
SAN VICENTE CREEK

San Vicente Creek

Dependent Population
3.1 IP-km of potential coho salmon habitat
Coho salmon and steelhead present

San Vicente Creek drains approximately 11 square miles of the Santa Cruz Mountains in western Santa Cruz County. San Vicente Creek enters the Pacific Ocean at the town of Davenport about ten miles north of Santa Cruz, where it flows under a highway and through a railroad tunnel. About 60 percent of the San Vicente Creek watershed is coniferous forest and about 30 percent of the watershed area is either shrubland, montane or riparian hardwood forest. The San Vicente Creek watershed has moderate to high erodibility after considering slope, precipitation, and the susceptibility of failure of underlying geology. Karst geology appears to help provide a source of relatively cool water during the summer low flow period. The SWRCB listed San Vicente Creek as having water quality impaired for sediment in 2001. The water quality impairment listing determined that sediment was impairing habitats beneficial to coho salmon including migration, spawning and rearing habitats, and identified non-point source silviculture as the probable cause. Ninety-nine percent of the San Vicente Creek watershed is in private ownership; the remaining one percent is state-owned forest lands. The Trust for Public Land recently purchased the property owned by Coast Dairies and we anticipate this land will be turned over to State Parks and BLM. Land use in the watershed includes rural residential, forestry, commercial (in the town of Davenport) and quarrying. Within the past ten years, about 22 percent of the San Vicente Creek watershed has

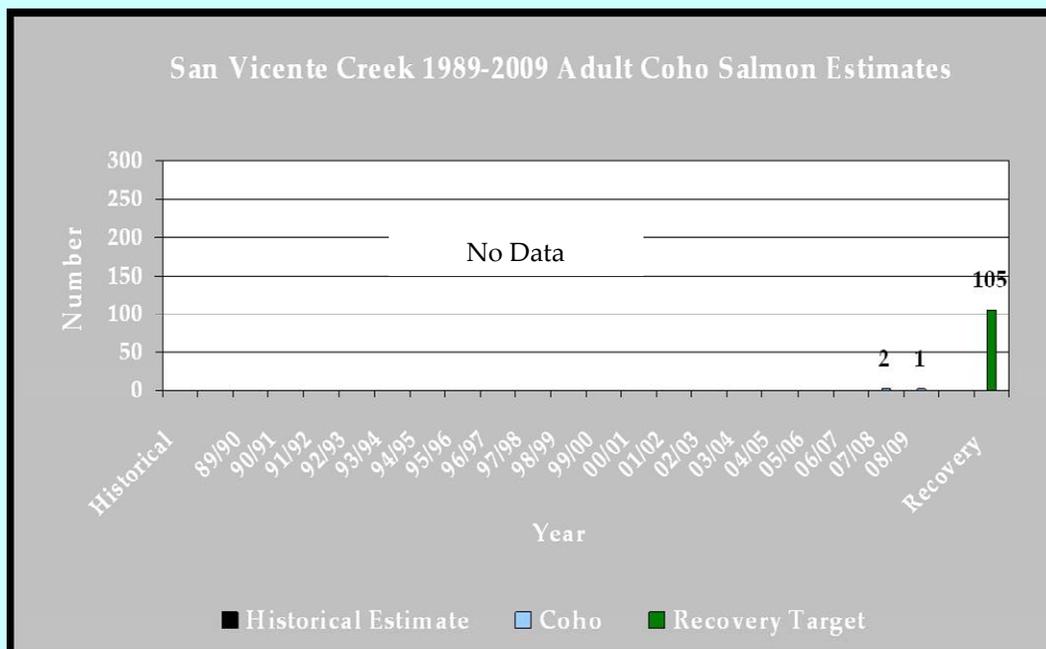
been under timber harvest plans. Housing development within the San Vicente Creek watershed is moderate to low; approximately 450 housing units are present in the watershed.



Coho salmon smolt from San Vicente Creek
Photo by Chris Berry, City of Santa Cruz Water Department

The Watershed at a Glance

Spawning Quantity & Quality:	POOR to GOOD
Summer Water Temperatures:	GOOD
Depth & Shelter of Pools:	POOR
Large Wood Frequency:	POOR
Riparian Canopy:	FAIR to GOOD
Off channel/Floodplain Quality:	POOR to GOOD
Estuary Function:	POOR



San Vicente Creek

Recovery Target: 105 Adult Coho Salmon

Increasing the survival of coho salmon requires **protecting** all individuals from threats that are jeopardizing coho salmon. The highest ranked threats are:

- Mining
- Roads and Railroads
- Droughts
- Fire and Fuel Management
- Climate Change

Preventing the extinction of coho salmon means **restoring** many key habitat attributes within the San Vicente Creek watershed that are in poor condition. The highest priorities for restoration are to:

- Create, and/or expand the quantity and quality of spawning habitat
- Improve and increase pool habitat
- Increase and improve off channel habitat
- Increase the amount of large wood in streams
- Reduce the number of roads in the watershed and minimize the effects from the remaining roads
- Diminish sediment sources



Passage impediment on San Vicente Creek
Photo by Jerry Smith, SJSUL

Advancing recovery of coho salmon in San Vicente Creek requires these priority **recovery actions:**

- Target restoration and habitat enhancement that will provide functioning habitat at flows between winter base flow and flood stage.
- Install properly sized LWD to increase the frequency and condition of pool habitat.
- Conduct annual inspections of all roads prior to winter. Correct conditions that are likely to deliver sediment to streams. Hydrologically close/disconnect the roads (remove fills and culverts restoring the natural hydrology of hillslope).
- Encourage SWRCB to bring illegal water diverters, and out-of-compliance diverters, into compliance with State law.

... in these **core areas:** entire San Vicente Creek planning watershed

Conservation Highlights

- The San Vicente TAC, Santa Cruz RCD, California Coastal Conservancy, and BLM are working to restore off channel habitats as well as implement side channel LWD projects

