

# Draft CVPIA Fiscal Year 2011 Annual Work Plan

January 31, 2011

## Program Title

Spawning and Rearing Habitat Restoration Program – CVPIA Section 3406(b)(13)

## Responsible Entities

Staff Name	Agency	Role
John Hannon	USBR	Lead
Dan Cox	USFWS	Co-Lead

## Program Goals and Objectives for FY 2011

The program objectives follow:

- Increase the availability of spawning gravel and rearing habitat for Sacramento River Basin Chinook salmon and steelhead trout by placing 10,000 tons of gravel.
- Increase the availability of spawning gravel and rearing habitat for American River Basin Chinook salmon and steelhead trout by placing 7,000 tons of gravel.
- Increase the availability of spawning gravel and rearing habitat for Stanislaus River Basin Chinook salmon and steelhead trout by placing 3,000 tons of gravel and meet the NMFS OCAP RPA Action prescribing 50,000 cubic yards of gravel placed by 2014.

### Source Documents that Support the Objectives

CALFED Bay-Delta Program EIS/EIR Ecosystem Restoration Plan, Vol. 3 Strategic Plan for Ecosystem Restoration; CALFED Bay-Delta Program Programmatic Record of Decision, Vol. 1 – Record of Decision and Attachments 1 through 4; CALFED Bay-Delta Program Phase II Report, Final Programmatic EIS/EIR Technical Appendix; CVPIA Final PEIS; CVPIA Final Programmatic Environmental Impact Statement. (PEIS), Attachment F; CVPIA Draft PEIS, Technical Appendix Vol. 3; Upper Sacramento River Fisheries and Riparian Habitat Management Plan; Fisheries and Instream Habitat Management and Restoration Plan for the Lower American River; and Stanislaus River Restoration Plan.

Work performed in this program compliments the objectives in CVPIA Section 3406(b)(1). Staff involved in the two programs coordinate the development of the activities in the respective programs and share the data developed from this work.

## Status of the Program

Spawning gravel placement sites in each of the three rivers have been identified based on key habitat location and on ready river access. All gravel placed in the rivers conform to criteria developed by the Fish and Wildlife Service, Department of Fish and Game and the National Marine Fisheries Service. These criteria relate to size and relative proportion of the various sizes, and to particular times of the year when the gravel can be placed. Gravel is placed on the

river bank in the Upper Sacramento River and subsequent high river flows distribute the gravel to areas downstream to be utilized for spawning and rearing. The gravel in the American River and Stanislaus River has been placed to create habitat anticipated to be immediately usable by salmonids.

Gravel has been placed at three sites on the Upper Sacramento River - on the right bank 300 yards downriver from Keswick Dam, 1.5 miles downriver from Keswick Dam at Salt Creek, and approximately 10 miles downriver from Keswick Dam in Redding. The gravel is placed on the bank and high flows distribute the gravel within the river channel. To date approximately 186,000 tons of gravel has been placed at these three sites.

Gravel has been placed at six sites in the American River - two locations at Sailor Bar, two locations at upper Sunrise, downstream of Lower Sunrise Bridge, and at Sacramento Bar. The substrate at the sites was manipulated prior to gravel placement in order to improve intragravel conditions after the gravel was in place. The conditions in the regions where gravel was placed has been monitored and compared with conditions in adjacent areas. A five year series of new projects began in 2008. Reclamation contracted with the Water Forum (City of Sacramento) for assistance in the permitting, placement, and monitoring of projects. Placements through 2010 totaled 39,600 tons.

Several sites have been selected for gravel placement in the Stanislaus River in the reach within two miles downriver of Goodwin Dam and at Knights Ferry. Gravel has been placed by conventional front end loader, by sluice delivery, and by helicopter beginning in 1997. More than 18,000 tons of gravel has been placed to date.

Salmonids have been observed spawning on the placed gravel at each of the gravel placement sites. Aerial photography and onsite ground surveys have documented the location of salmon redds and juvenile salmonids have been observed rearing in the vicinity of the projects.

The (b)(13) program is increasingly emphasizing restoration of side channels, channel margins, and meander belts to address the lack of juvenile rearing habitat. Restoration of these habitats will be incorporated into the program as overall CVPIA Fisheries Program priorities are refined.

