Draft Environmental Assessment

LOWER AMERICAN RIVER SALMONID SPAWNING GRAVEL AUGMENTATION AND SIDE-CHANNEL HABITAT ESTABLISHMENT PROGRAM

U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region

June 2008

TABLE OF CONTENTS

1. INTRODUCTION 4
2. PURPOSE AND NEED 5
   Approach 5
   Scoping And Public Involvement 5
3. PROPOSED ACTION AND ALTERNATIVES 7
      Gravel Augmentation 7
      Design 13
      Construction 14
      Gravel Acquisition 15
         Proposed Action for Gravel Acquisition 16
         Alternative for Gravel Acquisition 16
         Features Common to Gravel Sites 1 and 2 16
         Truck Routes 18
            Proposed Action 18
            Sailor Bar Alternative 20
      Side Channel Development 21
         Location 21
         Design 22
         Construction 22
      Best Management Practices 22
         Water Quality 22
         Air Quality and Traffic 23
         Noise 23
         Vegetation, Fish and Wildlife 23
         Cultural Resources 24
      No Action Alternative 24
4. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES 25
   Environmental Resources Eliminated From Further Detailed Analysis 25
      Seismicity, Earthquakes, and Subsidence 25
      Land Use, Population, and Housing 25
      Agricultural Resources 25
      Regional Economics 26
      Paleontological Resources 26
      Wild and Scenic Rivers 26
      Indian Trust Assets 26
      Environmental Justice 26
   Approach 26
   Hydrology 27
      Affected Environment 27
      Environmental Consequences 27
         No Action Alternative 27
         Proposed Action 27

Alternative Action 28
Cumulative Effects 28
Water Quality 29
Affected Environment 29
Environmental Consequences 30
No Action Alternative 30
Proposed Action 30
Alternative Action 31
Cumulative Effects 31
Geology And Soils 31
Affected Environment 31
Environmental Consequences 31
No Action Alternative 31
Proposed Action 32
Alternative Action 32
Cumulative Effects 32
Fisheries 32
Affected Environment 32
Environmental Consequences 33
No Action Alternative 33
Proposed Action 34
Alternative Action 35
Cumulative Effects 35
Vegetation And Wildlife 35
Affected Environment 35
Environmental Consequences 38
No Action 38
Proposed Action 38
Alternative Action 40
Cumulative Impacts 40
Threatened And Endangered Species 40
Affected Environment 40
Environmental Consequences 50
No Action 50
Proposed Action 50
Alternative Action 50
Cumulative Impacts 51
Traffic 51
Affected Environment 51
Environmental Consequences 52
No Action 52
Proposed Action 52
Alternative Action 54
Cummulative Effect 54
Air Quality 54
Affected Environment 54

Environmental Consequences 55
No Action Alternative 55
Proposed Action 55
Alternative Action 59
Cumulative Effects 60
Noise 61
Affected Environment 61
Environmental Consequences 67
No Action Alternative 68
Proposed Action 68
Alternative Action 73
Cummulative Effect 74
Cultural Resources 74
Environmental Consequences 75
No Action 75
Proposed Action 75
Alternative Action 75
Cumulative Effects 76
Recreation 76
Affected Environment 76
Environmental Consequences 77
No Action Alternative 77
Proposed Action 77
Alternative Action 78
Cummulative Effect 78
CONSULTATION AND COORDINATION 79
Applicable Laws And Regulations 79
Federal Requirements 79
State Laws, Regulations, and Policies 81
Local Laws, Regulations, and Policies 81
Coordination 82
Public Involvement 82
LIST OF PREPARERS 84
REFERENCES 85
APPENDIX A - SCOPING COMMENTS 88
APPENDIX B - THREATENED AND ENDANGERED SPECIES LIST FROM FISH AND WILDLIFE SERVICE 91
APPENDIX C - NATIONAL PARK SERVICE WILD AND SCENIC RIVERS EVALUATION 99

1. INTRODUCTION

The Central Valley Project Improvement Act (CVPIA), section 3406 (b)(13) directs the Department of Interior to develop and implement a continuing program for the purpose of restoring and replenishing, as needed, salmonid spawning gravel lost due to the construction and operation of Central Valley Project dams, bank protection projects, and other actions that have reduced the availability of spawning gravel and rearing habitat in the Upper Sacramento River from Keswick Dam to Red Bluff Diversion Dam, and in the American and Stanislaus Rivers downstream from the Nimbus and Goodwin Dams, respectively. This CVPIA program may include preventive measures, such as re-establishment of meander belts and limitations on future bank protection activities, in order to avoid further losses of instream and riparian habitat.

The Lower American River Salmonid Spawning Gravel Augmentation and Side-Channel Habitat Establishment Program (Program) serves as the implementation of section 3406 (b)(13) in the American River below Nimbus Dam (lower American River, or LAR) with the goal being to increase the availability of spawning gravel and rearing habitat for fall-run Chinook salmon and steelhead trout.

The Bureau of Reclamation (Reclamation) and the California Department of Fish and Game (DFG) augmented and manipulated gravel in the LAR in 1999.

2. PURPOSE AND NEED

The purpose of the action is to increase and improve salmon and steelhead spawning and rearing habitat by replenishing spawning gravel and establishing additional side-channel habitat at new restoration sites in the LAR between Nimbus Dam and Upper Sunrise Recreation Area and at Arden Rapids (See Figure 2-1). The need for the action derives from the declines of naturally spawned salmonid stocks due in part to loss of spawning and rearing habitat through curtailment of gravel recruitment due to blockage of the river channel by dams.

APPROACH

Reclamation has identified several potential sites to add spawning gravel and to develop additional side-channel habitats in the LAR. Also, it is considering several sources for acquiring the spawning gravel. Because this is an ongoing program, Reclamation proposes to initiate high priority projects first, and then to initiate lower priority projects over the years. Depending on hydrologic events, some projects may be revisited subsequent to their completion. This Environmental Assessment (EA) is intended to meet the requirements of the National Environmental Policy Act (NEPA) for this program through year 2013. At that time, Reclamation will review the Program and determine if additional NEPA compliance is needed. If additional sites are identified, or other conditions significantly change, this EA would be supplemented before then.

