Chapter 4. Cumulative Impacts and Other CEQA and NEPA Considerations

The analysis in this chapter tiers from the "statutory considerations" discussion in Chapter 5 of the Master EIR; the EA incorporates that discussion by reference. That discussion addressed certain topics required under CEQA, such as cumulative impacts, the significant environmental effects of the proposed action, the significant effects that cannot be avoided if the proposed action is implemented, and the growth-inducing effects of the proposed action. Under NEPA, additional discussions are also required, such as the 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 discussions are incorporated by reference from the Master EIR and are summarized below; see the Master EIR for complete discussions of these topics. This section also provides updated information on cumulative impacts for additional projects that were not identified in the Master EIR.

4.1 Cumulative Impacts

The regulatory framework for the assessment of cumulative impacts under CEQA is discussed in Chapter 5, section 5.2.1, of the Master EIR, and the regulatory framework for NEPA is discussed in Chapter 8, Section 8.2.1 of the Master EIR. Under the CEQA Guidelines (Section 15355), the term "cumulative impacts" refers to two or more individual impacts that, when considered together, are considerable or that otherwise compound or increase other environmental effects. Cumulative environmental impacts arise from the incremental impacts of the proposed action when added to other closely related past, present, and reasonably foreseeable future projects.

The CEQ's implementing regulations for NEPA (40 CFR 1508.7) state that cumulative impacts result from the incremental impact of a proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) undertakes the other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

4.1.1 Methodology and Analysis

The methodology for the cumulative impact analysis is described in section 5.2.2 of the Master EIR. As discussed in that section, the methodology involved the assessment of the potential cumulative effects of the proposed action when considered in combination with a list of related projects within a defined geographical area. This assessment of cumulative impacts is considered in the same cumulative context; however, the list of related projects and programs considered in this analysis has been updated to include those closely related past, present, and reasonably foreseeable future projects listed below.

The cumulative impacts section provided in Chapter 5 of the Master EIR identified related projects through the list approach, based on input from the lead and cooperating agencies. The geographic

scope of the area examined in that assessment for cumulative effects was the Trinity River corridor between Lewiston Dam and the confluence of the North Fork Trinity River at Helena, California. The following projects were considered in that section and are still considered timely and relevant:

- Fish Habitat Management
- Trinity River Mainstem Fishery Restoration Project
- California Coastal Salmonid Restoration Program/Five-Counties Salmonid Conservation Program
- Clean Water Act Section 303(d) Total Maximum Daily Load Requirements Program

Since 2009, the TRRP has implemented projects at all of the Phase 1 Channel Rehabilitation Sites and implemented projects at seven of the Phase 2 sites; the Bucktail site completed in 2016 was expanded in 2016 to include additional area coincident to the portion of the site completed in 2010 as part of the Lewiston-Dark Gulch complex. Concurrently, the TRRP has continued to implement coarse-sediment (gravel) augmentation at a number of locations downstream of Lewiston Dam, and fine sediment has been removed from both the Hamilton Ponds and Grass Valley Creek Reservoir. In addition, the TRRP-managed flows have been implemented yearly since the Master EIR was certified in 2009. Ongoing monitoring efforts by the TRRP and its partners continue to document improvements in habitat use and restoration of alluvial processes and riparian vegetation.

Since 2009, there have been a number of watershed restoration and road sediment reduction projects implemented by various agencies and organizations throughout the Trinity River basin. While some of these were listed and considered in the Master EIR, the Forest Service and the Trinity County Resource Conservation District have completed a wide array of additional projects intended to improve watershed conditions, restore aquatic habitat, improve aquatic connectivity, and reduce road-related sediment delivery to streams and rivers.

The TRRP has identified the need to develop a long-term source of coarse sediment (i.e., spawning gravel) for use in the lower reaches of the Trinity River (downstream of Douglas City). This need could result in harvesting and processing of dredge tailing deposits at various TRRP sites identified in the Master EIR. A project of this kind would have potential impacts on various resource topics, but it is speculative at this point in the planning cycle to be specific with respect to the location and/or type of impacts that may occur.

The issue-specific analysis of cumulative impacts in Chapter 5 of the Master EIR identifies the potential cumulative impacts related to the Remaining Phase 1 and Phase 2 sites for a variety of resource areas. Table 4-1 provides an update to the summary prepared for the Master EIR.