### ***FY 2010 Accomplishments***

Accomplishments in the Upper Sacramento River included the purchase and placement of 5,500 tons of spawning gravel 300 yards downstream of Keswick Dam on the west bank of the river. Monitoring efforts continued with two meetings being held to review and plan future activities. Examination of redd survey data and instream gravel locations show that winter-run Chinook salmon are preferentially using injected gravel that was injected at the Keswick Dam and Salt Creek sites. Preliminary substrate data shows a lack of spawning gravel between ACID Dam to the confluence with Clear Creek. Plans are underway to identify potential new sites in this reach as well as possible injection methods.

Accomplishments in the American River included the placement of 16,000 tons of gravel to create spawning and rearing habitat at a new site, referred to as upper Sunrise, located 1 ¾ miles

downstream of Nimbus Dam. Gravel was also placed as a part of the same project at a down cut area of Upper Sunrise side channel. This provided flow through a previously perennially flowing side channel that, up until 2006, provided some of the best spawning and rearing habitat in the river. This 400 meter long reach supplies about 9,200 square meters of restored spawning and rearing habitat at a river flow of 1,500 cfs. The Sacramento County Department of Transportation provided \$100,000 towards the project. AFRP also provided funding to the project. The gravel for the project was obtained from dredger tailings along the river. City of Sacramento crews processed (sorted and washed) the material to produce a desirable mix of gravel sizes clean enough to be placed into the river. California Department of Fish and Game river restoration personnel from the LaGrange office placed the gravel into the river according to design specifications. Archaeological investigations continued due to an adverse effect on the historic integrity of the dredger tailings and to identify mitigation for disturbance to the dredger tailings. Monitoring during 2010 identified heavy steelhead and Chinook spawning use of the prior year projects at Sailor Bar. A high proportion of the river-wide steelhead spawning occurred on the Sailor Bar sites, potentially indicating a lack of preferred steelhead spawning habitat in the rest of the river (assuming survey accuracy).

No gravel placement activities were conducted in the Stanislaus River during 2010. Several outreach meetings were conducted with the Knights Ferry Municipal Advisory Council, local county officials and the interested community. Until deemed appropriate, it was determined that restoration activities would be planned elsewhere along the Stanislaus outside the town of Knights Ferry. No other sites were selected in 2010 but a plan with potential project list was developed to work towards meeting the OCAP RPA Action prescribing 50,000 cubic yards of gravel to be placed in the Stanislaus River by 2014. One redd mapping survey was conducted in prior year gravel placement areas. Spawning occurred on the past gravel placement sites but density was low in comparison with prior years as escapement was very low. Reclamation's Technical Service Center is processing topographic data collected throughout the entire river in 2008 for use in planning future projects.

**Table 1. FY 2011 Activities and Costs**

AWP Activity Number	Type of Activity	# of FTEs	Activity Name & Description	NMFS OCAP RPA#	Performance Metric	Performance Target	Complete this FY? Y/N	Total Project Cost	FY2011 Anticipated Funding				
									Restoration Fund	Water and Related Resources	State or Other Sources*	Total All Sources	
<b>1.1</b>	<b>Program Management</b>												
1.1.1		0.15	USBR. Works with the FWS co-lead and Reclamation activity managers for each of the three river systems in which gravel placement is authorized.				Y	\$25,000	\$25,000	\$0	\$0	\$25,000	
		0.018	R8 Management/Administration					\$3,946	\$3,946	\$0	\$0	\$3,946	
								<b>Subtotal Funding</b>	<b>\$28,946</b>	<b>\$28,946</b>	<b>\$0</b>	<b>\$0</b>	<b>\$28,946</b>
								<b>Reclamation</b>	\$0	\$25,000	\$0	\$0	\$25,000
								<b>Service</b>	\$3,946	\$3,946	\$0	\$0	\$3,946
								<b>Other</b>	\$0	\$0	\$0	\$0	\$0
<b>1.2</b>	<b>Program Support</b>												
1.2.1		0.15	Fish and Wildlife Service. Coordinates with Reclamation staff and is the primary point of contact with the Fish and Wildlife Service. Plans projects, conducts monitoring, oversees construction.				Y	30500	30500	\$0	\$0	\$30,500	
								<b>Subtotal Funding</b>	<b>\$30,500</b>	<b>\$30,500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$30,500</b>
								<b>Reclamation</b>	\$0	\$0	\$0	\$0	
								<b>Service</b>	\$30,500	\$30,500	\$0	\$0	\$30,500
								<b>Other</b>	\$0	\$0	\$0	\$0	
<b>1.3</b>	<b>Technical Support</b>												
1.3.1		0.15	Activity manager for upper Sacramento River gravel projects				Y	\$25,000	\$25,000	\$0	\$0	\$25,000	
1.3.2		0.2	Person #1 MP-200 Engineering support for gravel placement				Y	\$30,000	\$30,000	\$0	\$0	\$30,000	
1.3.3		0.05	Person #2 MP-200 Engineering and survey support for projects. Includes air photos.				Y	\$15,000	\$15,000	\$0	\$0	\$15,000	
1.3.4		0.02	Person #3 MP-3800 Prepare contract paperwork for all gravel placement					\$2,500	\$2,500	\$0	\$0	\$2,500	
								<b>Subtotal Funding</b>	<b>\$72,500</b>	<b>\$72,500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$72,500</b>
								<b>Reclamation</b>	\$72,500	\$72,500	\$0	\$0	\$72,500
								<b>Service</b>	\$0	\$0	\$0	\$0	
								<b>Other</b>	\$0	\$0	\$0	\$0	