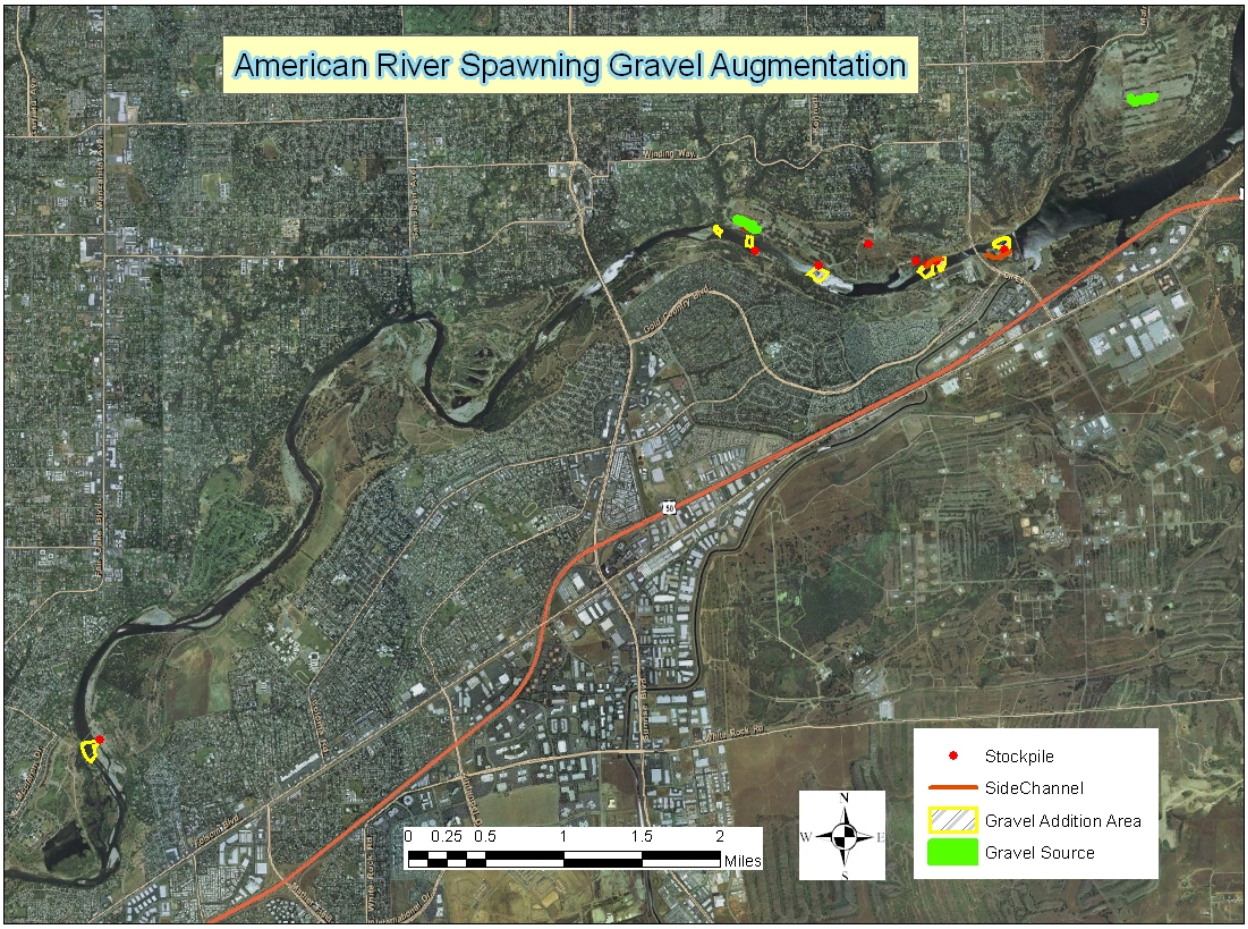
This EA is intended to also meet the NEPA requirements for extracting, processing and stockpiling gravel on federal land at Mississippi Bar through 2020. The transport of gravel off the federal land, and its end use beyond 2013 would require additional NEPA compliance and permitting.

The Program consists of three distinct components: augmentation of spawning gravel; acquisition, processing, and stockpiling of spawning gravel; and creation of side-channel habitats. Each of these components is addressed in this EA.

SCOPING AND PUBLIC INVOLVEMENT

This Program is a culmination of many years of deliberation among stakeholders. This process is described in the Public Involvement section of this report.

Figure 2-1. Overview



3. PROPOSED ACTION AND ALTERNATIVES

Gravel Augmentation

Seven sites for augmenting gravel have been identified and are shown in Figures 3-1 through 3-5.

Site 1, Nimbus Basin: Site 1 starts about 60 yards down stream of Nimbus Dam at River Mile (RM) 23 and extends about 190 yards downstream. This area is highly scoured, and the substrate consists mainly of large rocks. A few salmon and steelhead spawn on the south side of the area where there is a small riffle. The area to be restored is about 3.3 acres.

Nimbus Basin and Mississippi Bar (see section on gravel acquisition) are within the Folsom Lake State Recreation Area (FLSRA). California State Parks and Reclamation are preparing a General Plan/Resource Management Plan (GP/RMP) for the FLSRA. The Preliminary draft GP/RMP and accompanying Draft Environmental Impact Report/Environmental Impact Statement (DEIR/DEIS) identify plans for consolidating parking in this area. Reclamation will coordinate with State Parks to minimize any conflicts that might result between the two projects.

Site 2, Upper Sailor Bar-Upstream: Site 2 is located at Sailor Bar, adjacent to the lower portion of the American River Fish Hatchery at about RM 22.5. It extends from just upstream of the USGS cable across the river to the end of the hatchery, a distance of about 95 yards. The upper portion of this reach on the south side is quite deep with large rocks. The lower end becomes shallower with large rocks. There is some salmon spawning on the north side of the river where the water is shallower and the substrate is more desirable. In the past there has been steelhead and Chinook salmon spawning against the south bank, however most of the spawning-sized gravel at this location has washed away reducing the use of the area for spawning. The area to be restored is about 1.5 acres. Most of the gravel needed for Site 2 is stockpiled at Sailor Bar and is planned to be placed in the river in 2008. Additional gravel needed to complete the work is planned to be put in place in 2009 when gravel is added at Site 3.

Site 3, Upper Sailor Bar-Downstream: Site 3 is located at Sailor Bar from the lower portion of the hatchery settling basins, extending about 165 yards down stream at about RM 22.4. A portion of this reach is heavily scoured. The substrate is characterized as large rock with some areas of marginal spawning habitat. There is some spawning along the north and south banks. The area to be restored is about 2.7 acres.

Site 4, Lower Sailor Bar: Site 4 is located below the island at lower Sailor Bar at about RM 21.8. The existing gravel at the site is too large for spawning. Spawning occurred in the area in the past, but has decreased over time as scouring has occurred. The area to be restored is about 3.7 acres.

Site 5, Upper Sunrise: Site 5 is located about 500 feet upstream of the island at the Upper Sunrise Recreation Area at about RM 21.4. An existing gravel bar along the south side of the river includes suitable spawning habitat used by salmon. The project would extend the bar

laterally across the river. The area to be restored is about 1.2 acres.

Site 6, Upper Sunrise Side Channel: Site 6 is located at the upstream end of the island that forms the Upper Sunrise Side Channel at about RM 21.2. There is a riffle at this location and recently the portion of the riffle adjacent to the island has eroded, which has reduced the surface elevation