We Need Your Photo Here

San Vicente Creek
Photo © Your Name Here, AFFIL

Recovery Partners

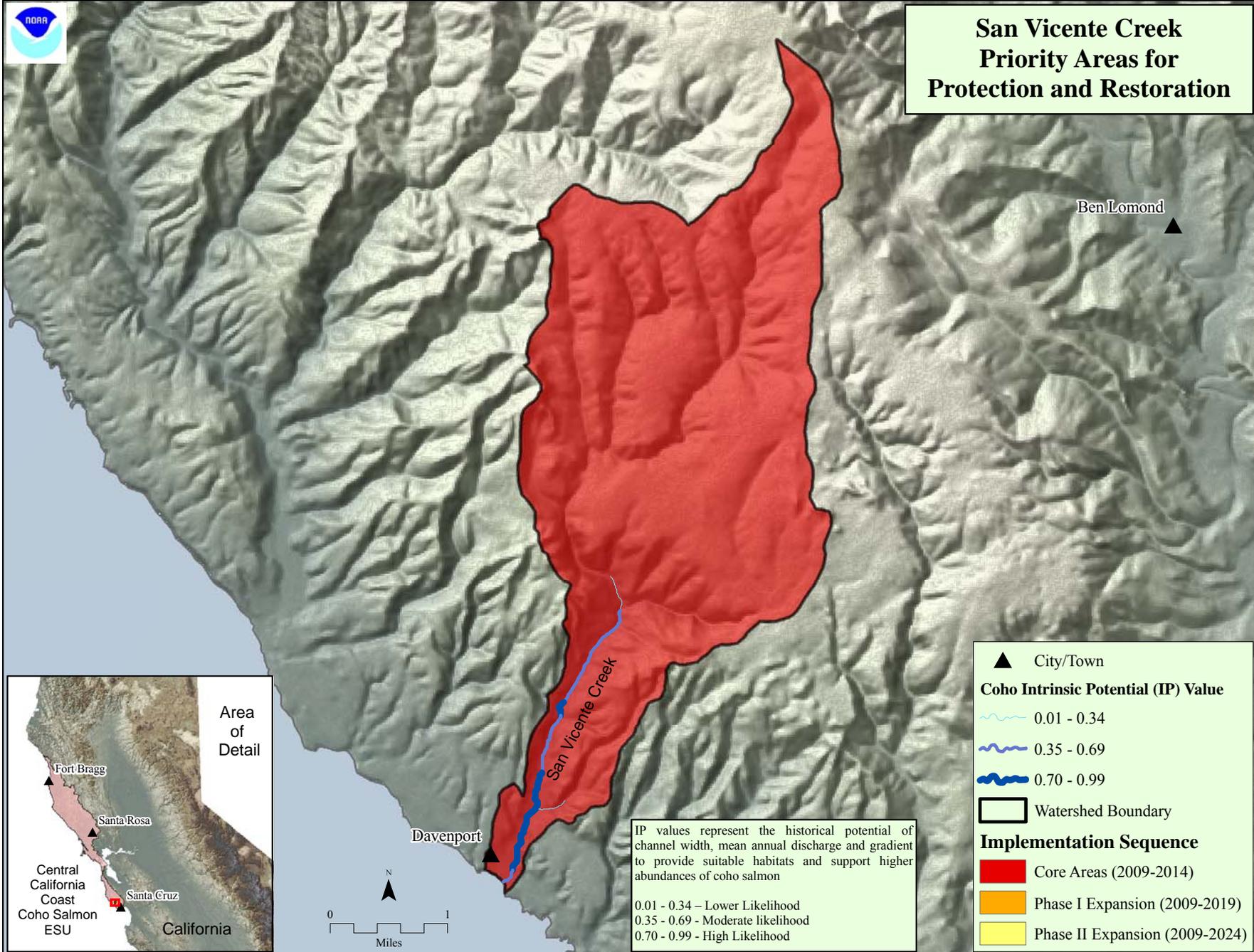
CEMEX
BLM
Coast Dairies
Santa Cruz RCD
San Vicente TAC
NMFS
DFG

Immediate Needs

Develop more instream habitat projects ✓
Protect instream flows ✓



San Vicente Creek Priority Areas for Protection and Restoration



**CCC Coho Salmon
San Vicente Creek
CAP Viability Table Results**

Analyst	Source	Result	Rating	Target	Habitat Attribute	Indicator	Poor	Fair	Good	Very Good
Flow Panel	Decision Matrix	50	Good	Spawning Adults	Hydrology	Passage Flows	>75 (score)	51-75	35-50	<35
SEC	PSMFC Database	100%	Very Good	Spawning Adults	Passage	Physical Barriers	<50% of IP-km	50-70% of IP-km	70-90% of IP-km	>90% of IP-km
NCWAP	Decision Matrix	60-90 days	Good	Spawning Adults	Passage	Passage at Mouth	<30 days	30-60 days	60-90 days	>90 days
SEC	CDFG HAB 8	NA	Poor	Spawning Adults	Sediment	Amount of Gravel*	<100 m ²	100-200 m ²	200-300 m ²	>300 m ²
NMFS	Best Prof. judgment	<5%	Good	Spawning Adults	Viability	Freshwater Harvest	>10% of pop.	5-10%	<5%	
Flow Panel	Decision Matrix	42	Good	Eggs	Hydrology	Instantaneous Condition	>75 (score)	51-75	35-50	<35
Flow Panel	Decision Matrix	58	Fair	Eggs	Hydrology	Redd Scour	>75 (score)	51-75	35-50	<35
SEC	Many Sources	NA	Fair	Eggs	Sediment	Gravel Quality	>17% 0.85mm and or >30% 6.3mm	15-17% 0.85	12-14% 0.85mm and or <30% 6.3mm	<12% 0.85
SEC	CDFG HAB 8	NA	Poor	Eggs	Sediment	Gravel Quality (Embeddedness)	<25% of scores 1s&2s	25-50% of scores 1s&2s	>50% of scores 1s&2s	
Flow Panel	Decision Matrix	67	Fair	Summer Rearing	Hydrology	Baseflow	>75 (score)	51-75	35-50	<35
SEC	CDFG HAB 8	11.7	Poor	Summer Rearing	Pool Habitat	Shelter Rating	<60 avg. rating	60-80	80-100	>100
SEC	CDFG HAB 8	2%	Poor	Summer Rearing	Pool Habitat	Primary Pools	<30% pools by length	30-40%	40-50%	>50%
SEC/NMFS	Many Sources	NA	Good	Summer Rearing	Water Quality	Temperature	>30% of IP > 17 C MWMT	Does not meet Good or Very Good	30-60% of IP < 15C MWMT	>60% of IP < 15C MWMT
SEC	CDFG HAB 8	11.7	Poor	Winter Rearing	Floodplain	Complex Habitat**	<50% Connected	50-80% connected	>80% connected	
NMFS	NCWAP	Poor	Poor	Smolts	Estuary	Estuary				
Flow Panel	Decision Matrix	35-50	Good	Smolts	Hydrology	Passage Flows	>75 (score)	51-75	35-50	<35
SEC	SWRCB	0/10 IP-km	Very Good	Smolts	Passage	# of Diversions**	>5 / 10 IP km	1.1-5	0.01-1	0
SEC	CDFG HAB 8	11.7	Poor	Multiple Life Stages	Pool Habitat	Shelter Rating	<60 avg. rating	60-80	80-100	>100
NMFS	Best Prof. judgment	>80%	Good	Multiple Life Stages	Floodplain	Floodplain Connectivity	<50%	50-80%	>80%	not defined
NMFS	CDF CWHR	55%	Good	Multiple Life Stages	Hydrology	Stand Age			>40 years old	
SEC	NLCDB	0.80%	Very Good	Multiple Life Stages	Hydrology	Impervious Surfaces	>12.01% of WS by area	7.01-12%	3.01-7%	0-3%
SEC	FMMP	1.53%	Good	Multiple Life Stages	Land disturbance	Agriculture	>30% of WS by area	10-30%	0.1-10%	<0.1%
NMFS	CDF THP Dataset	22%	Good	Multiple Life Stages	Land disturbance	Timber Harvest	>35% of WS by area	25 - 35%	10 - 25%	<10%
SEC	Many Sources	0	Poor	Multiple Life Stages	Pool Habitat	LWD Freq. (BFW 0-10)	<4key pcs/100m	4-6/100m	6-11/100m	>11/100m
SEC	Best Prof. judgment	NA	NA	Multiple Life Stages	Pool Habitat	LWD Freq. (BFW 10-100)	<1/100m	1-1.3/100m	1.3-4/100m	>4/100m
NMFS	CDF CWHR	>50%	Good	Multiple Life Stages	Riparian Veg.	Species Composition	<25%	25-50%	>50%	Historical Conditions
NMFS	CDF CWHR	68%	Good	Multiple Life Stages	Riparian Veg.	DBH	<39% Class 5 and 6	40-54%	55-69%	>69%
SEC	CDFG HAB 8	78%	Fair	Multiple Life Stages	Riparian Veg.	Canopy Cover	<75 % avg. over IP-km	75-85%	85-95%	>95%
NMFS	CDF THP Dataset	4 mi/sq.mi.	Poor	Multiple Life Stages	Sediment Transport	Road Density	>3 miles/sq. mile	3 to 2.5	2.5 to 1.6	<1.6
NMFS	CDF THP Dataset	3.2 mi/sq.mi.	Poor	Multiple Life Stages	Sediment Transport	Road density 100	>1 miles/sq. mile	1-0.5	0.5-0.1	<0.1
NMFS	Many Sources	Fair	Fair	Multiple Life Stages	Water Quality	Toxicity	Acute	Sublethal or Chronic	No Acute or Chronic	No evidence of toxins or Contaminants
NMFS	Best Prof. judgment	1-20 per IP-km	Fair	Spawning Adults	Viability	Adult Density	<1 per IP-km	1-20 per IP-km	20-40 per IP-km	>40 per IP-km
NMFS	Best Prof. judgment	<0.2 fish/m ²	Poor	Summer Rearing	Viability	Juvenile Density	<0.2 fish/m ²	0.2-0.5 fish/m ²	0.5-1.0 fish/m ²	>1.0 fish/m ²
NMFS	Best Prof. judgment	35-50%	Good	Summer Rearing	Viability	Juvenile Distribution	<20% IP-km occupied	20-34%	35-50%	>50%

