
Scope of the monitoring effort:	Lower Trinity River, Lower Klamath River.
Product/deliverable:	Data package and annual reports.
Cost:	$394,003.00
Questions posed:	Are Program actions increasing natural production of healthy juvenile salmon and steelhead? Are flows creating conditions necessary for fish survival across life stages?
Objectives:	Gather information to assess the harvest of the Klamath/Trinity fish stocks. This project also allows the tracking of progress toward meeting long-term Trinity River Restoration Program goals as identified in the Integrated Assessment Plan, such as restoring and sustaining natural production of anadromous fish populations downstream of Lewiston Dam to pre-dam levels.
Results – expected or actual:	Restoration actions will restore and sustain natural production of anadromous fish populations downstream of Lewiston Dam to pre-dam levels, to facilitate dependent tribal, commercial, and sport fisheries' full participation in the benefits of restoration via enhanced harvest opportunities.
Data collection methods:	Harvest monitoring (varied by partner fishery management objectives).
Data management:	Principal Investigator will provide organized and documented data packages plus final reports for the Trinity River Restoration Program Information Repository; non-sensitive information may be posted to Trinity River Restoration Program's Online Data Portal (http://odp.trrp.net).
Assessment:	The Tribal harvest numbers, combined with the age composition, and coded wire tag recoveries, can be used to develop a cohort reconstruction for ocean escapement of Trinity River fall Chinook; both hatchery and natural origin fish.
Use of information in future decision making:	Used in the comprehensive evaluation of the influence of restoration actions.

Gravel Implementation and Monitoring	
Project Description:	Monitoring activities needed to support a comprehensive evaluation of gravel augmentation activities.
FY 2014 Project Complete?	No.
CVPIA annual work plan subtask number:	4.1.7
Scope of the monitoring effort:	Trinity River mainstem, Lewiston Dam to the North Fork Trinity River.
Product/deliverable:	Annual report.
Cost:	$21,550
Questions posed:	Where does gravel introduced at specific locations during high flow events get deposited? Does the gravel clear from or deposit in pools?
Objectives:	Guide implementation of the gravel augmentation component of the Program.
Results – expected or actual:	Maps and aerial photography showing regions of deposition and erosion of the bed.
Data collection methods:	Sonar with integrated GPS and aerial photography.
Data management:	Principal Investigator will provide organized and documented data packages plus final reports for the Trinity River Restoration Program Information Repository; non-sensitive information may be posted to Trinity River Restoration Program's Online Data Portal (http://odp.trrp.net).
Assessment:	This project integrates monitoring activities needed to evaluate the transport and deposition of gravel introduced into the channel via high-flow injection or low-flow placement, and to support the planning and design of future gravel augmentation activities. These monitoring activities will also help to evaluate the performance of individual rehabilitation design elements and rehabilitation strategies.
Use of information in future decision making:	Guide implementation of the gravel augmentation component of the Program.

Map and Quantify Riparian Vegetation	
Project Description:	Map and quantify changes in riparian floodplain vegetation (e.g., species, age-class, initiation success, structural attributes) at channel rehabilitation sites and system-wide.
FY 2014 Project Complete?	No.
CVPIA annual work plan subtask number:	4.1.8
Scope of the monitoring effort:	Trinity River mainstem, Lewiston Dam to the North Fork Trinity River.
Product/deliverable:	Annual report with transect data, project area riparian map, large wood maps, Updated HEC model.
Cost:	$100,681
Questions posed:	Is the riparian community structure sustained or enhanced? How are the vegetation communities within the program area affected?
Objectives:	Monitor influence of restoration actions on riparian vegetation.
Results – expected or actual:	Geomorphic changes will drive changes in riparian vegetation system-wide.
Data collection methods:	Riparian maps of the project area, census of exposed bars with a digitized wet edge, large wood mapping.
Data management:	Principal Investigator will provide organized and documented data packages plus final reports for the Trinity River Restoration Program Information Repository; non-sensitive information may be posted to Trinity River Restoration Program's Online Data Portal (http://odp.trrp.net).
Assessment:	Evaluate influence of restoration actions on riparian vegetation.
Use of information in future decision making:	Considered annually in flow scheduling and in channel rehabilitation project design. Also considered in the comprehensive evaluation of the influence of restoration actions.