Figure 3-1 Nimbus Basin Site

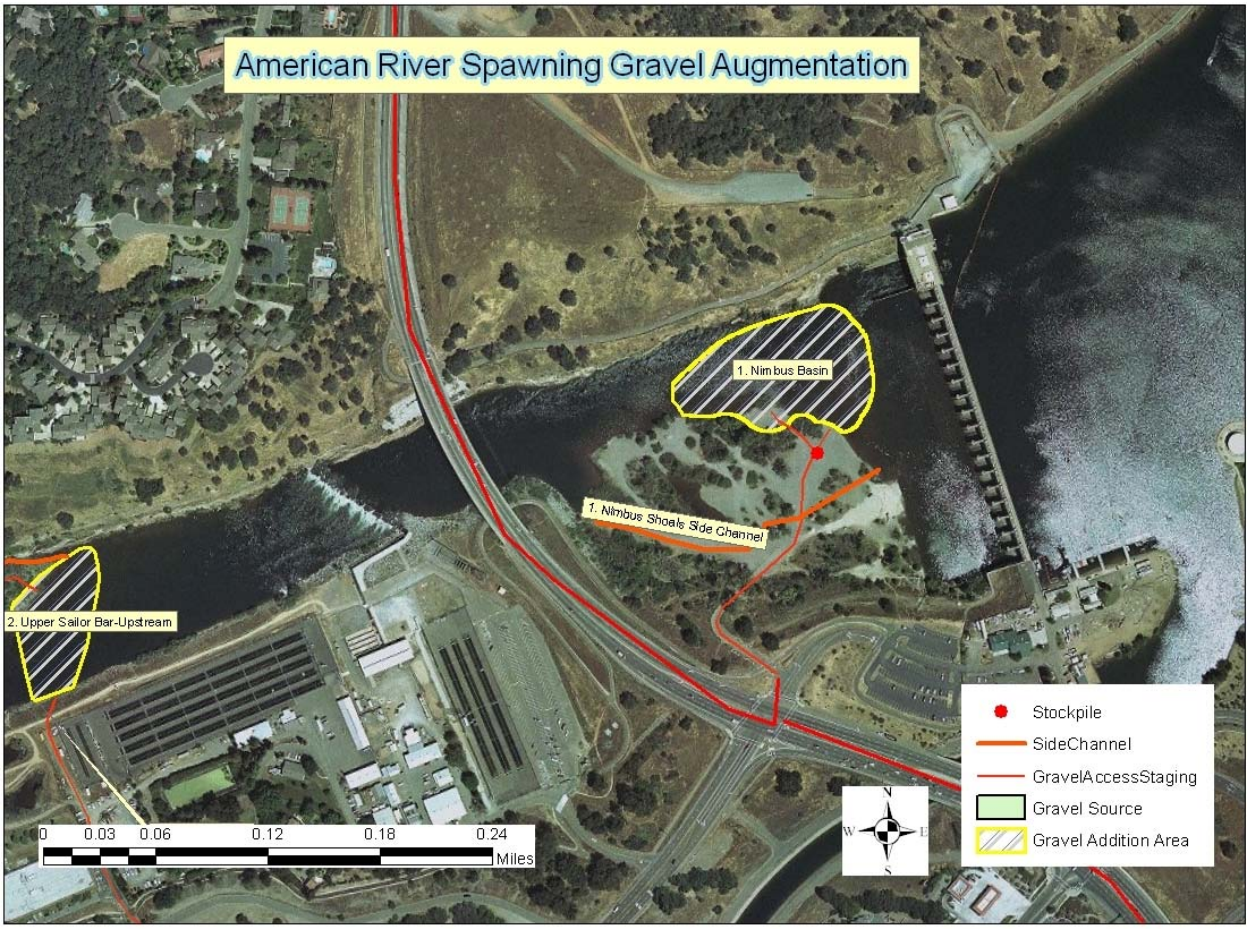


Figure 3-2. Upper Sailor Bar Upstream and Downstream Sites.