See Appendix C for a full description of the analysis methods for the Viability Table Reports

* = watershed specific numbers

** = Ratings defined by the distribution of results

San Vicente Creek Threats Across Targets		Spawning Adults	Eggs	Summer Rearing Juveniles	Winter Rearing Juveniles	Smolts	Multiple Life Stages			Overall Threat Rank
Project-specific threats		1	2	3	4	5	6	7	8	
1	Mining	Medium	High	High	High	Very High	Medium			Very High
2	Roads and Railroads	Low	Medium	Medium	High	Very High	High			High
3	Droughts	Medium	Medium	Very High	Medium	High	Medium			High
4	Fire and Fuel Management	Medium	High	High	Medium	High	Medium			High
5	Climate Change	Medium	Medium	High	Medium	High	Medium			High
6	Water Diversion and Impoundment	Low	Medium	Medium	Medium	High	Medium			Medium
7	Storms and Flooding	Medium	Medium	Medium	Medium	Medium	Medium			Medium
8	Disease, Predation, and Competition	Low	-	High	-	Low	-			Medium
9	Agricultural Practices	Medium	Low	Medium	Medium	Medium	Medium			Medium
10	Logging and Wood Harvesting	Medium	Medium	Medium	Medium	Low	Medium			Medium
11	Recreational Areas and Activities	Medium	Medium	Low	Medium	Medium	Medium			Medium
12	Residential and Commercial Development	Medium	Low	Medium	Medium	Medium	Medium			Medium
13	Channel Modification	Medium	Low	Medium	Medium	Low	Medium			Medium
14	Livestock Farming and Ranching	Low	Low	Medium	Medium	Low	Medium			Medium
15	Fishing and Collecting	Low	-	Medium	Low	Low	-			Low
16	Hatcheries and Aquaculture	-	-	-	Low	-	Low			Low
Threat Status for Targets and Project		High	High	Very High	High	Very High	High	-	-	Very High

San Vicente Creek (Santa Cruz Mountains) Threats and Associated Recovery Actions

Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs (\$K)					Entire Duration	Comments
							FY1	FY2	FY3	FY4	FY5		
SVC-A-2.1	Objective	Floodplain	Improve over-winter survival by increasing the frequency and functionality of off-channel habitats.										
SVC-A-2.1.1	Recovery Action	Floodplain	Create flood refuge habitat, such as hydrologically connected floodplains with riparian forest, or remove or setback levees, and use streamway concept where appropriate.										
SVC-A-2.1.1.1	Action Step	Floodplain	Target habitat restoration and enhancement that will function between winter base flow and flood stage.	1	10	Alnus Ecological, BLM, California Coastal Conservancy, CDFG, NOAA RC, Santa Cruz RCD						0	Long term monitoring and evaluation are essential to ensure long-term application of the over wintering pilot program in the San Vicente watershed. Monitoring should include a biological component regarding coho occupancy and utilization. Costs are estimated under viability
SVC-A-2.1.1.2	Action Step	Floodplain	Identify an entity to ensure off channel habitats are adequately monitored and maintained. Develop landowner agreements.	1	2	BLM, California Coastal Conservancy, CDFG, CEMEX, NMFS PRD, NOAA RC, Private Consultants, Santa Cruz RCD	5.00	5.00				10	Cost are reduced due to generally cooperative landowners in the San Vicente Watershed. Most costs are likely associated with staff time.
SVC-A-2.1.2	Recovery Action	Floodplain	Counties and municipalities should adopt a policy of "managed retreat" (removal of problematic infrastructure and replacement with native vegetation or flood tolerant land uses) for areas highly susceptible to, or previously damaged from, flooding.										
SVC-A-2.1.2.1	Action Step	Floodplain	Evaluate lower San Vicente watershed for infrastructure at high risk.	2	2	Alnus Ecological, BLM, California Coastal Conservancy, CEMEX, FEMA, Private Landowners, Santa Cruz RCD, USACE	5.00	5.00				10	Many of these areas should already be identified on FEMA maps and hydraulic analysis on San Vicente Route 1 and railroad bores by Balance Hydrologics in 2008.
SVC-A-2.1.2.2	Action Step	Floodplain	Institutionalize programs to purchase land/conservation easements to encourage the re-establishment and/or enhancement of natural riparian communities.	2	60	BLM, California Coastal Conservancy, FEMA, Santa Cruz County, Santa Cruz County Land Trust, Santa Cruz RCD, USACE						TBD	Costs are likely relatively low due to relative low density within the watershed. Costs are presumed to be for willing landowners only.
SVC-A-2.1.3	Recovery Action	Floodplain	Encourage Bureau of Land Management to minimize land management activities within the 100 year floodplain of San Vicente Creek that may impair floodplain connectivity.	2	60	BLM, NMFS						0	This recovery plan should serve as an appropriate tool to encourage BLM to minimize impacts to floodplain areas.
SVC-A-3.1	Objective	Hydrology	Improve survival at all life stages by restoring the historical spatial and temporal pattern of surface flows throughout spawning, rearing, and migration areas.										
SVC-A-3.1.1	Recovery Action	Hydrology	Work with SWRCB and landowners to improve over summer survival of juveniles by re-establishing summer baseflows (from July 1 to October 1) in rearing reaches that are currently impacted by water use.										
SVC-A-3.1.1.1	Action Step	Hydrology	Promote, via technical assistance and/or regulatory action, the reduction of water use affecting the natural hydrograph, development of alternative water sources, and implementation of diversion regimes protective of the natural hydrograph.	2	20	BLM, California Coastal Conservancy, CDFG, CEMEX, NMFS, Santa Cruz County, Santa Cruz RCD						TBD	Additional information under Water Diversions and Impoundment.
SVC-A-3.1.2	Recovery Action	Hydrology	Institutionalize programs to purchase easements on water rights to encourage the maintenance of surface flows.										

