

Chapter 1. Introduction and Background

This final Environmental Assessment/Initial Study (EA/IS) for the proposed Trinity River Channel Rehabilitation Site: Bucktail (River Mile 105.45-107.0) was prepared by the United States Department of the Interior (USDI), Bureau of Reclamation (Reclamation) to meet the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). As the lead agency under NEPA, Reclamation must consider the Finding of No Significant Impact (FONSI)/EA portion of the joint NEPA/CEQA document before signing the FONSI and making implementation decisions.

Reclamation prepared this environmental review document in coordination with the USDI Bureau of Land Management (BLM), a federal land manager at the site and federal co-lead for NEPA review. These federal agencies worked with the California lead agency, the North Coast Regional Water Quality Control Board (Regional Water Board), to analyze the potential impacts of the proposed activities under NEPA (40 Code of Federal Regulations [CFR], Section 1508.9(a)) and CEQA (Association of Environmental Professional 2009) guidelines.

This final EA/IS tiered from previous environmental analysis documents or incorporates them by reference, as described in Section 1.4, Project Chronology and Background.

1.1 Overview

Reclamation proposes to conduct mechanical channel rehabilitation activities on the mainstem Trinity River downstream of Lewiston Dam at the Bucktail Channel Rehabilitation Site or “Bucktail site” at approximately River Mile [RM] 105.45 to 107.0 (Figure 1). In November 2015, Reclamation released the draft EA/IS.

The public comment period for the draft EA/IS closed on January 4, 2016. Four comment letters were received. Appendix A includes copies of the comment letters and responses to the comments.

Analysis of proposed channel rehabilitation activities at the Bucktail site was previously completed in 2014 in the Trinity River Channel Rehabilitation Sites: Bucktail (River Mile 105.3-106.35) and Lower Junction City (River Mile 78.8-79.8.) Environmental Assessment/Initial Study (Reclamation and Bureau of Land Management [BLM] 2014) but work at the Bucktail site was not completed, and Reclamation prepared a revised environmental document, the November 2015 draft EA/IS.

The proposed work at the Bucktail site includes some activities at the downstream end of the Dark Gulch Rehabilitation Site boundary that were originally completed in 2008 (Reclamation and Trinity County Resource Conservation District [TCRCD] 2008) and the upstream end of the Lowden Ranch Rehabilitation Site boundary that were originally completed in 2010 (North Coast Regional Water Board and Reclamation 2009). These work areas are now included within the Bucktail site boundary. The activities proposed at the Bucktail site are hereinafter referred to as the “Proposed Project” or “Project.” Details of the Proposed Project are provided in Chapter 2.

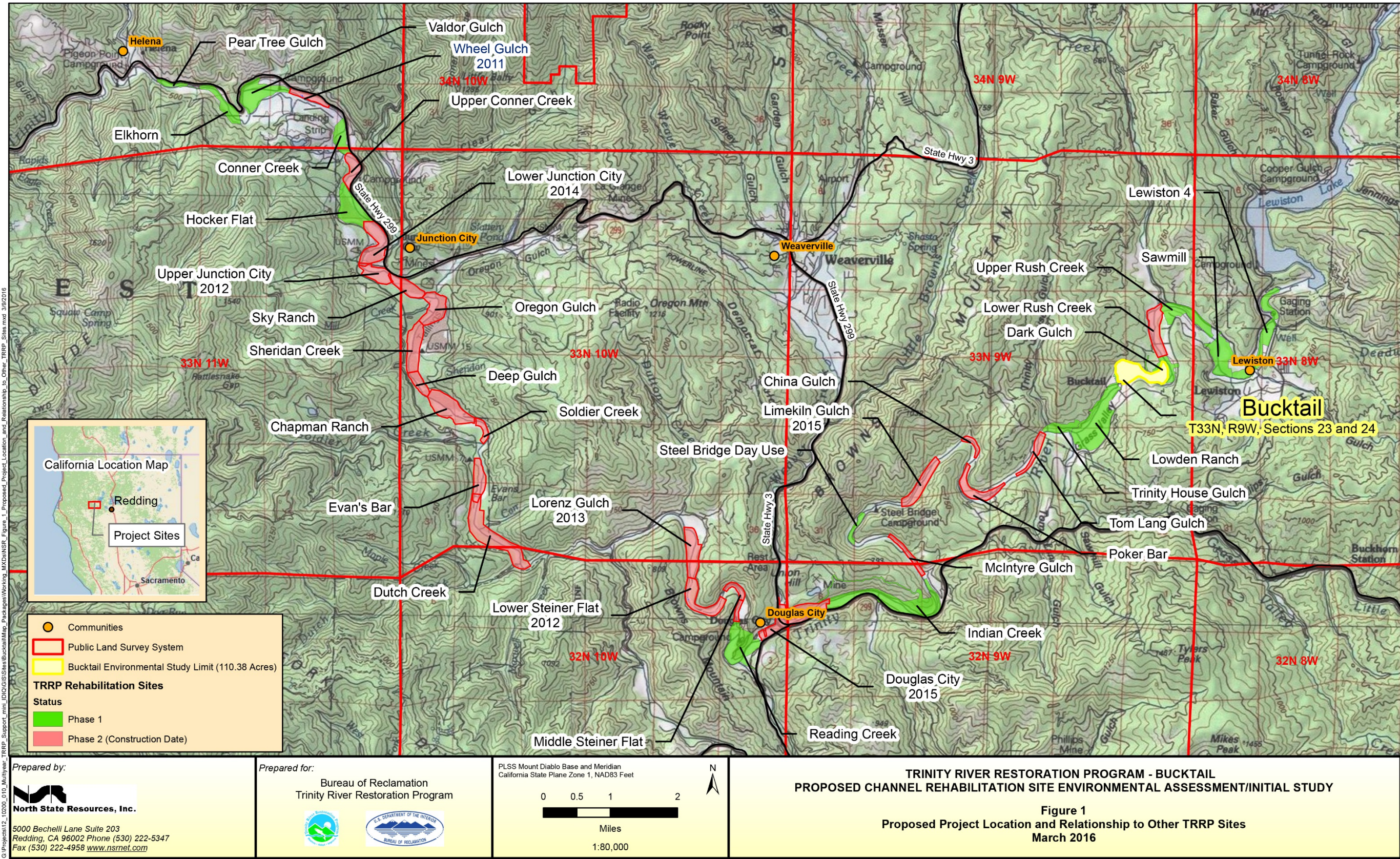
The Proposed Project would be part of TRRP's ongoing work to restore the anadromous fishery of the Trinity River. The proposed channel rehabilitation activities would recreate complex salmon and steelhead habitat, enhance natural river processes for the benefit of wildlife, and provide conditions suitable for reestablishing native riparian vegetation. The fundamental purpose of the TRRP is to restore historic river processes to the Trinity River through implementation of the 2000 Record of Decision (ROD) for the Trinity River Mainstem Fishery Restoration Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR; U.S Fish and Wildlife Service [USFWS] et al. 2000a). It is the intent of the TRRP to recreate a properly functioning river, albeit on a smaller scale, in order to increase naturally spawning anadromous fish populations to levels that existed prior to construction of the Lewiston and Trinity Dams. The target reach for Trinity River restoration is the approximately 40-mile length of river downstream of Lewiston Dam to the confluence of the North Fork Trinity River.