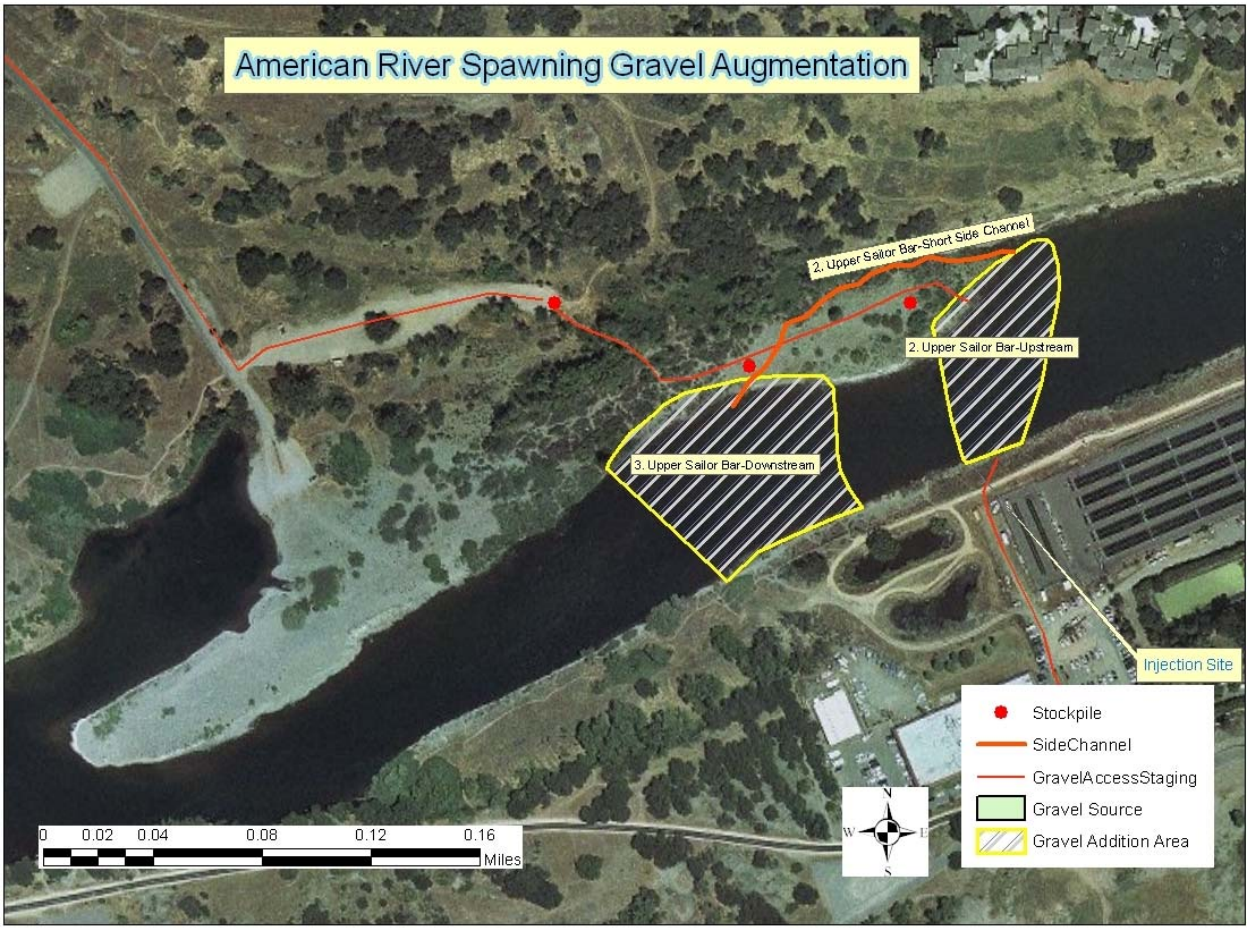


Figure 3-3. Lower Sailor Bar Site

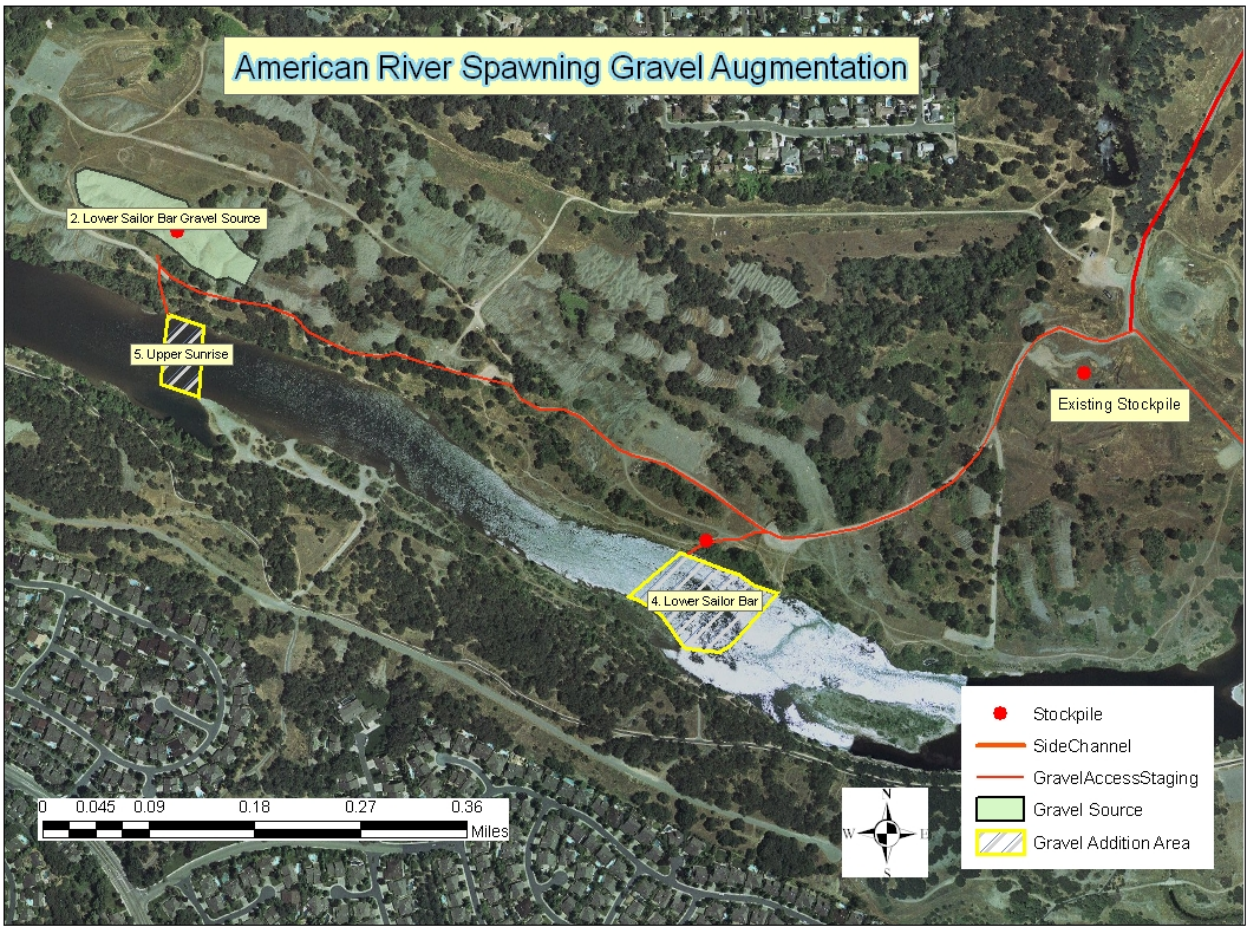


Figure 3-4. Upper Sunrise Site

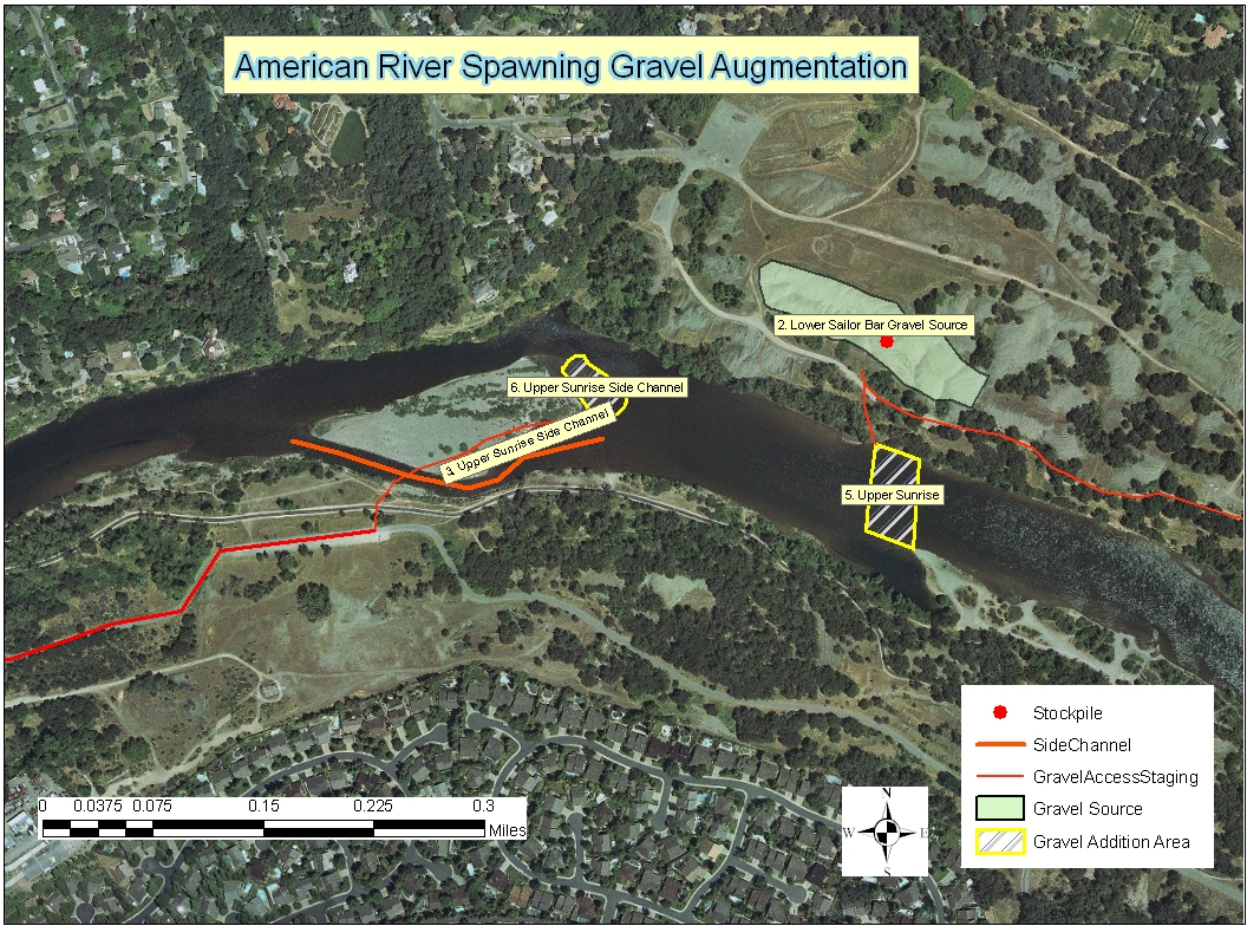
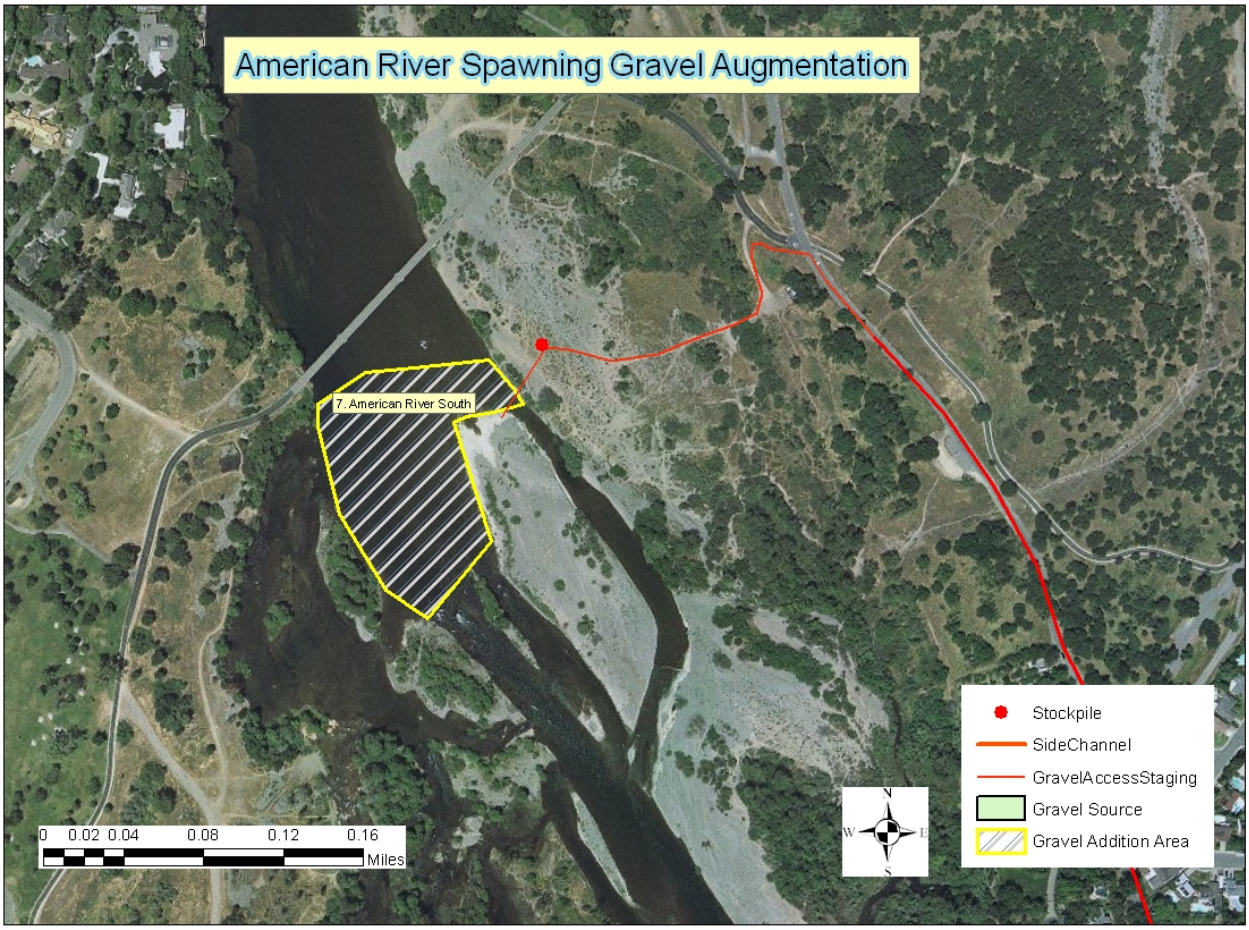