San Vicente Creek (Santa Cruz Mountains) Threats and Associated Recovery Actions

Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs (\$K)					Entire Duration	Comments
							FY1	FY2	FY3	FY4	FY5		
SVC-A-3.1.2.1	Action Step	Hydrology	Provide incentives to water rights holders willing to convert some or all of their water right to instream use via petition change of use and §1707 (DFG 2004).	2	60	BLM, California Coastal Conservancy, CDFG, CEMEX, NMFS, Santa Cruz RCD, SWRCB						TBD	The price at which water is sold on environmental water markets is determined by negotiations between landowners and purchasing entities. The aggregate fiscal cost of cost of water acquisition will depend on the quantity of water acquired and whether water rights will be permanently transferred or purchased for single periods. Cost will also depend on water rights holders willingness to participate in this program. Cost cannot be determined at this time.
SVC-A-6.1	Objective	Pool Habitat	Improve summer rearing, winter rearing, and smolt survival by increasing instream channel complexity in potential rearing and migration reaches. Additionally, improve egg survival by reducing redd scour in streams characterized by high bedload mobility.										
SVC-A-6.1.1	Recovery Action	Pool Habitat	Encourage the development and implementation of large woody debris supplementation programs to increase stream complexity and gravel retention, and improve pool frequency and depth (DFG 2004).										
SVC-A-6.1.1.1	Action Step	Pool Habitat	Identify historic CCC coho salmon habitats lacking in channel complexity, and promote restoration projects designed to create or restore complex habitat features that provide for localized pool scour, velocity refuge, and cover.	1	2	Alnus Ecological, BLM, California Coastal Conservancy, CDFG, CEMEX, NOAA RC	12.50	12.50				25	Identification is a high priority in order to rapidly initiate restoration actions to increase coho survival and then increase carrying capacity in the San Vicente watershed.
SVC-A-6.1.1.2	Action Step	Pool Habitat	Incorporate large woody material into stream bank protection projects, where appropriate. Do not use aqua logs (cylindrical concrete rip rap).	3	60	BLM, California Coastal Conservancy, CDFG, CEMEX, NMFS PRD, NOAA RC, Private Consultants, Santa Cruz County, Santa Cruz RCD, USACE						0	Costs should be minimal as this recommendation applies to modification of future actions and practices in the watershed.
SVC-A-6.1.1.3	Action Step	Pool Habitat	Install properly sized large woody debris to appropriate viability table targets.	1	10	BLM, California Coastal Conservancy, CDFG, CEMEX, FEMA, NOAA RC, Santa Cruz RCD	80.00	80.00	80.00	80.00	80.00	800	Most LWD structures will need some engineering design and will need to be secured to minimize concerns due to downstream infrastructure including the Highway 1 and Railroad bores. Impacts to watersurface elevations per FEMA concerns may also be required.
SVC-A-6.1.2	Recovery Action	Pool Habitat	Encourage retention of existing large woody debris to maintain current stream complexity, pool frequency, and depth.	1	60	Alnus Ecological, BLM, California Coastal Conservancy, CalTrans, CDFG, CEMEX, FEMA, NMFS, Private Consultants, Private Landowners, Railroad, RWQCB, Santa Cruz RCD						0	Resource agency personnel should make this a priority and convey this information to land owners and land managers as long as coho (and steelhead) are listed in the San Vicente watershed.
SVC-A-8.1	Objective	Sediment	Improve habitat conditions at multiple life stages by reducing sediment inputs to the stream at the watershed scale.										
SVC-A-8.1.1	Recovery Action	Sediment	Re-establish natural sediment delivery processes by assessing sediment delivery sources at the sub-watershed scale and prioritizing sediment reduction activities.										

San Vicente Creek (Santa Cruz Mountains) Threats and Associated Recovery Actions

Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs (\$K)					Entire Duration	Comments
							FY1	FY2	FY3	FY4	FY5		
SVC-A-8.1.1.1	Action Step	Sediment	NMFS and other stakeholders will work with RCD, BLM, CEMEX, NRCS, and others to encourage hiring of consultants to conduct road assessments.	2	5	BLM, California Coastal Conservancy, CalTrans, CDFG, CEMEX, NOAA RC, NRCS, Santa Cruz County Department of Public Works, Santa Cruz RCD						TBD	Costs are estimated under Roads section.
SVC-A-8.1.2	Recovery Action	Sediment	Address sediment and runoff sources from road networks and other actions that deliver sediment and runoff to stream channels.										
SVC-A-8.1.2.1	Action Step	Sediment	Locations for sediment catchment basins should be identified, developed and maintained, where appropriate.	2	10	BLM, CalFire, CalTrans, CEMEX, Santa Cruz County Department of Public Works						TBD	Costs are estimated in Roads section.
SVC-A-8.1.2.2	Action Step	Sediment	Restoration projects that upgrade or decommission high risk roads in Core areas should be considered an extremely high priority for funding (e.g., PCSRF).	2	15	BLM, CalFire, CalTrans, CEMEX, Santa Cruz County Department of Public Works						TBD	Costs can be estimated following completion of a road assessment.
SVC-A-8.1.2.3	Action Step	Sediment	Decommission riparian road systems and/or upgrade roads (and skid trails on forestlands) that deliver sediment into adjacent watercourses (DFG 2004).	2	15	BLM, CalFire, CEMEX, RWQCB, Santa Cruz County Department of Public Works, Santa Cruz RCD						TBD	Costs can be estimated following completion of road assessments.
SVC-A-8.1.3	Recovery Action	Sediment	Work with landowners to assess the effectiveness of erosion control measures throughout the winter period.										
SVC-A-8.1.3.1	Action Step	Sediment	Permitting agencies (State, Federal, and local landowners) should evaluate all authorized erosion control measures during the winter period.	3	60	CalFire, CDFG, NMFS PRD, RWQCB, Santa Cruz County						0	Costs should be considered a standard business practice for all regulatory agencies.
SVC-A-9.1	Objective	Viability	Develop and implement a monitoring program to evaluate the performance of recovery efforts.										
SVC-A-9.1.1	Recovery Action	Viability	Measure or estimate response of key habitat attributes to recovery efforts across the watershed.										
SVC-A-9.1.1.1	Action Step	Viability	Develop standardized watershed assessments within sub-watersheds to define limiting factors specific to those areas. Encourage all major landowners to develop similar assessment methods.	3	60	BLM, CalFire, CDFG, CEMEX, NOAA RC, Santa Cruz RCD						TBD	
SVC-A-9.1.1.2	Action Step	Viability	To better understand changes in sedimentation, monitoring in the basin should include: longitudinal profiles, cross-sections, V*, LWD volume and distribution, and embeddedness.	3	60	Alnus Ecological, BLM, CalFire, California Coastal Conservancy, CDFG, CEMEX, NOAA RC, Santa Cruz RCD						TBD	
SVC-A-9.1.2	Recovery Action	Viability	Monitor population status for response to recovery actions.										
SVC-A-9.1.2.1	Action Step	Viability	Monitor population response in off-channel habitats compared to instream habitat, similar to work conducted by Environmental Science Associates et al. (2004).	1	6	Alnus Ecological, BLM, California Coastal Conservancy, CDFG, NOAA RC, Private Consultants	58.33	58.33	58.33	58.33	58.33	350	Monitoring is essential for the stream restoration actions in San Vicente in order to evaluate their effectiveness and to allow adaptive management based on predictions of population response. Monitoring should include smolt outmigration estimates from San Vicente pond similar to the efforts of ESA (ESA 2003).