For this reach, the ROD outlined six integral components for execution:

- Implementation of a variable annual flow regime according to recommendations provided in the Trinity River Flow Evaluation Report (USFWS and Hoopa Valley Tribe [HVT] 1999),
- Mechanical channel rehabilitation,
- Fine and coarse sediment management,
- Watershed restoration,
- Infrastructure improvement, and
- Adaptive environmental assessment and management.

In general, the TRRP approach to channel rehabilitation is to reconnect the river with its floodplain. This reconnection requires selective removal of terraces and riparian berms (i.e., berms that are anchored with woody vegetation and consolidated sand deposits) that developed after the Lewiston and Trinity Dams were completed and historic peak scouring flows were lost. Along with berm removal, the approach involves physical alteration of floodplains so that they become inundated more frequently, placement of large wood, and removal of riparian vegetation at strategic locations to promote the alluvial processes necessary for the restoration and maintenance of complex riverine habitats.

The TRRP acts under guidance of the Trinity Management Council (TMC), a collaborative board of natural resource managing agencies, tribes, and local government. TMC member agencies include Reclamation, USFWS, National Marine Fisheries Service (NMFS), U.S. Forest Service (USFS), HVT, Yurok Tribe (YT), the California Natural Resources Agency represented by the California Department of Fish and Wildlife (CDFW) and the California Department of Water Resources (DWR), and Trinity County. Technical experts associated with each of these entities participate in the design and review of the rehabilitation sites.



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1.2 Regional Setting

The Trinity River originates in the rugged Salmon-Trinity Mountains of northern California in the northeast corner of Trinity County. The Trinity River Basin encompasses the majority of Trinity County and the easternmost portion of Humboldt County. The mainstem Trinity River flows a total of 170 miles from its headwaters to its confluence with the Klamath River at Weitchpec, on the Yurok Indian Reservation. The Trinity River passes through Trinity County, Humboldt County, the Hoopa Valley Indian Reservation, and the Yurok Indian Reservation. Much of the basin is composed of federal lands managed by the USFS, BLM, and, to a lesser extent, Reclamation. Ownership along the Trinity River corridor is a mixture of public, tribal, and private lands.

The Trinity River flows generally southward until impounded by Trinity Dam and Lewiston Dam. The river drains a watershed of approximately 2,965 square miles; about one-quarter of this area is above Lewiston Dam. From Lewiston Dam, the river flows westward for 112 miles until it enters the Klamath River near the town of Weitchpec, 43.5 miles upstream from the Pacific Ocean. The Klamath River flows northwesterly from its confluence with the Trinity River before entering the Pacific Ocean.

The topography of the Trinity River Basin is predominantly mountainous with a heavily forested basin. Elevations in the watershed range from 8,888 feet above mean sea level (msl) at Sawtooth Mountain in the Trinity Alps to 300 feet above msl at the confluence of the Trinity and Klamath rivers. Land use within the Trinity River Basin is greatly influenced by the large amount of public lands, much of which is used for timber production and other natural resource-related uses. The area's numerous lakes and rivers provide many recreational opportunities, including fishing and boating. Private uses along the Trinity River are generally limited to scattered residential and commercial development. Two scenic byways, State Route (SR) 299 and SR-3, cross the county. SR-299 is the primary travel corridor through Trinity County, connecting the Central Valley with the coastal communities of Humboldt County.

1.3 Project Location

The general setting for the TRRP is within the 40-mile reach of the mainstem Trinity River between Lewiston Dam and the confluence of the North Fork Trinity River. The entire stretch is designated under the National and California State Wild and Scenic River Systems to preserve its Outstandingly Remarkable Values, which include the river's free-flowing condition, anadromous and resident fisheries, outstanding geologic resource values, scenic values, recreational values, cultural and historic values, and the values associated with water quality. The segment of the Trinity River encompassed by the Proposed Project is classified and managed as a "Recreational" reach by the BLM and the Shasta-Trinity National Forest (STNF). Lands under BLM administration are managed in accordance with BLM's Redding Resource Management Plan (RMP). See Section 3.2.1.3, "Relevant Land Use Plan," of this EA, for more details on the BLM's land use management plan.

The Bucktail Rehabilitation Site (RM 105.45-107.0) is a 110.38-acre site that begins approximately at the Bucktail Bridge and extends upstream approximately 1.5 miles to just downstream of RM 107.0. This site is found on the Lewiston, California 7.5-minute U.S. Geological Survey (USGS) quadrangle, in Township 33 North, Range 9 West, Sections 23 and 24 and, Mount Diablo Base and