AWP Activity Number	Type of Activity	# of FTEs	Activity Name & Description	NMFS OCAP RPA#	Performance Metric	Performance Target	Complete this FY? Y/N	Total Project Cost	FY2011 Anticipated Funding				
									Restoration Fund	Water and Related Resources	State or Other Sources*	Total All Sources	
1.4	<b>Restoration Actions</b>												
1.4.1			American River spawning and rearing habitat restoration at lower Sailor Bar. USBR regional office. Gravel Placement. Steelhead and fall Chinook. Place approximately 10,000 tons of gravel according to design specifications. Priority species and watershed with limited habitat. Two acres of spawning and rearing habitat. In-river work may not occur until 2012 unless partner funds are obtained.			10,000 tons of gravel	Y	\$102,823	\$102,823	\$0	\$0	\$102,823	
1.4.2			Stanislaus River Honolulu Bar restoration, contribute to shortfall on AFRP ongoing project conducted with Oakdale Irrigation District. Gravel placement. Steelhead and fall Chinook to work towards OCAP RPA of 50,000 cubic yards of gravel by 2014. non-structural,	III.2.1		8,100 tons of gravel	Y	\$65,000	\$65,000	\$0	\$0	\$65,000	
1.4.3			Stanislaus River spawning and rearing habitat restoration project to contribute to OCAP RPA III.2.1. Gravel placement at potential sites (Lover's Leap, above Knights Ferry, Two Mile Bar, Goodwin Canyon), steelhead and Chinook, gravel placement, non-structural, spawning and rearing habitat.	III.2.1		50,000 cubic yards gravel placed by 2014	N	\$162,731	\$162,731	\$0	\$0	\$162,731	
1.4.4			Sacramento River gravel addition at Keswick, gravel placement, Chinook (all runs) and steelhead, priority species and watershed with limited habitat. 3,500 cubic yards of habitat creation.			5,000 tons of gravel	Y	\$100,000	\$100,000	\$0	\$0	\$100,000	
								<b>Subtotal Funding</b>	<b>\$430,554</b>	<b>\$430,554</b>	<b>\$0</b>	<b>\$0</b>	<b>\$430,554</b>
								<b>Reclamation</b>	<b>\$365,554</b>	<b>\$365,554</b>	<b>\$0</b>	<b>\$0</b>	<b>\$365,554</b>
								<b>Service</b>	<b>\$65,000</b>	<b>\$65,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$65,000</b>
								<b>Other</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1.9	<b>Environmental Compliance</b>												
1.9.1		0.1	Stanislaus River gravel placement project working towards OCAP RPA of 50,000 cubic yards by 2014, Cultural person.				N	\$20,000	\$20,000	\$0	\$0	\$20,000	
								<b>Subtotal Funding</b>	<b>\$20,000</b>	<b>\$20,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$20,000</b>
								<b>Reclamation</b>	<b>\$20,000</b>	<b>\$20,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$20,000</b>
								<b>Service</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
								<b>Other</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