San Vicente Creek (Santa Cruz Mountains) Threats and Associated Recovery Actions

Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs (\$K)					Entire Duration	Comments
							FY1	FY2	FY3	FY4	FY5		
SVC-A-9.1.2.2	Action Step	Viability	Conduct periodic surveys of adult abundance.	2	9	BLM, CDFG, CEMEX, NMFS, NOAA SWFSC, Santa Cruz County Fish and Wildlife Advisory Board	13.33	13.33	13.33	13.33	13.33	120	Surveys should assess a minimum of three cohort. Although a Dependent watershed, San Vicente has recently reestablished its coho run and is a watershed where significant instream restoration actions have occurred and more are planned in the near future. Therefore, surveys of adult abundance (possibly through redd counts using the methods of Gallagher - DFG) could provide an index one of the last remaining coho populations in the Santa Cruz Mountains Diversity stratum.
SVC-A-10.1	Objective	Water Quality	Improve summer rearing survival by reducing instream temperatures in potential rearing reaches. See also strategies for restoring and enhancing riparian vegetation.										
SVC-A-10.1.1	Recovery Action	Water Quality	Implement actions to maintain and restore water temperatures to meet habitat requirements for CCC coho salmon in specific streams (DFG 2004).										
SVC-A-10.1.1.1	Action Step	Water Quality	Plant native vegetation to promote streamside shade.	3	15	Alnus Ecological, CEMEX, NRCS, Private Landowners, Santa Cruz RCD	0.67	0.67	0.67	0.67	0.67	10	Early focus should be placed in lower watershed - particularly those areas with invasive vegetation that affects streamside canopy. Costs will vary depending on revegetation methods and exotic vegetation removal methods.
SVC-A-10.1.1.2	Action Step	Water Quality	Increase summer baseflows in rearing reaches that are currently impacted by water use.	2	60	BLM, CDFG, CEMEX, NMFS HCD, SWRCB						TBD	Additional information is provided in Water Diversion
SVC-A-14.1	Objective	Disease, Predation, and Competition	Determine modes and/or methods of transport of all significant salmonid pathogens and develop appropriate minimization and avoidance measures.										
SVC-A-14.1.1	Recovery Action	Disease, Predation, and Competition	Evaluate impacts of fish disease (e.g., black spot) to the San Vicente population.	2	6	BLM, CDFG, NOAA RC, Private Consultants, Santa Cruz RCD	8.33	8.33	8.33	8.33	8.33	50	Monitoring should include an assessment of adult return ratios. Cost should be part of the overall monitoring assessment costs discussed under Viability. This cost would be due to additional expenses incurred.
SVC-A-15.1	Objective	Droughts	Prepare contingency plans to ensure persistence of the San Vicente population during droughts.										
SVC-A-15.1.1	Recovery Action	Droughts	Coordinate efforts among landowners and regulatory agencies to ensure adequate flows are maintained in San Vicente Creek.										
SVC-A-15.1.1.1	Action Step	Droughts	Work with DFG, Counties, other agencies, and knowledgeable biologists to develop emergency rules and adopt implementation agreements.	2	60	BLM, CalFire, CDFG, CEMEX, NMFS HCD, NMFS OLE, NMFS PRD, Private Landowners, Santa Cruz County, Santa Cruz County Fish and Wildlife Advisory Board, Santa Cruz RCD						TBD	
SVC-A-15.1.1.2	Action Step	Droughts	Work with CEMEX to ensure adequate and proper consideration is given to fish needs. Develop agreements, which will minimize water-use conflicts and impacts on fish and wildlife resources during drought conditions.	2	60	BLM, CEMEX, NMFS HCD, NMFS PRD, SWRCB						TBD	Costs cannot be determined until a water budget for San Vicente is conducted.
SVC-A-15.1.1.3	Action Step	Droughts	Evaluate impact of water diversions in the Mill Creek watershed.	2	5	BLM, CDFG, NMFS HCD, SWRCB						TBD	
SVC-A-16.1	Objective	Fire and Fuels Management	Develop measures protective of salmonids during fire suppression activities.										
SVC-A-16.1.1	Recovery Action	Fire and Fuels Management	Establish fire contingency plan developed by experts from CalFire, local fire districts, Santa Cruz RCD, and regulatory agencies with expertise in fisheries issues.										