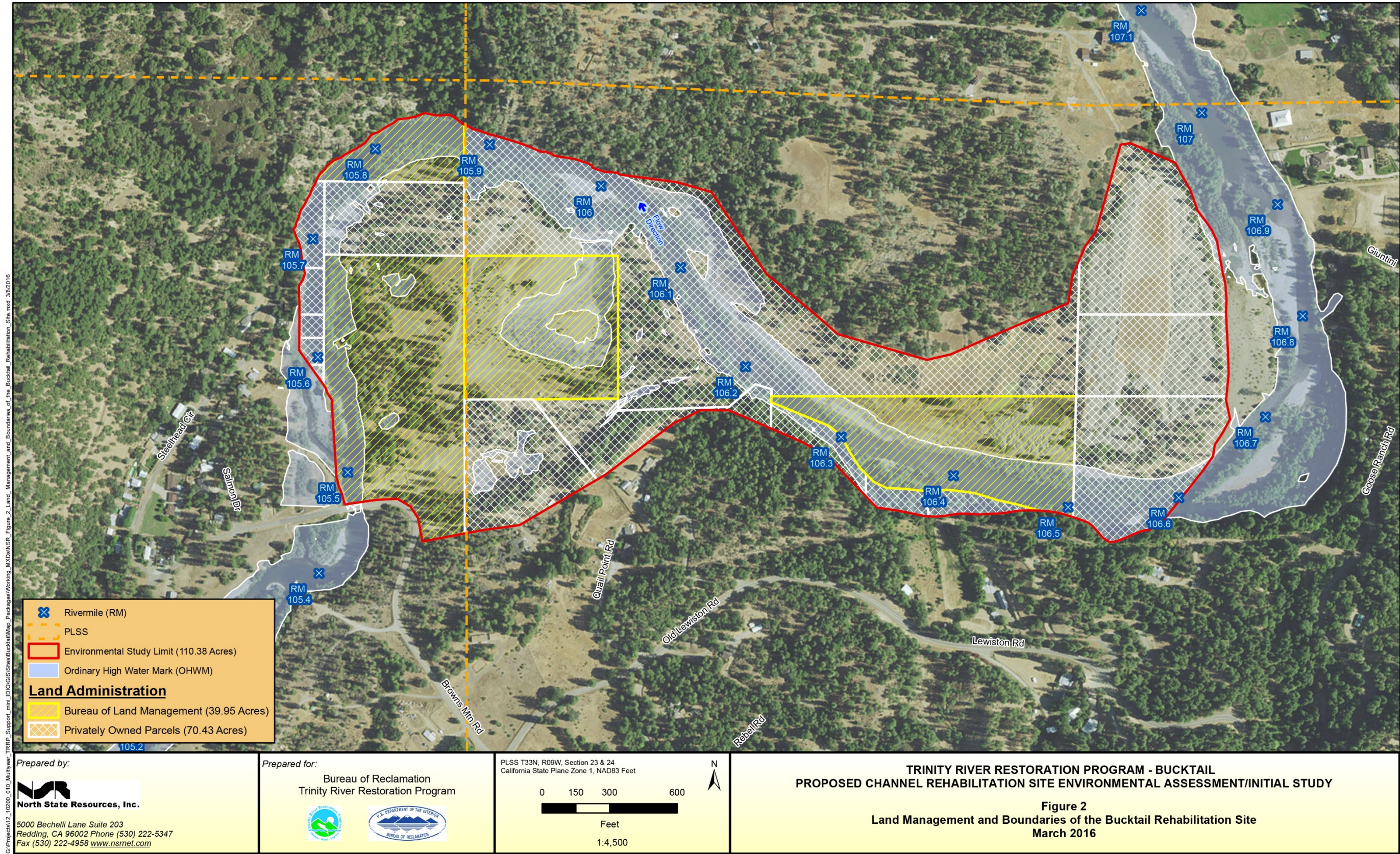
Meridian (MDB&M). The majority of the land within this site is privately owned (70.43 acres) and BLM manages the remainder (39.95 acres).

The river elevation at this site is approximately 1,750 feet above msl. Access to the site is via Browns Mountain Road, off of Old Lewiston Road. The current Bucktail site boundary includes a portion of the previously constructed Dark Gulch and Lowden Ranch rehabilitation sites. The Dark Gulch Rehabilitation Site was designed and constructed by TRRP in 2008, and the Lowden Ranch Rehabilitation Site was constructed in 2010. The Bucktail environmental study limit (ESL) and responsible land managers/owners are shown on Figure 2.

1.4 Project Chronology and Background

Completion of the Trinity and Lewiston Dams in 1964 blocked anadromous fish access to habitat upstream of Lewiston Dam, restricting them to habitat below the dam. Trans-basin diversions from Lewiston Lake to the Sacramento River Basin altered the hydrologic regime of the Trinity River, diminishing annual flows by up to 90 percent. Consequences of diminished flows include encroachment of riparian vegetation, establishment of riparian berms, and fossilization of point bars at various locations along the river as far downstream as the North Fork Trinity River. These geomorphic changes reduced the diversity of riparian age classes and riparian vegetation species, impaired floodplain access, and adversely affected fish habitat.

In 1981, in response to declines in salmon and steelhead populations, the Secretary of the Interior directed the USFWS to initiate a 12-year flow study to determine the effectiveness of flow restoration and other mitigation measures for impacts of the Trinity River Division (TRD) of the Central Valley Project (CVP). Then, in 1984, Congress enacted the Trinity River Fish and Wildlife Program to further promote and support management and fishery restoration actions in the Trinity River Basin. Under this program, along with other actions, nine pilot bank rehabilitation projects between Lewiston Dam and the North Fork Trinity River were implemented between 1991 and 1993. In 1992, Congress enacted the Central Valley Project Improvement Act (CVPIA; PL 102-575). One purpose of the CVPIA (Section 3406(b)(23)) was to protect, restore, and enhance fish, wildlife, and associated habitats in the Trinity River Basin. The act also directed the Secretary of the Interior to finish the 12-year Trinity River Flow Evaluation Report and to develop recommendations “regarding permanent instream fishery flow requirements, TRD operating criteria, and procedures for the restoration and maintenance of the Trinity River fishery.” The Trinity River Flow Evaluation Final Report (TRFEFR) was ultimately published in 1999 by the USFWS and the HVT, providing a framework for restoration activities below Lewiston Dam as well as the basis for the preferred alternative in the concurrent programmatic environmental analysis.



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In 1994, the USFWS as the NEPA lead agency and Trinity County as the CEQA lead agency began the public process for developing the Trinity River Mainstem Fishery Restoration Environmental Impact Statement (EIS)/EIR. The ROD for the Trinity River FEIS/EIR (December 19, 2000; USDI 2000) directed USDI agencies to implement the Flow Evaluation Alternative, which was identified as the Preferred Alternative in the Trinity River FEIS/EIR (USFWS et al. 2000a). The ROD set forth prescribed Trinity River flows for five water-year types: extremely wet (815,200 acre-feet annually [afa]), wet (701,000 afa), normal (646,900 afa), dry (452,600 afa), and critically dry (368,600 afa). The flows prescribed by the 2000 ROD are deemed to constitute the “existing [hydrological] environment” for CEQA purposes, and are considered the basis for the environmental analysis under both NEPA and CEQA.

The ROD for the Trinity River FEIS/EIR specified that mechanical channel rehabilitation activities would be implemented on the mainstem Trinity River between Lewiston Dam and the North Fork Trinity River. Conceptually, the overall intent of these activities was to selectively remove fossilized berms (berms that have been anchored by extensive woody vegetation root systems and consolidated sand deposits); revegetate and provide conditions for regrowth/sustenance of native riparian vegetation; and reestablish alternate point bars and complex fish habitat similar in form to those that existed prior to the construction of the TRD. Since development of the ROD, the TRRP has included large-scale use of wood (large woody debris [LWD] or large wood) and skeletal bar features to restore habitat and geomorphic form and function within the Trinity River.