Figure 3-5. River Bend Park Site



of the backwater of the riffle. This, in turn, has dewatered the side channel at lower flows. Consideration is being given to fill in the eroded riffle; however it is not known whether the channel would continue to erode (see discussion on side channels). The area to be restored is about 0.7 acres.

Site 7, River Bend Park (formally C. M. Goethe Park): Site 7 is located between the Jed Smith Bridge at River Bend Park and the Arden Rapids at about RM 13.6. Historically this site provided spawning habitat, however scouring has removed the suitable sized gravel and now it is little used for spawning. The area to be restored is about 5.1 acres.

Initially, gravel would be added at Sailor Bar (Sites 2 and 3). As funding becomes available in future years, gravel would be replenished at the other sites. Funding for the other sites will be determined as the design and construction of the work at sites 2 and 3 progresses.

Work would start in the summer of 2008 and continue yearly for up to 5 years as funding allows. About 7,000 to15,000 cubic yards of gravel would be added per year. The total amount over five years would be up to about 75,000 cubic yards; however it could be more depending on funding and the cost of buying, processing, and transporting the gravel.

For all sites, work would be restricted to week days and exclude holidays. All in-river work would be from 8:00 am to 5:00 pm.

Design

Spawning riffles would be designed using two approaches. The first approach is the "Spawning Habitat Integrated Rehabilitation Approach" (SHIRA) developed by the University of California, Davis (Pasternack, 2004). This approach provides a science-based, systematic framework for reach-scale rehabilitation of salmonid spawning habitat in regulated rivers. This approach is driven by a mix of field data, conceptual models and numerical models to provide predictive and explanatory insight into the rehabilitation process. SHIRA has been used successfully to design rehabilitation projects on the Mokelumne and Yuba Rivers in the Central Valley and on the Trinity River.

The second approach is the "Stockpile Injection Method," which is to simply dump gravel in the river and let the water distribute the gravel during periods of high flow. This approach would be used in the event that restrictions were placed on the use of equipment in the river to transport and grade the gravel. This method is only planned to be used if issues arise over using equipment in the river.

The two approaches have different expected outcomes. Using the SHIRA approach, the riffles are expected to be used for spawning and rearing almost immediately after the gravel is placed. Using the Stockpile injection method, it could take several years for the river to distribute the gravel in a manner that would be conducive to spawning and rearing.

Gravel would be placed at intervals of one to a few years apart as the need is determined by

ongoing monitoring of gravel conditions and fish use of the gravel. New gravel would be needed to replenish spawning gravel that washes downstream and is not replaced by upstream sources. The interval of gravel replacement at a particular site would vary, depending on river flows.

Instream work would be done in a time period to protect Chinook salmon and steelhead (July through September) as specified in permits. Moving gravel and equipment to the sites could occur outside of this window, but all work in the water would be confined to this window. Occasionally exceptions to this period are granted by the National Marine Fisheries Service (NMFS) on a case by case basis based on fish presence and the nature of the project.

Work would be conducted within a 2-mile reach of the river downstream of Nimbus Dam and at a location immediately downstream of the Jed Smith Bridge. The actual gravel placement work would occur in a much smaller total reach of the river. If all seven sites are restored, the total area restored would be about 18.2 acres.

The gravel would be uncrushed, rounded "natural river rock" with no sharp edges. It would be a reasonably well-graded mix made using a ¼" screen on the bottom. The D_{50} (median diameter of sample) of the mix would be between 1 inch and 1-1/2 inch. Refer to ASTM D 6913-04 for the standard test method regarding the gradation of soils. The gravel would be washed prior to delivery to the sites and have a cleanness value of 85, or higher, based on CalTrans Test #227 to minimize the introduction of fine sediments into the river. The gravel would also be free of oils, clay, debris, and organic material.

As recommended by the Anadromous Fish Restoration Program (Fish and Wildlife Service, 2006), the gravel particle size would be as follows.

Particle Size (inches)	Percent Passing	Percent Retained
4" or 5"	95%-100%	0%-5%
2"	75%-85%	15%-30%
1"	40%-50%	50%-60%
3/4"	25%-35%	60%-75%
1/2"	10%-20%	85%-90%
1/4"	0%-5%	95%-100%

Construction

Once gravel is processed and transported to stockpile areas near the river (see section on gravel acquisition), it would be placed in the river using front end loaders for the SHIRA method and by dump trucks, or possibly conveyor systems, for the Stockpile Injection method. Front end loaders would be wheeled to minimize impacts.

Construction specifications would require that any equipment used in or near the river to be properly cleaned to prevent any hazardous materials from entering the river, and containment material would be on site in case of an accident. Reclamation construction personal would

regularly monitor contractors to insure environmental compliance.