In 2016, the TRRP completed the expanded Bucktail channel rehabilitation project downstream of Lewiston, California. This site is about 23 miles upstream of the project area. While there is the potential for cumulative impacts as a result of sediment delivery and transport from previous TRRP river rehabilitation and sediment management projects, this is actually a beneficial process that contributes to the TRRP's overall objective of a functional alluvial river. The closest TRRP project that has been constructed since the Master EIR was completed is Lorenz Gulch (constructed in 2013) about 7 miles upstream. It is assumed, however, that the impacts from those earlier projects have been mitigated, and the amount of time that has elapsed since they were completed has further dissipated the effects downstream. The previous issue-specific analysis in Chapter 5 of the Master

EIR sufficiently addresses the cumulative impacts of the proposed action, and no substantial differences arise in consideration of the proposed action separately.

Table 4-1. Summary of Cumulative Impacts Considering Past, Present and Reasonably Foreseeable Actions in the Trinity River Basin

Land Use	Implementation of the proposed action, in combination with other related projects, would not have a cumulative impact in terms of planning policies, nor would river rehabilitation activities result in cumulative effects in terms of local or federal land use planning policies.
Geomorphology and Soils	No significant cumulative impacts associated with geologic hazards, geomorphic processes, or erosional processes are anticipated to occur as a result of implementation of the proposed action in combination with other related projects. While previous TRRP projects (e.g., Lorenz Gulch) and periodic increases in flow regimes continued to increase channel complexity throughout the 40-mile reach, large fires throughout the Trinity River basin continue to influence flow and sediment regimes within the watershed. Appropriate implementation of environmental commitments, project design features, and CEQA-specific mitigation measures would reduce potential impacts to a less than significant level.
Hydrology and Flooding	Implementation of the proposed action in combination with other river rehabilitation activities would not have cumulatively considerable impacts on beneficial uses of the river or result in changes in the quantities of water available for any of those uses or that would cause flooding.
Water Quality	No significant cumulative impacts to water quality are anticipated to occur as a result of implementation of the proposed action in combination with other related projects. The TRRP implementation schedule acknowledges the need to stagger implementation of channel rehabilitation projects along the 40-mile reach of the river to ensure that project sites have the opportunity to stabilize and revegetate. Individually, these activities would result in short-term, temporary effects on water quality. Appropriate implementation of environmental commitments, project design features, and CEQA-specific mitigation measures would reduce potential impacts to a less than significant level.
Fishery Resources	No significant, adverse cumulative impacts to fisheries resources are anticipated to occur as a result of implementation of the proposed action. The effect of the proposed action, in conjunction with other projects and programs such as the Five Counties Salmonid Restoration effort, is expected to be beneficial in terms of the rehabilitation of habitat and fisheries resources. Implementation of the proposed action as designed, in conjunction with CEQA-specific mitigation measures, would benefit, rather than adversely affect, the fishery resources of the Trinity River in the long term.
Vegetation, Wildlife, and Wetlands	No significant cumulative impacts to vegetation, wildlife, and wetlands are anticipated to occur as a result of implementation of the proposed action in combination with other related projects. The proposed action as designed, in conjunction with CEQA-specific mitigation, would benefit rather than adversely affect vegetation, wildlife, and wetlands in the long term, as would most of the other related projects and programs (e.g., Five Counties Salmonid Restoration). Implementation of the proposed action would contribute to long-term ecological benefits in terms of vegetation, wildlife, and wetlands.
Recreation	No significant cumulative impacts to recreational resources are anticipated to occur as a result of implementation of the proposed action in combination with other related projects. Benefits to recreational values may be achieved through implementation of the TRRP over time.
Cultural Resources	No significant cumulative impacts to cultural resources are anticipated to occur as a result of implementation of the proposed action. The environmental commitments, project design features, and implementation of prescribed CEQA-specific mitigation measures (e.g., surveys of potential impact areas by a professional archaeologist prior to construction, protection of potentially significant cultural sites, and coordination with local tribes) consistent with the Programmatic Agreement between the Bureau of Reclamation and the California State Historic Preservation Officer would adequately address potential impacts, including cumulative impacts.