The Trinity River FEIS/EIR identified 44 potential channel rehabilitation sites and three potential side-channel sites for consideration by the TRRP (USFWS et al. 2000a). These sites were originally prescribed for rehabilitation in the Trinity River Flow Evaluation Report (USFWS and HVT 1999) and included in the preferred alternative identified in the ROD. Site selection was based on identifying locations where the maximum amount of habitat for native anadromous fishes could be initiated through construction projects, and then enhanced or maintained by a combination of river flows plus coarse sediment augmentation. Consequently, the original sites were chosen based largely on the existence of riparian berms and where channel morphology, sediment supply, and high-flow hydraulics would encourage a dynamic alluvial channel. The ROD prescribed rehabilitation efforts at these sites to be implemented in phases. Early TRRP planning efforts resulted in the identification of two phases, Phase 1 and Phase 2. The Bucktail site encompasses portions of the Dark Gulch and Lowden Ranch sites, both of which were Phase 1 sites. Ultimately, sites at which rehabilitation activities could be implemented were selected using criteria that identified physical features and processes such as channel morphology, sediment supply, and high-flow hydraulics that would encourage a dynamic alluvial channel. Factors such as property ownership, access to the sites, and engineering and economic feasibility were also considered in the site selection process.

In 2002, the TRRP office was opened in Weaverville, California, specifically to implement the components of the ROD. The first accomplishment of the TRRP was to upgrade infrastructure and bridges so that recommended ROD flows of up to 11,000 cubic feet per second (cfs) could be safely passed. Over 100 potable water wells that would have been affected by increased river flows were enhanced, four river crossings (bridges) were improved, one house was moved, and many pieces of infrastructure were upgraded (e.g., decks and outbuildings moved, roads and drives raised) to eliminate the impacts of high flows. This work was done through negotiation with landowners to protect physical structures and maintain human safety. Eminent domain was not used. The first of

the post-ROD channel rehabilitation projects were implemented at sites downstream of Canyon Creek (e.g., Hocker Flat and the Canyon Creek suite), where natural high flows would maintain constructed alluvial features while ROD flows were contested in court. After the ROD was upheld in November 2004 by the United States Court of Appeals for the Ninth Circuit, channel rehabilitation designs focused on modifying alluvial features (e.g., berm removal) at locations where pronounced fossilized riparian berms had developed in response to changes in the flow regime and sediment flux that resulted from construction and operation of the TRD.

In 2005, the first channel rehabilitation project was implemented at Hocker Flat. Although berm removal and reforming alluvial features continue to be emphasized in channel rehabilitation efforts, the restoration of alluvial processes, coupled with the creation of high-value juvenile fish margin and side-channel habitat (low velocity, shallow, and in close proximity to cover; Alvarez et al. 2010), is now emphasized by the TRRP in order to increase habitat for anadromous fish. This approach is consistent with the recognition in the Trinity River FEIS/EIR that the rehabilitation sites exhibit a variety of conditions that require site-specific designs. The Trinity River FEIS/EIR also acknowledged that, in many instances, an entire site would not require treatment to facilitate rehabilitation. This is because strategically treating certain areas is expected to result in fluvial processes that will promote the formation and maintenance of complex fish habitat (e.g., alternating channel bars) in both treated and untreated sections of the river.

In 2009, the *Channel Rehabilitation and Sediment Management Activities for Remaining Phase 1 and Phase 2 Sites, Part 1: Final Master Environmental Impact Report and Part 2: Environmental Assessment/Final Environmental Impact Report* (Master EIR – EA/EIR) was prepared by Reclamation and the Regional Water Board for proposed channel rehabilitation and sediment management activities at the Remaining Phase 1 and Phase 2 sites along the Trinity River between Lewiston Dam and the North Fork of the river (Regional Water Board and Reclamation 2009). Reclamation and the Regional Water Board prepared the Master EIR – EA/ EIR in cooperation with the BLM and the STNF, as well as the HVT and YT. The document is divided into two parts.

Part 1 is a Master Environmental Impact Report, which is a programmatic document prepared in part to meet the requirements of CEQA. The purpose of the Master EIR is analogous to the federal Trinity River Mainstem Fisheries Restoration FEIS programmatic document prepared in 2000 and described previously in this section. The Master EIR part of the document evaluates the environmental impacts of the proposed rehabilitation and sediment management activities at the TRRP's then-remaining Phase 1 and Phase 2 sites. From a programmatic perspective, it provides a discussion of the existing conditions, environmental impacts, and mitigation measures required to comply with CEQA (California Public Resources Code [PRC], Section 21000 et seq.). In addition to addressing the direct and indirect impacts associated with the Proposed Project and the alternatives, the Master EIR addresses cumulative and growth-inducing impacts that could be associated with activities at the Remaining Phase 1 and Phase 2 sites. Reclamation and BLM, the lead and co-lead federal agencies, have determined that the requirements of NEPA are met by the analyses done for the Phase II sites in the Master EIR.

Part 2 is an EA/EIR, an integrated NEPA/CEQA document that evaluates the environmental impacts of the proposed channel rehabilitation and sediment management activities at a project-specific level for the then-remaining Phase 1 sites. The EA/EIR was prepared to comply with NEPA (42 United

States Code [USC], Section 4321 et seq.) and CEQA (California PRC, Section 21000 et seq.). This EA/IS incorporates by reference the discussions of “statutory considerations” in the Master EIR – EA/EIR (Chapters 5 and 8). These discussions cover certain topics required under CEQA, such as cumulative impacts, the significant environmental effects of the Proposed Project, the significant effects that cannot be avoided if the Proposed Project is implemented, and growth-inducing effects of the Proposed Project. The discussions also cover statutory considerations required under NEPA, such as significant irreversible and irretrievable commitments of resources and the relationship between local short-term uses of the environment and the maintenance of long-term productivity. These considerations are summarized below; see the Master EIR – EA/EIR for additional discussions on these topics.

The Master EIR (Regional Water Board and Reclamation 2009) includes a brief chronology summarizing the most pertinent management actions that have occurred relevant to the Trinity River Basin between 1938 and 2008 (Section 1.4.4., page 1-8).

Additional details concerning the legislative and management history can be found in the Trinity River FEIS/EIR (USFWS et al. 2000a) and the EA/Final EIRs for TRRP projects constructed between 2005 and 2008¹. These documents are on file at the TRRP office in Weaverville, California, and available on the TRRP website (www.trrp.net) and at the Weaverville public library. The Master EIR (Section 1.4.5, pages 1-10 through 1-15) also contains a summary of the various restoration activities that have been undertaken since the signing of the ROD, as well as brief discussions of other watershed restoration programs and activities occurring within the basin; additional information is available on the TRRP website².