New Zealand mud snails, an introduced species, have been identified at Sailor Bar, and elsewhere in the river. To minimize the chance that the snails would be transported and introduced to other water bodies on equipment, construction specifications would require that equipment be steam cleaned immediately after the work is completed and before being used in other water bodies. Additional measures may be taken at the recommendation of DFG.

Front end loaders would pick up a bucket of gravel from the stockpile, and would drive from the stockpile into the river and carefully dump the gravel in a manner as to distribute it across the river bottom according to design parameters. Placement would proceed starting with the river access site and working out into the river from there. This would allow the loaders to drive on the newly placed gravel, thereby avoiding driving in overly deep water. The loader would distribute the gravel along the river bottom to create the hydraulic conditions necessary for salmonid spawning. If large rocks, or pieces of concrete, are encountered at a site, as they would be at sites 2 and 3, they would be removed from the river, or dumped in deep water, before the spawning gravels are placed. This work would use two or three front end loaders for up to one month (22 working days per site) and perhaps a tracked bulldozer or excavator for pushing large rocks into deep water.

For sites using the Stockpile Injection approach, gravel would likely be dumped directly into the river using dump trucks, and possibly conveyor systems. The trucks would originate from a stockpile area or an off-site processing plant.

Access for equipment working in the river would be the same as for gravel delivery equipment (see section on gravel acquisition).

A comprehensive list of best management practices (BMP's) that would be implemented for the project appears at the end of this chapter.

Gravel Acquisition

Reclamation is considering acquiring gravel from public lands in the project vicinity. In 2007 gravel was purchased from a commercial source, and the lowest bidder brought it a significant distance with high transportation costs. This gravel has been stockpiled at Sailor Bar for placement in the river during the late summer of 2008. Consequently, Reclamation wishes to use more local gravel sources. Two local sources on public lands have been identified and the managing agencies are willing to consider making them available. These sites are located at Mississippi Bar and at Sailor Bar. In total, Reclamation needs up to 75,000 cubic yards of spawning gravel for all the identified sites. Reclamation proposes to acquire the entire 75,000 cubic yards from Mississippi Bar, and is considering acquiring about one-half of the needed amount from Sailor Bar as an alternative. Prior to acquiring the gravel, samples may be taken to determine the size distribution. This information would be used for preparing contract specifications.

PROPOSED ACTION FOR GRAVEL ACQUISITION

Site 1, Mississippi Bar: There is more than enough gravel for the entire project located at Mississippi Bar on federal land managed by the California Department of Parks under a contract with Reclamation. Mississippi Bar is part of the Folsom State Recreation Area. A major gravel extraction and processing operation was underway into the 1990's on adjacent State Land. Gravel was extracted on the federal land in the late 1980's and early 1990's. Gravel for the spawning gravel project in 1999 was stockpiled at this location. The proposed area for gravel extraction at Mississippi Bar is shown in figure 3-6. Gravel would be processed at the site on federal land and then transported by trucks to stockpile areas adjacent to the river at the spawning gravel augmentation sites. Trucks transporting gravel from the federal land would cross previously mined state land to access Sunset Avenue. Areas cleared of gravel at Mississippi Bar, including processing areas, would be planted using native vegetation.

As described earlier, State Parks and Reclamation are preparing a GP/RMP for the FLSRA, including Mississippi Bar. The Preliminary GP/RMP and DEIR/DEIS identify new public use facilities and public access at Mississippi Bar. Reclamaion will coordinate with State Parks to avoid any conflicts with its plans for developing Mississippi Bar, including the rerouting of the haul road, if necessary.

ALTERNATIVE FOR GRAVEL ACQUISITION

Site 2, Sailor Bar: A significant amount of gravel is located within the American River Parkway at Sailor Bar, which is managed by Sacramento County Department of Regional Parks. Four of the gravel augmentation sites are adjacent to Sailor Bar. The primary gravel source is located at lower Sailor Bar near the Olive Avenue access, however other dredger tailing occur throughout the area and might be used (figure 3-4). Gravel from Sailor Bar would be processed (sorted and washed) and delivered to stockpile areas adjacent to gravel augmentation sites within the Sailor Bar portion of the American River Parkway and not be transported outside the parkway. All areas cleared of gravel, including processing areas, at Sailor Bar, would be restored in accordance with a restoration plan developed by Sacramento County Regional Parks and Reclamation. This alternative has not been included in the proposed action at this time because of cultural resources issues (see cultural resources section).

FEATURES COMMON TO GRAVEL SITES 1 AND 2

Not all the gravel at these sites is of suitable size to use as spawning gravel. Once sorted, the unsuitable gravel would be left on site. Wash water, if needed, would be obtained from wells that would be drilled adjacent to the processing facilities, and after use, the water would be discharged into settling basins to prevent any discharges to natural water bodies. There are existing wells at both Sailor Bar and Mississippi Bar that might be used in lieu of drilling new ones. At Sailor Bar, wash water may be pumped from the river. Reclamation has determined that it has the rights to pump the wash water from the river. Processing facilities would be located to minimize noise at homes located on the periphery of Sailor Bar and Mississippi Bar.

Stockpile areas adjacent to gravel augmentation sites would be located within the American River Parkway, on lands managed by Sacramento County Regional Parks. Existing improved and unimproved roads would be used by transport trucks to deliver gravel to stockpile areas. If gravel is delivered during the flood season, it would be stockpiled outside of the flood plain. If it is delivered after the flood season, it would be stockpiled adjacent to the river where it would be placed. Gravel stockpiled away from the river would be moved adjacent to the river after the flood season has passed. Because there is limited space at the Sailor Bar processing site, initially processed gravel may be temporarily stockpiled at the existing Sailor Bar stockpile area.

Stockpile areas adjacent to the river generally would be about one half acre or less and would be placed in existing clearings where ground disturbance would be minimized by working on existing dredger tailings or similar type of material.

The gravel acquisition sites and processing sites may be fenced to protect the public and provide security.

Each year gravel processing would take about 1 month (22 days) during a three month window. Processing would be done during weekdays, excluding holidays between the hours of 8:00 am and 5:00 pm.

Dirt haul roads would be watered, as needed, during construction to control dust.

New roads constructed from existing roads to the river and access points would be restored.