Table 4-1. Summary of Cumulative Impacts Considering Past, Present and Reasonably Foreseeable Actions in the Trinity River Basin

Air Quality	No significant cumulative impacts to air quality are anticipated to occur as a result of implementation of the proposed action. The North Coast Unified Air Quality Management District requirements would be addressed by implementation of environmental commitments, project design features, and prescribed CEQA-specific mitigation measures. The proposed action, in conjunction with the other projects and programs occurring within the Trinity River Basin, would contribute cumulatively to global climate change. Thus, the proposed action would contribute to an adverse cumulative contribution to global climate change. Implementation of the proposed action in conjunction with mitigation measures would reduce the cumulative contribution to global climate change to a less than significant level.
Aesthetics	No significant cumulative impacts to visual resources are anticipated to occur as a result of implementation of the proposed action. Implementation of the proposed action would benefit, rather than adversely affect, visual resources in the long term, as would most of the other related projects described in the cumulative effects analysis in the Master EIR.
Noise	No significant cumulative impacts related to noise are anticipated through implementation of the proposed action in combination with other projects. Reclamation would coordinate the implementation of other restoration projects to ensure that construction noise is minimized through project scheduling.
Transportation/ Traffic Circulation	No significant cumulative impacts related to transportation/traffic circulation are anticipated through the implementation of the proposed action in combination with other related projects. Traffic increases would be localized and temporary.

4.2 Irreversible and Irretrievable Commitments of Resources

NEPA (Section 102) and the CEQ's implementing regulations for NEPA (40 CFR 1502.16) require a discussion of "any irreversible and irretrievable commitments of resources which would be involved in a proposed action should it be implemented."

Section 15126.2(c) of the CEQA Guidelines also requires a discussion of the significant irreversible environmental changes that would result from a Proposed Project should it be implemented. This section of the CEQA Guidelines states:

> *Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvements which provide access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.*

The No Action alternative would not directly involve the use of resources or cause significant irreversible environmental effects other than those previously described in the Trinity River FEIS/EIR (USFWS et al. 2000a) and incorporated by reference in other sections of this document.

Implementation of the proposed action would not involve the substantial use of nonrenewable resources in such a way that would result in conditions that would be irreversible through removal or

nonuse thereafter. Future generations would not be committed to irreversible consequences or uses; the effect on future generations would be beneficial as a result of the enhanced and maintained river system and related fishery resources. No irreversible damage from environmental accidents would be foreseeable in association with the proposed action.

Implementation of the proposed action would result in the use of fossil fuels, a nonrenewable form of energy. A relatively minor amount of nonrenewable resources would be used in the mechanical rehabilitation of the river channel, transport of gravel and other materials, and related construction and management activities in the project area. The material requirements for the proposed action would be relatively minor compared to the overall demand for such materials, and the use of these materials would not have a significant adverse effect on their continued availability.

4.3 Relationship between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

Section 102 of the CEQ NEPA Implementing Regulations and 40 CFR 1501.16 require that an environmental document include a discussion of "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity." This discussion was included in Section 8.4 of the Master EIR and is incorporated by reference.

The proposed action does not involve a trade-off between a "local short-term use" of the environment and the maintenance and enhancement of the environment in the sense contemplated by NEPA. Implementation of the proposed action is intentionally aimed at maintaining and enhancing the long-term biological and environmental productivity of the river system consistent with BLM's Resource Management Plan and Trinity County's General Plan. Implementation of the proposed action would not sacrifice the long-term productivity of the project area for short-term uses during construction.

The short-term impacts on the environment associated with implementation of the proposed action are considered minimal compared to the long-term benefits and productivity that would result from the proposed action in conjunction with other objectives of the TRRP. Construction-related impacts and land use conflicts would be short-term, occurring only during the construction phase of the proposed action. The proposed action, including the environmental commitments and project design features, would ensure that the maintenance and enhancement of the fisheries resources offset the short-term impacts.

4.4 Growth-Inducing Impacts

Section 5.3 of the Master EIR evaluated the potential for growth that could be induced by implementation of the proposed action and assessed the level of significance of any expected growth inducement. Under CEQA, growth itself is not assumed to be particularly beneficial, detrimental, or insignificant to the environment. If a project is determined to be growth inducing, an evaluation is made to determine whether significant impacts on the physical environment would result from that growth.

Implementation of channel rehabilitation activities in the project area would not remove any constraints to development, create new or improved infrastructure, or otherwise create conditions that would induce growth. The proposed action would improve habitat for anadromous fish and, thus, improve conditions for fishing and recreation; however, the improved fishery resources resulting from implementation of the proposed action are not likely to directly or indirectly result in substantial development or population growth. Therefore, implementation of the proposed action would not result in a significant growth-inducing impact.