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Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs (\$K)					Entire Duration	Comments
							FY1	FY2	FY3	FY4	FY5		
SVC-A-16.1.1.1	Action Step	Fire and Fuels Management	Encourage CalFire to provide plan to all non-County fire fighters when providing fire fighting assistance in the San Vicente Creek watershed (and all other watersheds in the County).	1	5	BLM, CalFire						0	The plan should provide information on accepted procedures for protecting fish populations and critical habitat during pre-planning, initial attack, prolonged attack and rehabilitation phases of fire control efforts.
SVC-A-16.1.1.2	Action Step	Fire and Fuels Management	In the event of a wildfire, we recommend CalFire Resource Advisors contact the resource agencies for ESA consultation (or technical assistance) about the incident. The resource agencies can provide guidance regarding critical resources in the area that may be affected by fire fighting actions.	2	60	BLM, CalFire						0	Guidance could include informing CalFire of sensitive biological resources in the watershed as well as recommendations regarding watersource locations (e.g., picking up water from areas other than the lower San Vicente pond when using helicopters for water drops).
SVC-A-16.1.1.3	Action Step	Fire and Fuels Management	Implement sedimentation reduction techniques in concert with prescribed fire techniques to minimize sediment impacts to various coho salmon life stages.	1	60	CalFire						0	This recommendation should be considered a standard practice.
SVC-A-16.1.1.4	Action Step	Fire and Fuels Management	Immediately implement appropriate sediment control measures following completion of fire suppression while fire fighters and fire fighting equipment are on site.	1	60	BLM, CalFire						0	This recommendation will result in a net cost savings.
SVC-A-16.1.1.5	Action Step	Fire and Fuels Management	Reduce erosion from fire prevention or suppression activities by maintaining existing natural topography to the extent possible.	1	60	BLM, CalFire						0	Implementing erosion control measures when constructing firebreaks (if possible) or shortly thereafter will likely result in a net cost savings. It is much more financially efficient to implement these measures while the fire crews are present rather than months later after the fire is out.
SVC-A-16.1.2	Recovery Action	Fire and Fuels Management	Disseminate NMFS' October 9, 2007, jeopardy biological opinion on the use of fire retardants to local fire fighting agencies and CalFire.										
SVC-A-16.1.2.1	Action Step	Fire and Fuels Management	Avoid use of aerial fire retardants and foams within 300 feet of riparian areas throughout the current range of CCC coho salmon.	2	60	BLM, CalFire						0	This recommendation only applies to situations where lives and structures are not immediately threatened by wildfire.
SVC-A-16.1.2.2	Action Step	Fire and Fuels Management	Develop guidance that directs CalFire and other agencies and organizations using fire retardants to conduct an assessment of site conditions following wildfire where fire retardants have entered waterways, to evaluate the changes to on site water quality and the structure of the biological community.	2	60	BLM, CalFire, CDFG, NMFS, USEPA, USFWS						0	Cost are developed for the Aptos watershed and the guidance could be applied elsewhere.
SVC-A-16.1.2.3	Action Step	Fire and Fuels Management	Use non-toxic retardants. Avoid dropping fire retardant into streams. To the maximum extent feasible, orient air drops so that the drop goes perpendicular to streams as opposed to parallel.	2	60	CalFire						TBD	
SVC-A-16.2	Objective	Fire and Fuels Management	Identify historical fire frequency, intensities and durations and manage fuel loads in a manner consistent with historical parameters.										
SVC-A-16.2.1	Recovery Action	Fire and Fuels Management	Conduct fuel load monitoring and compare the results to estimated historical fuel loads.										
SVC-A-16.2.1.1	Action Step	Fire and Fuels Management	Use managed fire to promote revegetation of species that filter out fine sediment.	3	60	CalFire						TBD	
SVC-A-16.2.1.2	Action Step	Fire and Fuels Management	Review prescribed fire plans to ensure they provide adequate protection for riparian corridors.	2	5	BLM, CalFire, Santa Cruz County						0	Costs are developed for the Aptos watershed. The fire plan could be used in the San Vicente watershed.
SVC-A-16.2.1.3	Action Step	Fire and Fuels Management	Reassess fire risk every ten years.	3	60	BLM, CalFire, CEMEX, Santa Cruz County						TBD	
SVC-A-16.2.1.4	Action Step	Fire and Fuels Management	Work with County planners to define future impacts of proposed urban and infrastructure development on fire suppression and fuel load buildup.	2	10	BLM, CalFire, Santa Cruz County						TBD	Cost for San Vicente watershed should be minor due to the relatively small size of the watershed and the relatively low amount of infrastructure in the watershed.
SVC-A-21.1	Objective	Mining	Minimize adverse effects to water quality resulting from mining operations.										
SVC-A-21.1.1	Recovery Action	Mining	Refine mining operations to reduce erosion and other impacts.										

San Vicente Creek (Santa Cruz Mountains) Threats and Associated Recovery Actions

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SVC-A-21.1.1.1	Action Step	Mining	For all mining locations, saving topsoil preserves the natural growing medium for plants that will be used to revegetate spoils.	2	60	BLM, California Department of Mines and Geology, CEMEX						0	Costs should be minimal and should be part of Reclamation Plan.
SVC-A-21.1.1.2	Action Step	Mining	Tailings, settling ponds, and other attributes of mining should be secured to ensure sediment, toxins, and other deleterious substances do not enter streams through either direct runoff or subsurface flow.	1	60	BLM, CalFire, CDFG, CEMEX						TBD	Costs cannot be determined at this time. An assessment of potential site specific threats is needed in order to evaluate total costs. However, this recommendation is typically a standard business practice for mining operation due to a variety of regulatory requirements.
SVC-A-21.1.1.3	Action Step	Mining	Promote riparian vegetation that remediates toxins, sediment and other deleterious substances when and where necessary.	2	60	BLM, CalFire, California Department of Mines and Geology, CEMEX						TBD	These costs are likely minimal and should be incorporated into Reclamation Plan.
SVC-A-21.1.1.4	Action Step	Mining	Active and future mining areas should be located in areas where operations will not result in any changes to downstream water quality, including changes in turbidity, pH, temperature, and rate of sedimentation.	2	60	BLM, CalFire, California Department of Mines and Geology, CDFG, CEMEX						0	Costs of avoiding environmental impacts should be minimal with proper and conservative planning.
SVC-A-21.1.1.5	Action Step	Mining	All abandoned mining areas should comport to the requirements of the Surface Mine Control and Reclamation Act.	2	60	BLM, California Department of Mines and Geology, CEMEX						TBD	This should be considered a standard business practice. A site specific evaluation is likely needed. Costs of implementing this recommendation should be borne by the quarry operator.
SVC-A-21.1.2	Recovery Action	Mining	Evaluate Mill Creek dam for potential sediment input, fish passage constraints, and upstream habitat attributes.										
SVC-A-21.1.2.1	Action Step	Mining	Remove the dam if no long-term adverse impacts to the downstream fishery are predicted.	2	10	California Department of Mines and Geology, CDFG, CEMEX, NMFS HCD, NOAA RC, Private Consultants, Santa Cruz RCD						TBD	Removing the dam could increase the carrying capacity of the San Vicente coho salmon population. However this action should not move forward until issues regarding adverse affects to downstream survival of coho salmon is evaluated and determined to be insignificant. Removal costs will vary depending on sediment toxicity and quantity in the dam. Costs need to be weighed against quality and quantity of upstream habitat.
SVC-A-21.1.2.2	Action Step	Mining	Install fish passage device if upstream habitat is suitable for spawning and rearing.	2	11	CalFire, California Coastal Conservancy, CDFG, CEMEX, NMFS HCD, NOAA RC, Santa Cruz RCD						TBD	Costs can vary significantly depending on type of passage remediation necessary to ensure passage of all life stages.
SVC-A-24.1	Objective	Roads and Railroads	Initiate dialog with railroad and Caltrans to outline issues associated with railroad and highway crossings on San Vicente Creek, and their effects to CCC coho salmon and their habitats.										
SVC-A-24.1.1	Recovery Action	Roads and Railroads	Discuss the opportunity for railroad and Caltrans to assist in monitoring, retrofitting, and maintaining tunnels in lower San Vicente Creek.										
SVC-A-24.1.1.1	Action Step	Roads and Railroads	Evaluate impact of Railroad and Caltrans bore to fish passage during high flow events.	2	2	Alnus Ecological, CalTrans, Railroad, USACE	5.00	5.00				10	Confirmation of findings from Balance Hydrologics (related to the railroad and CalTrans bores) is likely the only significant cost remaining in this evaluation.
SVC-A-24.1.1.2	Action Step	Roads and Railroads	Install baffles in the tunnel bore diameter as necessary.	3	20	CalTrans, Railroad, USACE						TBD	Evaluation should not occur unless the bore diameter is also increased.
SVC-A-24.2	Objective	Roads and Railroads	Conduct actions that hydrologically disconnect roads in Core areas within five years (from 2010).										
SVC-A-24.2.1	Recovery Action	Roads and Railroads	Address sediment and runoff sources from road networks and other actions that deliver sediment and runoff to stream channels.										