Phase I of the channel rehabilitation component of the ROD (23 sites of the 47 enumerated in the FEIS) was completed in 2010. By 2014, 32 of the original 47 sites had been constructed.

1.4.1 Analysis Since the 2009 Master EIR – EA/EIR

Under the Implementation Plan for the Preferred Alternative of the Trinity River EIS/EIR (contained in Appendix C of the FEIS/EIR), the Phase I channel rehabilitation projects were described. The Implementation Plan states that:

Twenty-four sites are proposed during the first three years of construction if adequate funding is available. Additional projects will be constructed after evaluation of the first series of projects under Adaptive Environmental Assessment and Management. This evaluation will be ongoing beginning with construction of the first projects, but an interim period without construction activities may be necessary to fully evaluate the effectiveness of project designs and the effect of the new flow regime before beginning construction on the remaining sites.

Based on this statement, several organizations in 2014 reiterated earlier requests that the TRRP stop implementation of their channel rehabilitation and gravel augmentation projects pending a “Phase I review.” However, the ROD emphasizes the need for rapid implementation of the program so that

¹ Hocker Flat (Reclamation and California DWR 2004), the Canyon Creek Suite (Reclamation and the Regional Water Board 2006), Indian Creek (Reclamation and TCRCD 2007), and Lewiston-Dark Gulch (Reclamation and TCRCD 2008).

² On the TRRP website, go to http://www.trrp.net/?page_id=409.

synergistic benefits of the work may quickly restore river conditions for fish and allow for expansion of depleted populations. TRRP requested development of a review document that would assess Phase 1 activities within the context of the TRRP's foundational documents (USFWS and HVT 1999; USDI 2000) and provide direction for the second phase of implementing channel rehabilitation projects. The TRRP's Scientific Advisory Board (SAB) was asked to compile information and develop a comprehensive report that would provide an independent and impartial assessment of Phase 1 activities and progress toward achieving TRRP goals and objectives, along with recommendations for Phase 2. The SAB and an external board of experts have conducted the Phase 1 review and have completed a programmatic report of findings. The report summarizes Phase 1 activities through 2010 and the physical and biological responses from 2005-2011, followed by recommendations for Phase 2 (Buffington et al. 2014; <http://odp.trrp.net/Data/Documents/Details.aspx?document=2172>).

The report states that Phase 1 projects were initially focused on removing riparian berms that had encroached on the river following dam closure, lowering floodplains to match the post-ROD flow regime, and creating point bars that would promote a dynamic river. The conceptual model for these activities was that if restraining features were removed, fluvial processes would take over, creating a more dynamic and complex river that, in turn, would offer more productive habitat for fish and wildlife (USFWS and HVT 1999; USDI 2000). However, the initial rehabilitation projects produced little immediate dynamic geomorphic response. Consequently, the degree of mechanical intervention and the complexity of projects increased over time. The report notes that project objectives have become more specific as projects have become more complex and as design guidelines have been developed (HVT et al. 2011). In addition, predictive numerical models are now being used by TRRP to assess salmon rearing habitat availability and potential geomorphic responses for a given project design. Currently, habitat modeling is being developed in an effort to link physical changes over time to fish production, as called for in the TRRP's foundational documents. Habitat conditions that are predicted by modeling at channel rehabilitation sites are now being evaluated post-construction to determine how as-built conditions compare to predicted outcomes.

The Phase 1 report states that the review effort was hampered by insufficient data and/or insufficient time since project implementation to observe geomorphic changes and associated fish population responses. It further states that although the available data were informative and allowed some assessment of progress toward TRRP goals and objectives, additional information is needed to fully assess the synergistic effects of TRRP activities (management of flow, temperature, sediment, and channel morphology) over space and time to understand the effects on fish production. To move the TRRP partners and the public toward better understanding the dynamic nature of the river system, the primary report recommendation is that the TRRP focus attention toward development of a Decision Support System (DSS). A DSS is a series of linked physical and biological models that will allow the TRRP to (1) predict site and system response to alternative management actions in relation to ROD and stakeholder objectives; (2) make such predictions in a timely fashion (ahead of monitoring results); (3) focus and refine monitoring efforts; and (4) provide a necessary tool for adaptive management. Additionally, it will help to better structure and integrate program activities and increase the defensibility and transparency of management actions. Beyond constructed changes in habitat, the site and system responses observed during Phase 1 were found to be slow, and monitoring efforts must be supplemented by predictive models as part of a DSS to inform management actions in a timely manner and to facilitate adaptive management. In response to Phase 1 report recommendations, the TRRP is working toward an integrated set of predictive models and a process

for using the models to support management decisions. The TRRP has refined fundamental and means objective statements that can be addressed within a DSS. Models now in use include river temperature, two-dimensional hydrodynamics, and fish habitat. In addition, a fish population dynamics and a riparian dynamics model are nearly complete. The process for applying these models in support of TRRP management decisions is under development.

An integral part of the TRRP has been the implementation of an Adaptive Environmental Assessment and Management (AEAM) Program. As described in the Trinity River FEIS/EIR, an AEAM process is important for management of complex physical and biological systems like the Trinity River. Although the TRRP has used adaptive management in its project implementation and project design processes to date, local fishing guides (e.g., the Trinity River Guides Association [TRGA]) have stated that TRRP construction and gravel augmentation have been filling adult holding areas and various public stakeholders have expressed concerns that gravel additions to the river could result in the filling of some of the deep pools used as holding habitat by adult salmonids. Gravel augmentation, including in-channel placement and high-flow injection of coarse sediment, is intended to offset sediment storage by the dams and to promote a mobile streambed, bar formation, and a supply of spawning gravels for salmonids. Concern over the potential for pool filling intensified in late 2010 when a perception became widespread among local fishermen that holes and runs were filling with sediment throughout the river. TRRP responded to this public input by ensuring that mobile gravel was not used in construction of sites downstream of the Indian Creek tributary, below which no gravel augmentation is needed (USFWS and HVT 1999; USDI 2000). In addition, TRRP responded by initiating data collection efforts to support an evaluation of whether widespread changes in pool depths are indeed occurring, where they are occurring, and why.