4.5 Environmental Commitments and CEQA Mitigation Measures

Reclamation's NEPA implementation guidance recommends that a list of environmental commitments for the preferred alternative be included in an EA. Chapter 2 of this EA/IS includes a list of environmental commitments and project design features that are part of the proposed action. Where these are cited in the document, they are also cross referenced with the relevant mitigation measure described in the mitigation, monitoring, and reporting plan (MMRP) presented in Appendix D. Because this document is a joint NEPA/CEQA document, mitigation measures have been identified for potentially significant CEQA impacts in compliance with CEQA requirements. Under CEQA, lead agencies are required to adopt a program for monitoring or reporting on the revisions that they required be made part of the project and other measures required to mitigate or avoid significant environmental effects. The MMRP provides the comprehensive list of CEQA mitigation measures and identifies requirements for timing, responsible parties, and compliance verification.

4.6 Significant Impacts under CEQA

CEQA establishes a duty for public agencies to avoid or minimize environmental damage where feasible (CEQA Guidelines Section 15021), and determinations of significance play a critical role in the CEQA process (CEQA Guidelines 15064). Section 5.4 of the Master EIR addresses several types of potentially significant effects.

Potentially significant effects have been identified in the areas of geology, geomorphology, soils, and minerals; water quality; fishery resources; vegetation, wildlife, and wetlands; recreation; cultural resources; air quality; visual resources; noise; public services and utilities; and traffic and transportation. These potential effects are discussed in each resource section in Chapter 3, and Appendix A1 (Environmental Checklist) provides specific CEQA documentation. As part of the environmental impact assessment for each resource area, mitigation measures/design features have been identified that reduce these impacts to less-than-significant levels. The environmental analysis conducted for the proposed action did not identify any effects that, after implementation of the mitigation/design features, remained significant and therefore unavoidable; no significant irreversible effects were identified associated with the proposed action.

4.7 Connected Actions

The CEQ regulations for implementing NEPA (40 CFR 1508.25) state that some actions (other than unconnected single actions) may be interdependent parts of a larger action and depend on the larger action for their justification. These connected actions are closely related and should be addressed when discussing the larger action.

Connected actions that would occur related to implementation of the proposed action include activities that are required for construction of the proposed action, such as TRRP realty actions, transportation of logs, salvaged large woody debris, boulders, and alluvial materials from locations outside the project boundary, and the related vehicle trips, increases in traffic circulation, and wear and tear on local roadways. These activities were analyzed in the Master EIR, and supplemental analysis of these actions is provided in Chapter 3 of this EA/IS. The environmental analysis did not identify any effects that, after incorporation of environmental commitments, project design features, and CEQA mitigation measures, remained significant.

Chapter 5. List of Preparers

Bureau of Reclamation

Trinity River Restoration Program Office

Caryn Huntt DeCarlo	Executive Director
Mike Dixon, Ph.D.	Implementation Branch Chief
Brandt Gutermuth	Environmental Scientist
David Gaeuman, Ph.D.	Geomorphologist
Jeanne McSloy	Natural Resource Specialist
Robert Stewart, Ph.D.	Hydraulic Engineer

Mid-Pacific Region Office

Laurie Perry	Regional Archaeologist
Mark Carper	Archaeologist

Bureau of Land Management

Jennifer Mata	Field Manager
Sara Acridge	Resource Management Supervisor
Charles Wright	Supervisory Realty Specialist
Lisa Grudzinski	Planning and Environmental Coordinator
Kendra Fallon	Ecologist
Eric Ritter, Ph.D.	Archaeologist
William Kuntz	Supervisory Outdoor Recreation Planner
Gary Diridoni	Wildlife/Fisheries Biologist
Stephen Laymon	Wildlife/Fisheries Biologist
Jeffrey Bellaire	Forester
Laura Brodhead	Forest Ecologist
Manuel Silva	Geologist

Regional Water Quality Control Board – North Coast Region

Gil Falcone	Environmental Scientist
Jake Shannon	Environmental Scientist
Stephen Bargsten	Senior Environmental Scientist
Elizabeth Beryt	Staff Counsel

North State Resources, Inc.

Paul Uncapher.	Project Manager
Kathryn McDonald	Environmental Analyst/ Sr. Technical Editor
Leslie Perry	Environmental Analyst
Charles Shoemaker	Senior GIS Specialist
Teri Mooney	GIS Specialist
Len Lindstrand	Biologist/Wetlands Specialist
Sara Tona	Botanist/Wetlands Specialist
Sylvia Langford	Desktop Publisher
William Rich	Cultural and Heritage Resources
Keith Marine	Biologist/Aquatic Ecologist
Allison Loveless	Environmental Specialist
Brooke McDonald	Technical Editor

Chapter 6. References

Bombay, H.L., T.M. Benson, B.E. Valentine, and R.A. Stefani. 2003. A Willow Flycatcher Survey Protocol for California. Available at: http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html#Birds.