Riparian and Riverine Bird Monitoring	
Project Description:	Restoration-associated changes in fish abundance and riparian habitat complexity are expected to affect riparian and riverine bird communities on the Trinity River.
FY 2014 Project Complete?	No.
CVPIA annual work plan subtask number:	4.1.9
Scope of the monitoring effort:	Trinity River mainstem, Lewiston Dam to the North Fork Trinity River.
Product/deliverable:	Annual report.
Cost:	$44,319
Questions posed:	How is the Program affecting bird populations?
Objectives:	Monitor avian response to restoration actions.
Results – expected or actual:	Restoration actions will maintain or enhance wildlife populations.
Data collection methods:	Field surveys, nest monitoring.
Data management:	Principal Investigator will provide organized and documented data packages plus final reports for the Trinity River Restoration Program Information Repository; non-sensitive information may be posted to Trinity River Restoration Program's Online Data Portal (http://odp.trrp.net).
Assessment:	Evaluate avian response to restoration actions.
Use of information in future decision making:	Considered annually in channel rehabilitation project design. Also considered in the comprehensive evaluation of the influence of restoration actions.

Juvenile Salmonid Density Monitoring	
Project Description:	Assess the spatial and temporal distribution and density of juvenile salmonids in the mainstem Trinity River restoration reach, Lewiston Dam to confluence with North Fork Trinity River.
FY 2014 Project Complete?	Not applicable.
CVPIA annual work plan subtask number:	4.1.10
Scope of the monitoring effort:	Mainstem Trinity River, Lewiston Dam to North Fork.
Product/deliverable:	Annual report.
Cost:	$426,509.00
Questions posed:	Is juvenile salmonid density responding to restoration actions? What is the relationship between juvenile salmonid distribution and density to the distribution and abundance of spawning? How do juvenile salmonid distribution and density relate to juvenile outmigration?
Objectives:	Monitor fry density and abundance.
Results – expected or actual:	Fry density will increase as habitat is enhanced.
Data collection methods:	Snorkel surveys.
Data management:	Principal Investigator will provide organized and documented data packages plus final reports for the Trinity River Restoration Program Information Repository; non-sensitive information may be posted to Trinity River Restoration Program's Online Data Portal (http://odp.trrp.net).
Assessment:	Assess the spatial and temporal distribution and density of juvenile salmonids in the mainstem Trinity River from Lewiston Dam to the North Fork Trinity confluence.
Use of information in future decision making:	Used in the comprehensive evaluation of the influence of restoration actions.

Sediment Monitoring	
Project Description:	Sediment transport monitoring to develop total sediment load estimates (for gravel and sand) associated with the annual high flow releases.
FY 2014 Project Complete?	No.
CVPIA annual work plan subtask number:	4.1.11
Scope of the monitoring effort:	Trinity River mainstem, Lewiston Dam to the North Fork Trinity River.
Product/deliverable:	Digital database with quality controlled monitoring data and a final report that provides an analysis of the data.
Cost:	$310,000.00
Questions posed:	Have we met our sediment management objectives? Are we adding enough gravel? Are we reducing the total sand storage in the river?
Objectives:	Quantify total load and sediment budget for coarse and fine sediment. Use results to improve our ability to predict sediment transport associated with future high flow releases.
Results – expected or actual:	See deliverables. Data also feeds additional analyses conducted by the restoration program.
Data collection methods:	Synoptic sampling at 4 locations following USGS protocols. Samples collected from a boat mounted crane at temporary cableways.
Data management:	Principal Investigator will provide organized and documented data packages plus final reports for the Trinity River Restoration Program Information Repository; non-sensitive information may be posted to Trinity River Restoration Program's Online Data Portal (http://odp.trrp.net).
Assessment:	Sediment transport rates are changing in response to implementation of restoration actions.
Use of information in future decision making:	Information used to plan gravel augmentation projects, improve our ability to predict sediment transport in response to management actions (e.g. high flow releases) and link management actions to program goals.

Expert Review	
Project Description:	External peer review of investigations plans or reports.
FY 2014 Project Complete?	No.
CVPIA annual work plan subtask number:	4.1.12
Scope of the monitoring effort:	All Trinity River Restoration Program efforts are subject to external review.
Product/deliverable:	Report or study plan reviews.
Cost:	$10,000.00
Questions posed:	Are studies using sound scientific methods?
Objectives:	External Peer review of investigation plans or reports.
Results – expected or actual:	Scientifically defensible management recommendations.
Data collection methods:	Surveys of external experts.
Data management:	Review files will be maintained by the Science Program Coordinator.
Assessment:	Review of the field and analytical methods for any Trinity River Restoration Program efforts.
Use of information in future decision making:	Reviews will influence funding decisions.