AWP Activity Number	Type of Activity	# of FTEs	Activity Name & Description	NMFS OCAP RPA#	Performance Metric	Performance Target	Complete this FY? Y/N	Total Project Cost	FY2011 Anticipated Funding				
									Restoration Fund	Water and Related Resources	State or Other Sources*	Total All Sources	
1.12	<b>Monitoring</b>												
1.12.1			American River Monitoring of adult and juvenile fish (steelhead and Chinook) use, gravel movement, hyporheic conditions, and invertebrate abundance (Water Forum grant)					\$74,500	\$74,500	\$0	\$0	\$74,500	
1.12.3		0.01	Stanislaus River spawning surveys at gravel placement sites					\$3,000	\$3,000	\$0	\$0	\$3,000	
1.12.1			Insert description to include: Location; species (if fish, then adult or juvenile and CAMP Implementation cross reference); methodology; partners; cost-share; name of data steward and where data is being stored. NOTE: Attach one-page fact sheet for each monitoring project. Label them by watershed name and AWP Activity #.					\$0	\$0	\$0	\$0	\$0	
								<b>Subtotal Funding</b>	<b>\$77,500</b>	<b>\$77,500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$77,500</b>
								<b>Reclamation</b>	<b>\$77,500</b>	<b>\$77,500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$77,500</b>
								<b>Service</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
								<b>Other</b>	<b>\$77,500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1.13	<b>Modeling</b>												
1.13.1		0.2	IFIM group to survey and model American River and Stanislaus River projects					\$40,000	\$40,000	\$0	\$0	\$40,000	
								<b>Subtotal Funding</b>	<b>\$40,000</b>	<b>\$40,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$40,000</b>
								<b>Reclamation</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
								<b>Service</b>	<b>\$40,000</b>	<b>\$40,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$40,000</b>
								<b>Other</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
	<b>TOTAL FUNDING</b>							<b>\$700,000</b>	<b>\$700,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$700,000</b>	
	<b>Total Funding Breakdown by Agency:</b>												
	<b>Reclamation</b>							<b>\$560,554</b>	<b>\$560,554</b>	<b>\$0</b>	<b>\$0</b>	<b>\$560,554</b>	
	<b>Service</b>							<b>\$139,446</b>	<b>\$139,446</b>	<b>\$0</b>	<b>\$0</b>	<b>\$139,446</b>	
	<b>Other</b>							<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	
1.16	<b>Unfunded Needs</b>												
1.16.1			Sacramento River gravel placement - place gravel in the upper Sacramento River to meet the annual 10,000 ton target		tons	10,000 tons	Y	\$250,000	\$250,000	\$0	\$0	\$250,000	
1.16.2			Stanislaus River gravel placement. Permitting for a new project site plus year one of gravel placement working towards the NMFS RPA of 50,000 cubic yards by 2014.	III.2.1	cubic yards of gravel	5000		\$400,000	\$400,000	\$0	\$0	\$400,000	
1.16.3			American River gravel placement		tons	7,000 tons of gravel		\$250,000	\$250,000	\$0	\$0	\$250,000	
	<b>Total Unfunded Need</b>							<b>\$900,000</b>	<b>\$900,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$900,000</b>	