Brown-Buntin. 2002. Draft Noise Element of the General Plan, Trinity County, California. Prepared for the Trinity County Planning Department. May 2002.

Bureau of Land Management (BLM). 1993. Redding Resource Management Plan and Record of Decision. United States Department of the Interior, Bureau of Land Management, Redding Resource Area, California.

California Department of Water Resources (DWR). 2016. Sheridan/Deep Gulch CLOMR Narrative. Trinity River Flood Insurance Study, Trinity County, California.

Carter, K. 2005. The Effects of Temperature on Steelhead Trout, Coho Salmon, and Chinook Salmon Biology and Function by Life Stage. California Regional Water Quality Control Board, North Coast Region.

Magneson, M.D. and C.D. Chamberlain. 2015. The Influence of Lewiston Dam Releases on Water Temperatures of the Trinity River at Lower Klamath River, CA, April to October 2014. U.S. Fish and Wildlife Service. Aracta, California.

National Marine Fisheries Service (NMFS). 2006. 2006 Amendment to the 2000 Trinity River Mainstem Fishery Restoration Program Biological Opinion to Allow Necessary Instream Construction Activities at Future Streambank Rehabilitation Projects.

North Coast Regional Water Quality Control Board (Regional Water Board). 2011. Water Quality Control Plan for the North Coast Region, May 2011.

North Coast Regional Water Quality Control Board (Regional Water Board) and U.S. Bureau of Reclamation (Reclamation). 2009. 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. Trinity River Restoration Program. February 2015. SCH#2008032110.

North Coast Unified Air Quality Management District (NCUAQMD). 1995. North Coast Unified Air Quality Management District Particulate Matter (PM_{10}) Attainment Plan. North Coast Unified Air Quality Management District.

Oregon Department of Fish and Wildlife (ODFW). 2015. Guidance for Conserving Oregon's Native Turtles including Best Management Practices. Oregon Department of Fish and Wildlife.

Shasta-Trinity National Forest and Six Rivers National Forest. 2015. 2015 Post Wildfire Impacts: Draft Assessment. Shasta-Trinity National Forest and Six Rivers National Forest.

Sommer, T., B. Harrell, M. Nobriga, R. Brown, P. Moyle, W. Kimmerer, and L. Schemel. 2001. California's Yolo Bypass: Evidence that Flood Control Can Be Compatible with Fisheries, Wetlands, Wildlife, and Agriculture. Fisheries 26:6-16.

Trinity County Resource Conservation District (TCRCD) and North Wind Services, LLC. 2015. Botanical Survey Results: Trinity River Channel Rehabilitation for the Proposed Deep Gulch Rehabilitation Site. Technical Memorandum, July 15, 2015. Trinity County Resource Conservation District.

Trinity River Restoration Program (TRRP) Federal Design Group. 2016. Draft Final Design Report: Deep Gulch Rehabilitation Project. Prepared by U.S. Fish and Wildlife Service, U.S. Forest Service, U.S. Bureau of Reclamation, and National Marine Fisheries Service. Trinity River Restoration Program. February 2016.

United States Department of Agriculture. 1998. Soil Survey of Trinity County, California: Weaverville Area. U.S. Department of Agriculture. Available at http://websoilsurvey.nrcs.usda.gov/app/ (accessed September 17, 2013).

U.S. Environmental Protection Agency (EPA). 2001. Trinity River Total Maximum Daily Load for Sediment. Environmental Protection Agency. December 20, 2001.

U.S. Fish and Wildlife Service (USFWS) and Hoopa Valley Tribe (HVT). 1999. Trinity River Flow Evaluation Final Report. U.S. Fish and Wildlife Service and Hoopa Valley Tribe. June 1999.

U.S. Fish and Wildlife Service (USFWS), U.S. Bureau of Reclamation, Hoopa Valley Tribe, and Trinity County. 2000a. Trinity River Mainstem Fishery Restoration Final Environmental Impact Statement/Environmental Impact Report. State Clearinghouse No. 1994123009. October 2000.

Yurok Tribe. 2016. Draft 90 Percent Design Report: Trinity River Restoration Program Sheridan Creek Channel Rehabilitation Project (River Mile 81.6 to 82.1). September 2016.