Recent investigation of the issue in “Assessment of Pool Depth Changes in the Trinity River between Lewiston Dam and the North Fork Trinity River” indicates that pool depths have generally increased throughout the restoration reach as a result of ROD flows and reduced fine sediment input from tributaries (Gaeuman and Krause 2013). However, pool depths have decreased near some rehabilitation sites, and terrace lowering rather than gravel injections is implicated as the cause (Gaeuman and Krause 2013). The report documents that depth changes were negligible in many locations and that substantial aggradation or degradation occurred at relatively few sites. The depths of many pools and deep runs in the Trinity River between Lewiston Dam and the North Fork Trinity River increased between 2009 and 2011. Of 139 polygons considered in this study, 75 to 82 (54 to 59 percent) increased in depth over the study period, depending on the depth metric considered. In most cases, the magnitudes of the depth changes were modest (on the order of 1 foot or less), regardless of the direction of change.

The Gaeuman and Krause report (2013) recommends continued monitoring to detect if, when, and where gravel additions have altered pool depth and other aspects of channel geometry. Results from this monitoring have been incorporated into decision-making processes, and have assisted the project designers in integrating activities to help maintain pools and adult holding habitat at the Bucktail site. Scouring and deepening are expected in areas near log jams (unless they are completely underlain by bedrock), which should result in development of additional holding habitat. Use of small diameter material (e.g., gravel < 4 inches) would be limited to locations where equipment would cross the river.

1.5 Purpose and Need

NEPA regulations require that an EA briefly specify the need that the agency is responding to in proposing an action, including the Proposed Project (40 CFR 1508.9(a)). Similarly, CEQA requires that an IS include a statement of the objectives to be achieved by a Proposed Project (CEQA Guidelines, Section 15124(b)). Specific project objectives are discussed in Chapter 2 of this document.

Overall, the purpose of the TRRP is to implement the 2000 ROD. The TRRP is working to provide increases in habitat for all life stages of naturally produced anadromous fish native to the Trinity River in the amounts necessary to reach congressionally mandated goals. The strategy is to create habitat for native anadromous fish, while also ensuring that habitat complexity and quantity increase as the alluvial processes of the Trinity River are enhanced or restored in a manner that would perpetually maintain fish and wildlife resources (including threatened and endangered species) and the river ecosystem. The Proposed Project would continue to advance the implementation efforts of the TRRP and provides the opportunity to:

- Increase the diversity and amount of habitat for salmonids, particularly habitat suitable for rearing;
- Increase rearing habitat for juvenile salmonids, including coho and Chinook salmon and steelhead;
- Ensure that the flows prescribed in the ROD would not increase the likelihood of flood-related impacts to public resources and private property within the project boundaries;
- Increase the structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- Increase hydraulic and fluvial geomorphic diversity and complexity; and
- Measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian, and upland habitats.

The underlying need for the Proposed Project is to restore fish populations to pre-dam levels and restore dependent fisheries, including those held in trust by the federal government for the HVT and YT. This need results from:

- Requirements in the ROD (USDI 2000) to restore the Trinity River fishery through a combination of higher releases from Lewiston Dam (up to 11,000 cfs), floodplain infrastructure improvements, channel rehabilitation projects, fine and coarse sediment management, watershed restoration, and an AEAM Program; and
- The expectation that the AEAM Program would continue to incorporate the experience provided through the planning, design, and implementation of the Proposed Project into future restoration and rehabilitation efforts proposed by the TRRP.

1.6 Purpose of This Document

Both NEPA (42 USC 4321 et seq.) and CEQA (California PRC, Section 21000 et seq.) generally require that governmental agencies disclose information about proposed activities that may affect the environment, evaluate the potential environmental impacts of their proposed actions before making formal commitments to implement them, and involve the public in the environmental review process. This site-specific EA/IS for the Proposed Project at the Bucktail site has been prepared to comply with NEPA and CEQA. This combined NEPA/CEQA document evaluates the environmental impacts of the Proposed Project, recommends project design features or mitigation measures to minimize impacts, and is designed to facilitate lawful implementation under all applicable laws.

Tiering, which is recognized under both NEPA and CEQA, refers to the practice of covering general matters in broader-scope environmental documents and focusing subsequent documents on the issues germane to the site-specific actions (40 CFR 1508.28). Tiering is appropriate when a sequence of analyses progresses from a broad, conceptual, or planning-level review over a wide area or program to a project-specific and site-specific analysis. Tiering helps the lead agencies focus on issues that are “ripe” for decision, while excluding from consideration issues already decided or not yet ripe (CEQA Guidelines, Section 15385). The general analysis in the broader document is incorporated by reference into the subsequent documents, meaning that the information in the broader document does not need to be repeated in subsequent documents.

This site-specific EA/IS for the Proposed Project at the Bucktail Rehabilitation Site is tiered to the previous analysis in the *Trinity River Mainstem Fishery Restoration FEIS/EIR* (USFWS et al. 2000a). It also incorporates by reference the analyses in the *Channel Rehabilitation and Sediment Management Activities for Remaining Phase 1 and Phase 2 Sites, Part 1: Master Environmental Impact Report* and *Part 2: Environmental Assessment/Environmental Impact Report* (Regional Water Board and Reclamation 2009).

The Trinity River FEIS/EIR serves as a NEPA analysis from which site-specific projects may tier. NEPA allows for tiering, as described in Sec. 1508.28 of the Council on Environmental Quality (CEQ) regulations. Section 1508.28 states that tiering “refers to the coverage of general matters in broader environmental impact statements...with subsequent narrower statements or environmental analyses (i.e., regional or basinwide program statements or, ultimately, site-specific statements) incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared.”

In 1994, the USFWS, as the NEPA lead agency, and Trinity County, as the CEQA lead agency, began the public process for developing the EIS/EIR for the Trinity River Mainstem Fishery Restoration Program. The EIS portion of the Trinity River FEIS/EIR (published in October 2000) functions as a project-level NEPA document for policy decisions associated with managing Trinity River flows and as a programmatic NEPA document providing “first-tier” review of other potential actions, including the Proposed Project. However, the Trinity County Board of Supervisors—the CEQA lead agency for the Trinity River FEIS/EIR—never certified the EIR portion of the 2000 FEIS/EIR for the Trinity River Mainstem Fishery Restoration Program. Therefore, the EIR portion of the Trinity River FEIS/EIR was not available for the CEQA portion of this document, or other earlier TRRP CEQA documents, to “tier” from. Consequently, four joint EA/EIRs were completed to analyze TRRP

channel rehabilitation projects between 2004 and 2008³. Based on the similarity of these projects and their environmental impacts, and agreement that future TRRP projects would have similar impacts, a separate programmatic document, the Master EIR was developed. The EA portion of the Master EIR – EA/EIR tiers from the Trinity River Mainstem Fishery Restoration FEIS/EIR (USFWS et al. 2000a). The ROD, dated December 19, 2000, for the FEIS/EIR directed USDI agencies to implement the Flow Evaluation Alternative, which was identified as the Preferred Alternative in the FEIS/EIR.