**Table 2. FY 2011 Budget Breakout**

Task	Agency	FTE	LABOR		CONTRACTS		USBR Only Misc. Costs	Total Costs
			Direct Salary and Benefits Costs <sup>1/</sup>	FWS Only Overhead Assess: 22% of Direct Salary and Benefits Costs <sup>2/</sup>	Contract, Grant, and Agreement Costs	FWS Only Overhead Assess: 6% Contract Costs <sup>2/</sup>		
1.1 Program Management	FWS	0.018	\$3,234	\$712	\$0	\$0		\$3,946
	USBR	0.15	\$25,000		\$0		\$0	\$25,000
1.2 Program Support	FWS	0.15	\$25,000	\$5,500	\$0	\$0		\$30,500
	USBR		\$0		\$0		\$0	\$0
1.3 Technical Support	FWS		\$0	\$0	\$0	\$0		\$0
	USBR	0.42	\$72,500		\$0		\$0	\$72,500
1.4 Restoration Actions	FWS		\$0	\$0	\$65,000	\$0		\$65,000
	USBR		\$0		\$365,554		\$0	\$365,554
1.5 Evaluations, Studies,	FWS		\$0	\$0	\$0	\$0		\$0
	USBR		\$0		\$0		\$0	\$0
1.6 Land, Water and Conveyance	FWS		\$0	\$0	\$0	\$0		\$0
	USBR		\$0		\$0		\$0	\$0
1.7 Outreach and Public Involvement	FWS		\$0	\$0	\$0	\$0		\$0
	USBR		\$0		\$0		\$0	\$0
1.8 Planning	FWS		\$0	\$0	\$0	\$0		\$0
	USBR		\$0		\$0		\$0	\$0
1.9 Environmental Compliance	FWS		\$0	\$0	\$0	\$0		\$0
	USBR	0.1	\$20,000		\$0		\$0	\$20,000
1.1 Design	FWS		\$0	\$0	\$0	\$0		\$0
	USBR		\$0		\$0		\$0	\$0
1.11 Construction	FWS		\$0	\$0	\$0	\$0		\$0
	USBR		\$0				\$0	\$0
1.12 Monitoring	FWS		\$0	\$0		\$0		\$0
	USBR	0.01	\$0		\$77,500		\$0	\$77,500
1.13 Modeling	FWS	0.2	\$32,787	\$7,213	\$0	\$0		\$40,000
	USBR		\$0		\$0		\$0	\$0
1.14 Other	FWS		\$0	\$0	\$0	\$0		\$0
	Other		\$0		\$0	\$0		\$0
	Other		\$0		\$0	\$0		\$0
	USBR		\$0		\$0		\$0	\$0
	Other		\$0		\$0		\$0	\$0
Administrative Total - FWS			\$61,021	\$13,425		\$0		\$74,446
Contracts, Grants and Agreements Total - FWS					\$65,000			\$65,000
<b>FWS Total Costs</b>		0.368	\$61,021	\$13,425	\$65,000	\$0		\$139,446
Administrative Total - USBR			\$117,500				\$0	\$117,500
Contracts, Grants and Agreements Total - USBR					\$443,054			\$443,054
<b>USBR Total Costs</b>		0.68	\$117,500		\$443,054		\$0	\$560,554
<b>TOTAL ALL</b>		<b>1.048</b>	<b>\$178,521</b>	<b>\$13,425</b>	<b>\$508,054</b>	<b>\$0</b>	<b>\$0</b>	<b>\$700,000</b>

1/ For FWS only: The FWS develops a bio-rate which is the combination of both the salary/benefit and related administrative costs. The FWS simple definition reads, "It is an average \$\$ rate that is developed and used for estimating project costs. It incorporates a biologist's salary and benefits, supervisory, clerical and biologist support costs and all other office operating costs related to completing project tasks.

2/ FWS assesses an O/H Burden charge of 6% on all contracts/agreements related to budget object codes starting with 25, 41, and 32, and a charge of 22% on costs under all other budget object codes.

**Table 3. FY 2012 – 2014 Three-Year Budget Plan**

(\$ Thousands)

Year	Description of Activities	Requested RF Funding	Requested W&RR Funding
2012	<p>A. Increase the availability of spawning gravel and rearing habitat for Sacramento River Basin Chinook salmon and steelhead trout. 10,000 tons of gravel placed</p> <p>B. Increase the availability of spawning gravel and rearing habitat for American River Basin Chinook salmon and steelhead trout. 7,000 tons of gravel placed</p> <p>C. Increase the availability of spawning gravel and rearing habitat for Stanislaus River Basin steelhead trout and meet the NMFS OCAP RPA of 50,000 cubic yards of gravel by 2014.</p>	\$2,000	\$0
2013	<p>A. Increase the availability of spawning gravel and rearing habitat for Sacramento River Basin Chinook salmon and steelhead trout. 10,000 tons of gravel placed (based on an estimate of 33% of the total = \$693,000)</p> <p>B. Increase the availability of spawning gravel and rearing habitat for American River Basin Chinook salmon and steelhead trout. 7,000 tons of gravel placed (based on an estimate of 27% of the total = \$567,000)</p> <p>C. Increase the availability of spawning gravel and rearing habitat for Stanislaus River Basin steelhead trout and meet the NMFS OCAP RPA of 50,000 cubic yards of gravel by 2014. (based on an estimate of 40% of the total = \$840,000)</p>	\$2,100	\$0
2014	<p>A. Increase the availability of spawning gravel and rearing habitat for Sacramento River Basin Chinook salmon and steelhead trout. 10,000 tons of gravel placed. (based on an estimate of 33% of the total = \$726,000)</p> <p>B. Increase the availability of spawning gravel and rearing habitat for American River Basin Chinook salmon and steelhead trout. 7,000 tons of gravel placed (based on an estimate of 27% of the total = \$594,000)</p> <p>C. Increase the availability of spawning gravel and rearing habitat for Stanislaus River Basin steelhead trout and meet the NMFS OCAP RPA of 50,000 cubic yards of gravel by 2014. (based on an estimate of 40% of the total = \$880,000)</p>	\$2,200	\$0