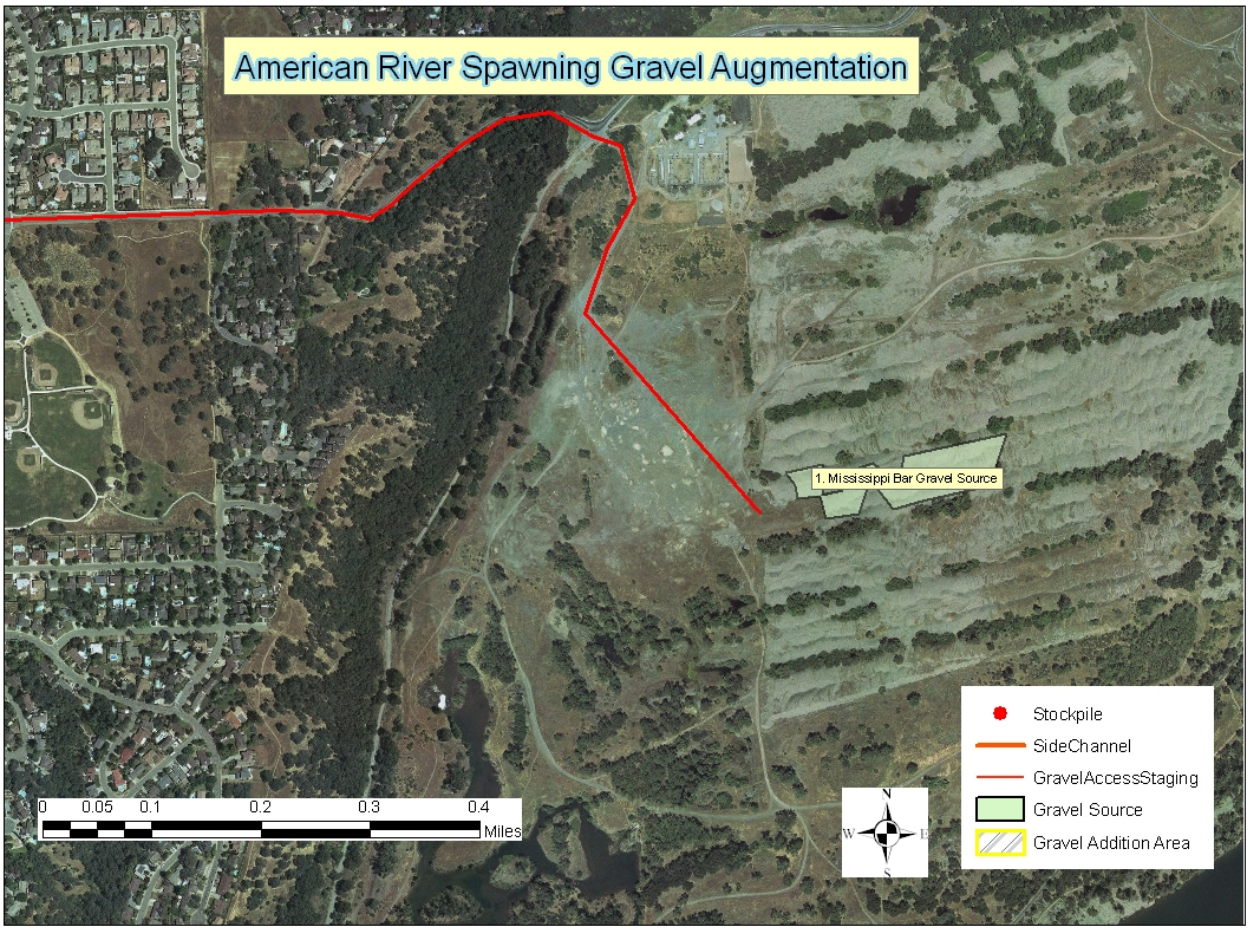
Contract specifications would incorporate means to prevent the spilling of gravel from haul trucks.

Hauling gravel would be done during weekdays, excluding holidays. Hours of work would be 8:00 am to 5:00 pm for transporting gravel within Sailor Bar, and 9:00 am to 3:00 pm for transporting gravel outside of Sailor Bar to avoid periods of rush hour traffic. Hauling within Sailor Bar would take place over a 1-2 month period and hauling outside Sailor Bar would take place over a one month period.

Any infrastructure within the American River Parkway that is damaged by trucks and heavy equipment would be repaired.

At the processing site, one or two front end loaders would be used. At any temporary stockpile sites, one front end loader would be used.

Figure 3-6. Mississippi Bar Gravel Acquisition Site



For purposes of this analysis, tandem transfer trucks (trucks pulling a trailer that can be telescoped into the truck bed) capable of carrying 24 tons would be used for transporting gravel from Mississippi Bar to gravel augmentation sites. Single bed trucks capable of carrying 12 tons would be used for transporting gravel within Sailor Bar where the roads are narrower and more winding.

TRUCK ROUTES

Proposed Action

Expected travel routes for delivering gravel from Mississippi Bar to the augmentation sites are shown in Figure 3-7.

Figure 3-7. Truck Routes for Delivering Gravel from Mississippi Bar

Site 1, Nimbus Shoals: The route would be from Mississippi Bar along Sunset Boulevard and Hazel Avenue to the entrance to Nimbus Shoals, and then over the bar, for a total distance of 1.7 miles (3.4 miles round trip). The route would cross the bike trail. This would involve about 740 round trips. Little, if any vegetation would have to be removed.

For sites at Sailor Bar, the route would be from Mississippi Bar to Sunset Avenue to Hazel Avenue to Winding Way to Illinois Avenue and into the park. The trailer would be dropped off within the park at Sailor Bar and the truck dumped at the augmentation site. The truck would then transfer the trailer into its bed and deliver the gravel in the trailer to the site. The travel distance from Mississippi Bar to Sailor Bar is about 2.5 miles.

Sites 2 and 3: The trailer would likely be dropped off at the dirt parking lot at Sailor Bar. From there a 300-yard road would have to be constructed. Portions of the road would have to be bladed to remove large rocks. The road would pass through about 130 yards of vegetation consisting primarily of blackberry, and willow, alder, tree of heaven, and sycamore trees. The truck would precede several hundred yards to drop its load at the augmentation site and then

return for the load in the trailer. In total this would require about 650 round trips from Mississippi Bar.

Sites 4 and 5: The trailer would likely be dropped off near the fork of the Illinois Avenue entrance to the park and the dirt road going to the lower Sailor Bar access areas. The truck would then proceed to travel 0.5 miles to site 4, or 0.7 miles to site 5, to unload. It would then return to get the trailer and repeat the process. This would involve about 825 round trips from Mississippi Bar for site 4 and about 540 round trips for site 5. At Site 4, a 20 foot wide ramp would have to be constructed to access the river from the embankment. The embankment would be restored once the gravel is placed after the gravel is placed in the river.

Site 6, Upper Sunrise Side Channel: The route would be from Mississippi Bar to Hazel Avenue, to Route 50, to Sunrise Boulevard to South Bridge Street and into Upper Sunrise Park. The travel distance would be about 9.1 miles (18.2 miles round trip) and involve 160 round trips. A dirt road and a ramp would have to be constructed from the paved road to the river. This road would cross the bike trail.

Site 7, River Bend Park: The route would be from Mississippi Bar to Hazel Avenue, to Route 50, to Mather Field Road, to Folsom Boulevard, to Rod Beaudry Drive and into American River South. From the paved park road the route would be across existing dirt roads and paths onto the bar. A 65-yard dirt road would be constructed between the paved park road and an existing service road. The vegetation is sparse grasses. A 20-yard section of an existing path would be widened through blackberry and willows. The total travel distance would be about 11.9 miles (23.8 miles round trip) and involve about 1,140 round trips.

Sailor Bar Alternative

Expected travel routes for delivering gravel from the Sailor Bar gravel source to the augmentation sites are shown in Figure 3-7.

Sites 2 and 3, Upper Sailor Bar: The route would be from the processing facility at Sailor Bar over existing dirt roads and a paved section to the dirt parking area. A short road would be constructed as described above. The total haul distance would be about 1.3 miles (2.6 miles round trip). This would involve about 1,300 round trips. About 5,400 yards of gravel was delivered to a stockpile area at Sailor Bar that is above the floodplain during the winter of 2007/2008. From this stockpile it would be transported along the paved road to the dirt parking and onto the bar as described above for a total distance of about 0.5 miles (1.0 miles round trip). This would involve about 580 round trips.