San Vicente Creek (Santa Cruz Mountains) Threats and Associated Recovery Actions

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SVC-A-24.2.1.1	Action Step	Roads and Railroads	Implement a sediment reduction program for private roads.	2	60	BLM, CalFire, CalTrans, CEMEX, NRCS, Private Landowners, Public, Santa Cruz County Department of Public Works, USACE						TBD	Costs will vary depending on quantity of sediment delivery and landowner cooperation. Costs cannot be evaluated until a road assessment is conducted.
SVC-A-24.2.1.2	Action Step	Roads and Railroads	Develop a road database using standardized methods. The methods should document all roads features, apply erosion rates, and compile information into a GIS database.	2	60	BLM, California Department of Mines and Geology, CalTrans, CEMEX, Private Landowners, Santa Cruz County Department of Public Works, Santa Cruz RCD						TBD	Most of the necessary infrastructure is believed to be in place for such a database. Maintenance costs and input of site specific information cannot be estimated at this time.
SVC-A-24.2.1.3	Action Step	Roads and Railroads	Develop a private road improvement fund to share costs and encourage private road associations to upgrade poorly constructed or improperly located roads.	2	60	CEMEX, FEMA, Private Landowners, Public, Santa Cruz County Department of Public Works, Santa Cruz RCD						TBD	Cost will vary depending on County/FEMA willingness to implement this program.
SVC-A-24.2.1.4	Action Step	Roads and Railroads	Design and implement a program of BMPs for road maintenance on private roads similar to the proposed program for public roads.	2	60	BLM, CalFire, CalTrans, CEMEX, NMFS PRD, Santa Cruz County Department of Public Works, Santa Cruz RCD						TBD	Cost of design should be minimal because many standards are already developed and readily accessible. Implementation cost may be significant depending on the magnitude of problems in the watershed, landowner cooperation, and cost sharing questions. These issues cannot be resolved or estimated without a sediment budget/roads assessment.
SVC-A-24.2.2	Recovery Action	Roads and Railroads	Develop a Road Sediment Reduction Plan that prioritizes sites and outlines implementation and a timeline of necessary actions. Begin with a road survey focused on inner gorge roads followed by roads in other settings.										
SVC-A-24.2.2.1	Action Step	Roads and Railroads	Improve enforcement of Erosion Control Ordinance for private roads. The current Santa Cruz Erosion Control Ordinance has provisions requiring the responsible parties to repair and alleviate erosion problems that are deemed severe. Santa Cruz Planning should create new erosion control staff positions to help coordinate the County's cooperative efforts, but also to conduct inspections and enforcement actions as necessary.	1	5	Santa Cruz County	8.00	8.00	8.00	8.00	8.00	40	This cost will likely require additional staffing. The number of visits per year to this important watershed will likely be minimal due to the small size of the watershed. Additional costs will be necessary to meet the obligations in the ordinance in other watersheds and this expense could be spread out across the County. This cost is estimated for San Vicente only for five years.
SVC-A-24.2.2.2	Action Step	Roads and Railroads	Licensed engineering geologists should review and approve grading on inner gorge slopes.	2	5	CalFire, California Department of Mines and Geology, CalTrans, Santa Cruz County	2.00	2.00	2.00	2.00	2.00	10	The cost estimate is low because NMFS believes relatively little grading will occur due to the small size of the watershed.
SVC-A-24.2.2.3	Action Step	Roads and Railroads	Evaluate and remove roadside berms that lead to increased runoff velocities and result in increased sediment discharge.	2	10	BLM, CalTrans, CEMEX, Santa Cruz County Department of Public Works, Santa Cruz RCD						TBD	Evaluation costs should be absorbed into the watershed wide roads/sediment sources assessments. Road size berms are a common feature on roads in Santa Cruz County.
SVC-A-24.2.2.4	Action Step	Roads and Railroads	Install sediment traps for pretreatment, and a modified culvert system that can act as an efficient detention system.	2	20	BLM, CEMEX, NOAA RC, NRCS, Santa Cruz RCD						TBD	Costs cannot be estimated until a watershed assessment is completed.

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SVC-A-24.2.2.5	Action Step	Roads and Railroads	Establish adequate spoils storage sites throughout the watershed so that material from landslides and road maintenance can be stored safely away from coho streams. Coordinate these efforts with all landowners in the watershed, CalTrans, and county road maintenance staff as appropriate.	3	60	BLM, CalFire, CalTrans, CEMEX, Santa Cruz County Department of Public Works						0	These costs should be minimal and costs could be reduced with close coordination between all the major landowners in the watershed.
SVC-A-24.2.3	Recovery Action	Roads and Railroads	Limit winter use of unsurfaced roads and recreational trails by unauthorized and impacting uses to decrease fine sediment loads.										
SVC-A-24.2.3.1	Action Step	Roads and Railroads	Conduct annual inspections of all roads prior to winter. Correct conditions that are likely to deliver sediment to streams. Hydrologically disconnect roads.	1	60	BLM, CalFire, CalTrans, CEMEX, Private Landowners, Santa Cruz County Department of Public Works						0	This should be considered a standard business practice for all landowners and managers in the watershed.
SVC-A-24.2.4	Recovery Action	Roads and Railroads	Use available best management practices for road construction, maintenance, management and decommissioning (e.g. Hagans & Weaver, 1994; Sommarstrom, 2002; Oregon Department of Transportation, 1999).	1	60	BLM, CalTrans, CEMEX, Private Landowners, Santa Cruz County Department of Public Works, Santa Cruz RCD						0	These BMPs should be incorporated into all road management practices and may result in long term cost savings due to lower maintenance and repair costs.
SVC-A-24.2.4.1	Action Step	Roads and Railroads	Encourage all permanent and year-round access roads beyond the THP parcel be surfaced after harvest completion with base rock and road gravel, asphalt, or chipseal, as appropriate.	2	30	CalFire, Private Landowners							
SVC-A-24.2.5	Recovery Action	Roads and Railroads	Conduct a road survey beginning with inner gorge roads in sandy soils followed by roads in other settings.	2	5	BLM, CalFire, California Coastal Conservancy, CDFG, CEMEX, NMFS PRD, NOAA RC, Private Landowners, Public, Santa Cruz County Department of Public Works, Santa Cruz RCD							This is an important action that sets in motion many subsequent actions and costs.
SVC-A-24.3	Objective	Roads and Railroads	Reduce road densities by 10 percent over the next 10 years, prioritizing high risk areas in historical habitats or Core CCC coho salmon watersheds.										
SVC-A-24.3.1	Recovery Action	Roads and Railroads	Decommission riparian road systems and/or upgrade roads (and skid trails on forestlands) that deliver sediment into adjacent watercourses (DFG 2004).	3	30	BLM, CalFire, CalTrans, CEMEX, Private Landowners, Santa Cruz RCD						TBD	Costs cannot be estimated until a watershed wide road assessment/sediment source assessment is conducted.
SVC-A-24.3.2	Recovery Action	Roads and Railroads	Assess and redesign transportation network to minimize road density and maximize transportation efficiency.	3	60	BLM, CalFire, CalTrans, CEMEX, Santa Cruz County Department of Public Works						TBD	Costs cannot be estimated until a watershed wide road assessment/sediment source assessment is conducted. Costs could be significant.
SVC-A-24.3.3	Recovery Action	Roads and Railroads	Establish a moratorium on new road construction within floodplains, riparian areas, unstable soils or other sensitive areas until a watershed specific and/or agency/company specific road management plan is created and implemented.	2	10	BLM, CalFire, CalTrans, CEMEX, Santa Cruz County, Santa Cruz County Department of Public Works						TBD	
SVC-A-24.4	Objective	Roads and Railroads	Conduct outreach and education regarding the adverse effects of roads, and the types of best management practices protective of salmonids.										