Note: The FY 2012 – 2014 Budget Plan provides estimates of capability only. The amounts displayed are those that might be reasonably appropriated each year. These figures do not reflect the future Congressional Appropriations process. All of these estimates will be adjusted annually as RF collections are realized.



**Table 4. FY 2011 CVPIA Monitoring Projects (American River)**

<b>Project Description:</b>	American River Spawning and Rearing Habitat Project Effectiveness Monitoring
<b>FY 2011 Project Complete?</b>	Continuing
<b>CVPIA annual work plan subtask number:</b>	1.12.1
<b>Scope of the monitoring effort:</b>	Evaluates an ongoing series of seven yearly projects in the American River from Nimbus Dam to River Bend Park
<b>Product/deliverable:</b>	Reports and data files
<b>Cost:</b>	\$74,500 (will be seeking cost share to make up total monitoring cost of ~\$140k)
<b>Questions posed:</b>	Are steelhead and Chinook spawning on gravel projects? Are gravel conditions conducive to high egg to fry survival? Can gravel projects enhance invertebrate production? Do the gravel projects provide juvenile salmonid rearing habitat? Can the onsite rock source be used cost effectively? How much gravel should be added yearly?
<b>Objectives:</b>	Determine effectiveness of projects by answering the questions above.
<b>Results – expected or actual:</b>	Spawning use is high. Intragravel conditions should be good for survival. Invertebrates quickly recolonize. Most rearing occurred downstream of gravel. Hopefully onsite rock can be used.
<b>Data collection methods:</b>	Ground and aerial redd surveys, intragravel permeability and water quality measurements, pebble counts, tracer rocks, snorkel surveys, invertebrate sampling
<b>Data management:</b>	Reports in regional library. GIS shapefiles, Excel files, and Access database will be available and maintained by USBR
<b>Assessment:</b>	Spawning and rearing habitat use, habitat quality, and distribution will be evaluated to determine whether key limiting factors are being addressed and to help in design of future habitat improvement projects.
<b>Use of information in future decision making:</b>	Future project designs will be based on monitoring results. Species data is included in ESA consultations on CVP operations.
<b>NMFS OCAP BO RPA</b>	No

<b>Project Description:</b>	Stanislaus River Redd Surveys at Gravel Projects
<b>FY 2011 Project Complete?</b>	Continuing
<b>CVPIA annual work plan subtask number:</b>	1.12.3
<b>Scope of the monitoring effort:</b>	Maps redds at gravel projects to compare with river-wide surveys conducted by DFG during Chinook carcass surveys. This work is sometimes conducted by DFG and sometimes by USBR on a time available basis...funding set aside in case DFG can't do.
<b>Product/deliverable:</b>	Map and shapefile of yearly redd locations
<b>Cost:</b>	\$3,000
<b>Questions posed:</b>	Are salmonids spawning on gravel placement projects? How does habitat use at project sites compare to riverwide spawning habitat use?
<b>Objectives:</b>	Determine effectiveness of projects by answering the questions above.
<b>Results – expected or actual:</b>	Habitat use is concentrated in upstream areas. Spawning distribution is influenced by escapement level.
<b>Data collection methods:</b>	Ground surveys collect GPS points at redds. Carcass surveys count redds by river reach.
<b>Data management:</b>	ESRI shapefiles maintained by USBR
<b>Assessment:</b>	This is a low intensity monitoring activity used to track habitat use through time.
<b>Use of information in future decision making:</b>	Future project designs will be based on monitoring results. Species data is included in ESA consultations on CVP operations.
<b>NMFS OCAP BO RPA</b>	Action III.2.1