Site 4, Lower Sailor Bar: The route would be from the processing facility on Sailor Bar to a stockpile area adjacent to the augmentation site along dirt roads. A 20-foot wide ramp would have to be constructed down to the river to allow front end loaders to carry the gravel from the stockpile to the river. The embankment would be restored after the gravel has been placed in the river. The travel distance would be about 0.6 miles (1.3 miles round trip) and involve about 1,650 round trips.

Site 5, Upper Sunrise: The route would be from the processing facility on Sailor Bar to the augmentation site along an existing dirt road and a 190-foot dirt road that would have to be constructed, which would require some grading and vegetation removal. The travel distance would be about 0.1 miles (0.2 miles round trip) and involve 540 round trips. Considering the short distance, the contractor may chose to use front end loaders rather than trucks for transporting the gravel.

Side Channel Development

LOCATION

Three sites have been identified where side channels could be developed to provide salmonid spawning and rearing habitat. A fourth site at Lower Sunrise is being developed as a separate project that is expected to be completed in late 2008. Reclamation plans to initially construct the side channel at Site 2.

All the proposed side channels would have similar cross sections and the water would be 1.0 to 2.5 feet deep in the flow range of 1,500 cfs to 2,200 cfs. The channels would vary in width in the range of 15 to 30 feet wide. Water velocities would range from 1.5 fps to 3.0 fps. Woody debris would be incorporated in the side channels.

Site 1, Nimbus Shoals: Site 1 is located on Nimbus Shoals on the south side of the river at about RM 22.9 (figure 3-1). It would start in the Nimbus Dam Stilling basin north of the proposed fish ladder and cross the bar to the river and be approximately 350 yards in length. Construction at this site would occur subsequent to completion of the Hazel Avenue Bridge widening and construction of the new hatchery fish ladder. The construction of the side channel will be coordinated with State Parks as discussed earlier.

Site 2: Site 2 is located at upper Sailor Bar on the north side of the river at about RM 22.5 (figure 3-2). It would start just downstream of the USGS cable crossing, follow the north side of the bar, and then cut across the bar to the river, a distance of about 210 yards. The width would average about 20 feet and about 4,000 cubic yards would be excavated and spread on the adjacent bar.

Site 3: Site 3 is the Upper Sunrise side channel on the south side of the river located at about RM 21.2 (figure 3-4). This side channel was recently an excellent steelhead spawning area, but in the past year, the main river channel has down cut near the head of the side channel lowering the water level and dewatering the side channel at typical winter flows. There is no evidence that this “knickpoint” has stabilized. This side channel is about 410 yards long.

DESIGN

The specific design for each side channel will be prepared as funding becomes available to conduct the work. Designs will be coordinated with resources agencies and other experts in the field. A preliminary design for Site 2 has been completed.

Site 2 would have a varying width averaging about 30 feet. The 3,900 cubic yards of material excavated would be spread on the adjacent bar. As needed, gravel of suitable size for steelhead spawning would be placed in the channel.

CONSTRUCTION

The side channels would be excavated and material would be spread on the bar. Access to the sites would be the same as described in the section on gravel acquisition.

Best Management Practices

The proposed action and alternative includes the following BMP's to minimize adverse environmental effects. Reclamation anticipates that additional, or more detailed, BMP's will be identified during the permitting process.

Best Management Practices that would be included in this project include, as a minimum, the following:

WATER QUALITY

During in river work, turbidity would be monitored and construction curtailed if turbidity exceeds criteria established by the Regional Water Quality Control Board in its Clean Water Act §401 Water Quality Certification.

All equipment working within the stream channel would be inspected daily for fuel, lubrication, and coolant leaks; and for leak potentials (e.g. cracked hoses, loose filling caps, stripped drain plugs); and all equipment must be free of fuel, lubrication, and coolant leaks.

Vehicles or equipment would be washed/cleaned only at approved off-site areas.

All equipment would be steam cleaned prior to working within the stream channel to remove contaminants that may enter the river and adjacent lands.

All equipment would be fueled and lubricated in a designated staging area located outside the stream channel and banks.

Spill prevention kits would be in close proximity to construction areas, and workers would be trained in their use.

Gravel would be washed prior to being placed in the river. Gravel wash water would be placed in unlined settling basins. The settling basins will be sampled and tested for mercury prior to wash water being placed in them, and wash water and sediment in the basins will be periodically sampled and tested. If testing shows significantly elevated mercury levels compared to pre-project measurements then Reclamation will assess the need to take remedial actions and determine what, if any, additional measures should be taken to avoid adverse effects from the concentration of mercury.

AIR QUALITY AND TRAFFIC

Basic Air Quality Control Measures would be implemented at the project site, including, but not limited to, watering dirt roads and construction areas.

Hauling of gravel outside of the American River Parkway would be limited to Monday through Friday, except holidays, from 9:00 am to 3:00 pm to avoid rush hours.

NOISE

Construction and hauling would be limited to weekdays, excluding holidays, between the hours of 8 am and 5 pm. Hauling on streets would be limited to 9 am to 3 pm. These limitations are more stringent than the operational hours outlined in the Sacramento County Code Noise Ordinance which states that construction operations shall be limited to between the hours of 6 a.m. and 8 p.m. Monday through Friday, between 7 a.m. and 8 p.m. on Saturday, and between 8 a.m. and 8 p.m. on Sunday.

Construction equipment shall be properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (i.e., mufflers, silencers, wraps, etc); including shrouding or shielding all impact tools, and muffling or shielding all intake and exhaust ports on power equipment.

Construction equipment usage shall be arranged to minimize travel adjacent to occupied residences and turned off during prolonged periods of non-use. Stationary construction equipment and staging areas shall be located as far as possible from sensitive receptors, and temporary acoustic barriers may be installed around stationary equipment if necessary.

The project applicant shall designate a disturbance coordinator. That person's telephone number shall be conspicuously posted around the project site and supplied to nearby residences. The disturbance coordinator shall receive all public complaints and be responsible for determining the cause of the complaint and implementing any feasible measures to alleviate the problem (e.g., revised construction hours, use of alternative equipment, and installation of temporary construction noise barriers). Additionally, in advance of noise-generating construction operations, the disturbance coordinator shall advise nearby noise-sensitive receptors of the construction schedule at least 72 hours prior to construction activities.

VEGETATION, FISH AND WILDLIFE

In-river work would be from June 30 through September 30 to avoid the spawning and egg/eleven incubation period for Chinook salmon and steelhead.

Sensitive vegetation (e.g. elderberry shrubs) in the near vicinity of construction areas would be fenced.

All equipment entering the river would be steam cleaned before it is used elsewhere to minimize the chance of introducing New Zealand mud snails to other water bodies. Additional measures may be taken at the recommendation of DFG.

CULTURAL RESOURCES

In the event of an unanticipated archaeological discovery, the project will cease operations and a member of Reclamation's cultural resource staff will be contacted immediately. Reclamation's cultural resource staff will provide direction on how to proceed and conduct any necessary correspondence and mitigation.

In the unlikely event that human remains are uncovered during this undertaking, the project will cease immediately and Reclamation cultural resource staff will be contacted. Reclamation's cultural resource staff will provide direction on how to proceed. If human remains are discovered on lands under the jurisdiction of Reclamation, they will be treated in accordance to the provisions of the Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C 3001). If human remains are discovered on lands owned by any other non-federal entity, they will be treated in accordance to the provisions in the California Health and Safety Code (HSC 7050.5).

No Action Alternative

Gravel would not be placed in the upper reaches of the LAR, nor would side channels be developed, leaving these reaches in a deteriorated condition as spawning and rearing habitat for salmonids. Further declines in habitat quality would be likely.