CEQA allows for preparation of a Master EIR that analyzes a series of related actions that are characterized as one large project or program, such as the channel rehabilitation and sediment management activities proposed by TRRP. A Master EIR evaluates at a programmatic level the direct and indirect environmental impacts, cumulative impacts, growth-inducing impacts, and irreversible significant effects on the environment of subsequent site-specific projects. A Master EIR forms the basis for analyzing the effects of subsequent projects (CEQA Guidelines, Section 15175, et. seq.). The Master EIR meets the elements required for a Program EIR pursuant to California Code of Regulations (CCR), Title 14, Section 15168. Therefore, the Master EIR provides programmatic CEQA level review, from which the Bucktail Project—a subsequent site-specific project—is tiered.

The Regional Water Board acted as the lead agency for the Master EIR (State Clearinghouse number 2008032110) and for the initial study portions of subsequent site-specific EA/ISs. The Master EIR provides a discussion of the existing conditions, environmental impacts, and mitigation measures required to comply with CEQA (California PRC, Section 21000 et seq.). In addition to addressing direct and indirect impacts associated with the Proposed Project and alternatives, the Master EIR addresses cumulative and growth-inducing impacts that could be associated with activities at the remaining Phase 1 and Phase 2 sites. The Regional Water Board certified the Master EIR on August 25, 2009.

As stated before, the Bucktail site contains portions of the Dark Gulch and Lowden Ranch sites. The Dark Gulch site was a Phase 1 site, the effects of which were analyzed in the Lewiston–Dark Gulch Rehabilitation Project: Trinity River Mile 105.4 to 111.7 EA/EIR (Reclamation and TCRCD 2008). The Lowden Ranch site was also a Phase 1 site, which was analyzed in the Master EIR (North Coast Regional Water Board and Reclamation 2009). Although the Bucktail site was not specifically covered in the Master EIR, portions of the present Bucktail site were described in other TRRP project environmental documents, and Master EIR permitting includes coverage for channel rehabilitation activities that may be conducted to improve habitat conditions at previously constructed TRRP sites.

Because the Master EIR provides programmatic level review from which site-specific projects may tier, the analysis of the Proposed Project required under CEQA is tiered from that document. Because work at the Bucktail site includes a portion of the Dark Gulch Rehabilitation Site, this analysis is also tiered to the Lewiston-Dark Gulch Rehabilitation Project: Trinity River Mile 105.4 to 111.7 EA/EIR (U.S. Bureau of Reclamation and TCRCD 2008). In addition, the EIS portion of the Trinity River FEIS/EIR functions as a project-level NEPA document for policy decisions associated with managing Trinity River flows and as a programmatic NEPA document providing “first-tier” review of other potential actions, including the Proposed Project. This EA/IS focuses only on site-specific activities

³ Hocker Flat (Reclamation and California DWR 2004), the Canyon Creek Suite (Reclamation and Regional Water Board 2006), Indian Creek (Reclamation and TCRCD 2007), and Lewiston-Dark Gulch (Reclamation and TCRCD 2008).

for the Proposed Project and serves as a joint NEPA/CEQA document for project authorization by both federal and California state regulatory agencies.

Under 14 CCR, Section 15177, after a Master EIR has been prepared and certified, subsequent projects that the lead agency determines as being within the scope of the Master EIR will be subject to only limited environmental review. The CEQA guidelines (14 CCR, Section 15177, subd. (b)(2)) state that the preparation of a new environmental document and new written findings will not be required if, based on a review of the IS prepared for the subsequent project, the lead agency determines, on the basis of written findings, that no additional significant environmental effect will result from the proposal, that no new additional mitigation measures or alternatives are required, and that the project is within the scope of the Master EIR. Whether a subsequent project is within the scope of the Master EIR is a question of fact to be determined by the lead agency based on a review of the IS to determine whether there are additional significant effects or new additional mitigation measures or alternatives required for the subsequent project that are not already discussed in the Master EIR.

This EA/IS for the Proposed Project provides site-specific details for the environmental impact analyses and has been prepared to comply with NEPA (42 USC, Section 4321 et seq.) and CEQA (California PRC, Section 21000 et seq.). This EA/IS focuses only on site-specific activities for the Proposed Project and serves as a joint NEPA/CEQA document for project authorization by both federal and California state regulatory agencies. This Bucktail EA/IS contains a site-specific project description and other information required to apply for enrollment under General Water Quality Certification R1-2015-0028 (or subsequent reissued Certification) for Trinity River channel rehabilitation activities, which the Regional Water Board will consider in making its determination and approval decision.

1.7 Federal and California Lead Agencies

As previously stated, this document is tiered to the Trinity River Mainstem Fishery Restoration FEIS/EIR and incorporates by reference the information contained in the Master EIR in their entirety. As an integrated, multi-purpose document, the Master EIR is responsive to the efforts of the lead, responsible, and cooperating agencies to ensure that it addresses applicable laws, policies, and regulations. At the same time, it incorporates the input provided during the scoping process in conjunction with the extensive level of consultation and coordination between the agencies.

Reclamation is responsible for the funding and implementation of the Proposed Project and is the federal lead agency under NEPA. The BLM, which manages a portion of the land within the site boundaries, serves as a co-lead for the Project. The Regional Water Board is the California state lead agency under CEQA. The TCRCD, in its role as an experienced implementer of restoration actions, collaborator on TRRP revegetation, and CEQA lead for the earlier Lewiston-Dark Gulch and Lowden Ranch Projects, which encompass a portion of the Bucktail site, is working with the TRRP to ensure that the Proposed Project is in accordance with the CEQA guidelines.

1.8 Regulatory Framework

In addition to CEQA and NEPA, the Proposed Project is subject to a variety of federal, state, and local statutes, regulations, policies, and other authorities. The decision to facilitate mechanical channel rehabilitation projects requires various permits from state agencies. The primary responsible and trustee agencies are the U.S. Army Corps of Engineers (USACE), USFWS, NMFS, California DWR, CDFW, the Regional Water Board, and Trinity County. Chapter 3, “Regulatory Framework,” of the Master EIR includes descriptions of the actions required of these agencies and of permits required for the TRRP work on the Trinity River as well as an overview of the principal environmental statutes that establish the regulatory setting that would be used to assess the impacts of rehabilitation activities. As necessary, the lead, cooperating, and responsible agencies will use the Master EIR document for their permitting and approval process. Implementation of the Proposed Project, as described in Chapter 2 of this EA/IS, would generally require compliance with the federal, state, and local permit and approval processes and regulations described in Chapter 3 of the Master EIR. For example, federal protection of the Trinity River, which is part of the Wild and Scenic Rivers System, is required under Section 7 of the federal Wild and Scenic Rivers Act (WSRA; PL 90-542). The Trinity River is designated specifically for its outstandingly remarkable anadromous fishery value. The federal WSRA requires the preservation of its free-flowing condition; anadromous and resident fisheries; and outstanding geologic, wildlife, flora and fauna, historic and cultural, visual, recreational, and water quality values.