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SVC-A-24.4.1	Recovery Action	Roads and Railroads	Continue education of Caltrans, County road engineers, and County maintenance staff regarding watershed processes and the adverse effects of improper road construction and maintenance on salmonids and their habitats.	2	10	BLM, CalTrans, CEMEX, FishNet 4C, NRCS, Santa Cruz RCD	2.00	2.00	2.00	2.00	2.00	20	Costs are an estimate of overall watershed contribution based on an ongoing County-wide program over the next ten years.
SVC-A-24.4.2	Recovery Action	Roads and Railroads	Develop a Salmon Certification Program for road maintenance staff.	2	10	BLM, CalTrans, CEMEX, FishNet 4C, Santa Cruz County Department of Public Works, Santa Cruz RCD						0	Costs should be minimal if existing programs are used.
SVC-A-24.5	Objective	Roads and Railroads	Reduce sediment sources from road networks, maintenance activities, and other actions that deliver sediment to stream channels through improved, or new, laws and policies, and/or enforcement of existing laws and policies.										
SVC-A-24.5.1	Recovery Action	Roads and Railroads	For all rural (unpaved) and seasonal dirt roads apply (at a minimum) the road standards outlined in the California Forest Practice Rules.										
SVC-A-24.5.1.1	Action Step	Roads and Railroads	Encourage BLM and CEMEX to decommission riparian roads. At a minimum, the BLM and CEMEX should avoid stabilizing riparian roads through bank hardening actions along mainstem San Vicente Creek.	2	20	BLM						TBD	A roads assessment is needed in order to evaluate costs.
SVC-A-24.5.1.2	Action Step	Roads and Railroads	Encourage BLM to avoid construction of large scale recreational facilities adjacent to water courses.	2	60	BLM, NMFS, Public, USFWS						0	No cost should result from not building facilities.
SVC-A-26.1	Objective	Water Diversion and Impoundment	Improve and/or enforce current laws and policies to control diversions and water use in order to maintain and restore surface flows.										
SVC-A-26.1.1	Recovery Action	Water Diversion and Impoundment	Avoid and/or minimize the adverse effects of water diversion on CCC coho salmon by establishing a more natural hydrograph, by-pass flows, season of diversion, and off-stream storage (DFG 2004).										
SVC-A-26.1.1.1	Action Step	Water Diversion and Impoundment	Develop and enforce stream flow bypass requirements for diversions on the mainstem San Vicente and Mill creeks (DFG 2004).	2	5	CDFG, CEMEX, NMFS HCD, Santa Cruz County, SWRCB, USFWS	15.00	15.00	15.00	15.00	15.00	75	This cost will require transects and measurements of streamflow in the lower reaches over a multiple year period. Costs may vary depending on gauging requirements per CEMEX 1600 stream diversion requirements.
SVC-A-26.1.1.2	Action Step	Water Diversion and Impoundment	Improve coordination between agencies and others to address season of diversion, off-stream reservoirs, bypass flows protective of coho salmon and their habitats, and avoidance of adverse impacts caused by water diversion (DFG 2004).	2	5	BLM, CalFire, CEMEX, NMFS HCD, SWRCB, USFWS	6.00	6.00	6.00	6.00	6.00	30	
SVC-A-26.1.1.3	Action Step	Water Diversion and Impoundment	Encourage USFWS to initiate consultation with NMFS for CEMEX's red-legged frog HCP regarding diversions from San Vicente Creek and impacts to coho salmon and CCC steelhead.	3	5	CDFG, NMFS, USFWS						0	
SVC-A-26.1.2	Recovery Action	Water Diversion and Impoundment	Improve compliance with existing water resource regulations via monitoring and enforcement.										
SVC-A-26.1.2.1	Action Step	Water Diversion and Impoundment	Establish a comprehensive stream flow evaluation program to determine instream flow needs for coho salmon.	1	10	BLM, CDFG, CEMEX, NMFS HCD, Private Landowners, Public, SWRCB, USFWS						0	Cost are estimated under avoiding adverse effects.
SVC-A-26.1.2.2	Action Step	Water Diversion and Impoundment	Encourage SWRCB to bring illegal water diverters and out-of-compliance diverters into compliance with State law.	1	60	CDFG, NMFS HCD, NMFS OLE, Private Landowners, Public, SWRCB, USFWS						0	

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SVC-A-26.1.3	Recovery Action	Water Diversion and Impoundment	Promote passive diversion devices designed to allow diversion of water only when minimum streamflow requirements are met or exceeded (DFG 2004).	2	10	BLM, CDFG, CEMEX, NMFS HCD, NOAA RC, Private Landowners, SWRCB, USACE, USFWS						TBD	Costs will vary depending on number of diversions and types of existing infrastructure that would need to be upgraded to address this action. This information is currently unavailable.
SVC-A-26.1.4	Recovery Action	Water Diversion and Impoundment	Request that SWRCB review and/or modify water use based on the needs of coho salmon and authorized diverters (DFG 2004).	1	5	CDFG, NMFS, Public, SWRCB, USFWS						0	This is a regulatory requirement of the SWRCB. Particular attention should be directed to the diversion to the pond on CEMEX property occupied by California red legged frogs.
SVC-A-26.2	Objective	Water Diversion and Impoundment	Develop new policies and regulations to provide suitable flow conditions for CCC coho salmon.										
SVC-A-26.2.1	Recovery Action	Water Diversion and Impoundment	Identify and eliminate depletion of summer base flows from unauthorized water uses.										
SVC-A-26.2.1.1	Action Step	Water Diversion and Impoundment	Develop and implement critical flow levels for stream reaches impacted by water diversions.	1	5	BLM, CDFG, CEMEX, Santa Cruz RCD, SWRCB	8.00	8.00	8.00	8.00	8.00	40	
SVC-A-26.2.1.2	Action Step	Water Diversion and Impoundment	Critical flow values should include minimum bypass flow requirements to support upstream adult migration during winter months and juvenile rearing in the summer and fall months.	1	60							0	
SVC-A-26.2.1.3	Action Step	Water Diversion and Impoundment	If predicted flows are below a level considered critical to maintain viable rearing habitat for salmonids, measures to reduce water consumption should be initiated by CEMEX and the community of Davenport through conservation programs.	1	60	CDFG, CDFG Law Enforcement, NMFS OLE, NMFS PRD, SWRCB						TBD	
SVC-A-26.2.1.4	Action Step	Water Diversion and Impoundment	Petition the SWRCB to declare San Vicente Creek fully appropriated during summer and fall months (DFG 2004).	2	5	CDFG, NMFS, Public	1.00	1.00	1.00	1.00	1.00	5	The County of Santa Cruz and the California Coastal Commission stated in their conditional use permits for CEMEX construction of a new kiln in Davenport and in the General Plan that San Vicente Creek is a fully allocated watershed.
SVC-A-26.2.1.5	Action Step	Water Diversion and Impoundment	Determine and monitor 1600 program compliance related to water diversions (DFG 2004).	3	1	CDFG, CDFG Law Enforcement	10.00					10	