1.9 Scoping and Public Involvement

Since the signing of the ROD and efforts to begin its implementation, numerous public meetings and open houses have been held by the TRRP and various agencies to gain public input and information for each channel rehabilitation site as well as programmatically under the Master EIR. The Master EIR includes a complete description of scoping and public involvement activities that occurred as part of that process (Master EIR, Section 1.6). The same agencies and organizations that were consulted during the preparation of the Master EIR have also consulted on the Proposed Project.

The Master EIR was developed specifically to identify and mitigate potential significant impacts as defined by CEQA. Accordingly, the same issues that were addressed programmatically in that analysis are considered germane to the Proposed Project. These issues were used to develop the descriptions of the resource areas and the associated impact analysis presented in Chapter 3 of this document.

As part of ongoing TRRP outreach activities, TRRP staff members met with local groups (e.g., fishing guides and mining groups) and individual landowners from the Lewiston area, where the site is located, as needed, to obtain stakeholder input and advice as well as to address any concerns. Notice of all public meetings and other pertinent project information is announced in local newspapers and posted on the TRRP’s website: <http://www.trrp.net/>. The TCRCD will continue to assist the TRRP with public notification and meetings so interested parties can learn about the projects and provide input.

Renewal of the TRRP’s 5-year Clean Water Act (CWA) Section 401 general water quality certification for channel rehabilitation activities (401 certification) was requested from the Regional

Water Board and a public meeting was held on March 26, 2015, in Weaverville to receive public input on the proposed renewal. The public notice period for this permit renewal and the date of the meeting were posted on the Water Board's website at:

http://www.waterboards.ca.gov/northcoast/public_notices/water_quality_certification/. The 401 Certification was reissued on May 20, 2015, effective for a term of 5 years.

A public outreach meeting for the Bucktail project was held on June 4, 2013, to solicit stakeholder input and values, and to relate values to the measured metrics of each design alternative. As part of the public involvement process for the Bucktail site, Reclamation used a stream restoration decision analysis and design guidance tool (Stream Project Tool) that was created to define and implement a rational, objectives-driven approach to evaluating and designing stream restoration projects. Using the Stream Project Tool, stakeholders were given the opportunity to participate in the scoring of proposed alternative designs for the Bucktail site. Participants ranked their opinions of three Program objectives--increasing/enhancing habitat, restoring physical processes, and supporting more proper riparian function--using two different measures for each objective. Participants then presented scores to the designers based on their support for specific goals and the means by which to achieve them. The results helped the design team characterize stakeholder concerns and showed what design objectives caused a particular design alternative to rank higher. This allowed certain features to be added, modified, or eliminated earlier than had been possible for past rehabilitation site designs. The TRRP held an additional meeting on November 5, 2013, to further discuss work at the Bucktail site.

The Trinity River Channel Rehabilitation Sites: Bucktail (River Mile 105.3-106.35) and Lower Junction City (River Mile 78.8-79.8.) Environmental Assessment/Initial Study (North Coast Regional Water Board et al. 2014) was submitted to the California State Clearinghouse on December 13, 2013. The document was circulated to local, state, and federal agencies and to interested organizations and individuals for review and comment on the analysis. The public scoping period ran for 30 days from acceptance at the State Clearinghouse, through January 13, 2014. Concurrent with this review period, public notice was provided to solicit additional comments from the public and interested parties. Public notice included posting on the TRRP website; advertisement(s) in the local Trinity Journal newspaper; letters mailed to local landowners; email notices to interest groups; and signage posted at the project site informing the public of the availability of the EA/IS for review. An open house was held on December 17th, 2013, at the Trinity County Library to receive public input.

A total of 23 comment letters were received on the Trinity River Channel Rehabilitation Sites: Bucktail (River Mile 105.3-106.35) and Lower Junction City (River Mile 78.8-79.8.) EA/IS during the public comment period. The federal and state lead agencies responded to the comments received. The comments and agency responses were included in Appendix B of the draft EA/IS. Based on the comments, a decision was made to reevaluate the design for the Bucktail site. That reevaluation resulted in the current design for the Bucktail site, as presented in Chapter 2 of this EA/IS.

The official public review period for the draft EA/IS for the Bucktail site began when the document was submitted to the California State Clearinghouse on November 18, 2015. The document was circulated to local, state, and federal agencies and to interested organizations and individuals for review and comment on the analysis. The public comment period ran from acceptance at the State Clearinghouse through January 4, 2016. Concurrent with this review period, public notice was provided to solicit additional comments from the public and interested parties. Public notice included

posting on the TRRP website; advertisements in the *Trinity Journal* and *Redding Record-Searchlight* newspapers; letters mailed to local landowners; email notices to interest groups; and signage posted at the site informing the public of the availability of the EA/IS for review. An open house for the EA/IS was held on December 2, 2015, at the Lewiston Moose Lodge in Lewiston, California, to describe the Proposed Project and receive public input. Copies of the letters containing comments on the draft EA/IS and responses to those comments are provided in Appendix A of this document.

Copies of the draft and final EA/IS are available for review on the TRRP website at <http://www.trrp.net/> and on Reclamation's website at http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=23209, as well as at the following locations:

Trinity River Restoration Program
United States Department of the Interior
Bureau of Reclamation
1313 South Main Street
Weaverville, California 96093

United States Department of Interior
Bureau of Land Management
Redding Field Office
355 Hemsted Drive
Redding, CA 96002

Trinity County Resource Conservation District
#1 Horseshoe Square
Weaverville, California 96093

Trinity County Library, Weaverville Branch
211 Main Street
Weaverville, California 96093

Questions regarding this document should be sent to:

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Copies of the Master EIR, the 2000 ROD, and the Trinity River FEIS/EIR are also available for public review on the TRRP website at <http://www.trrp.net> or at:

Trinity River Restoration Program Office
U.S. Department of the Interior – Bureau of Reclamation
1313 South Main Street
Weaverville, California 96093
(530) 623-1800