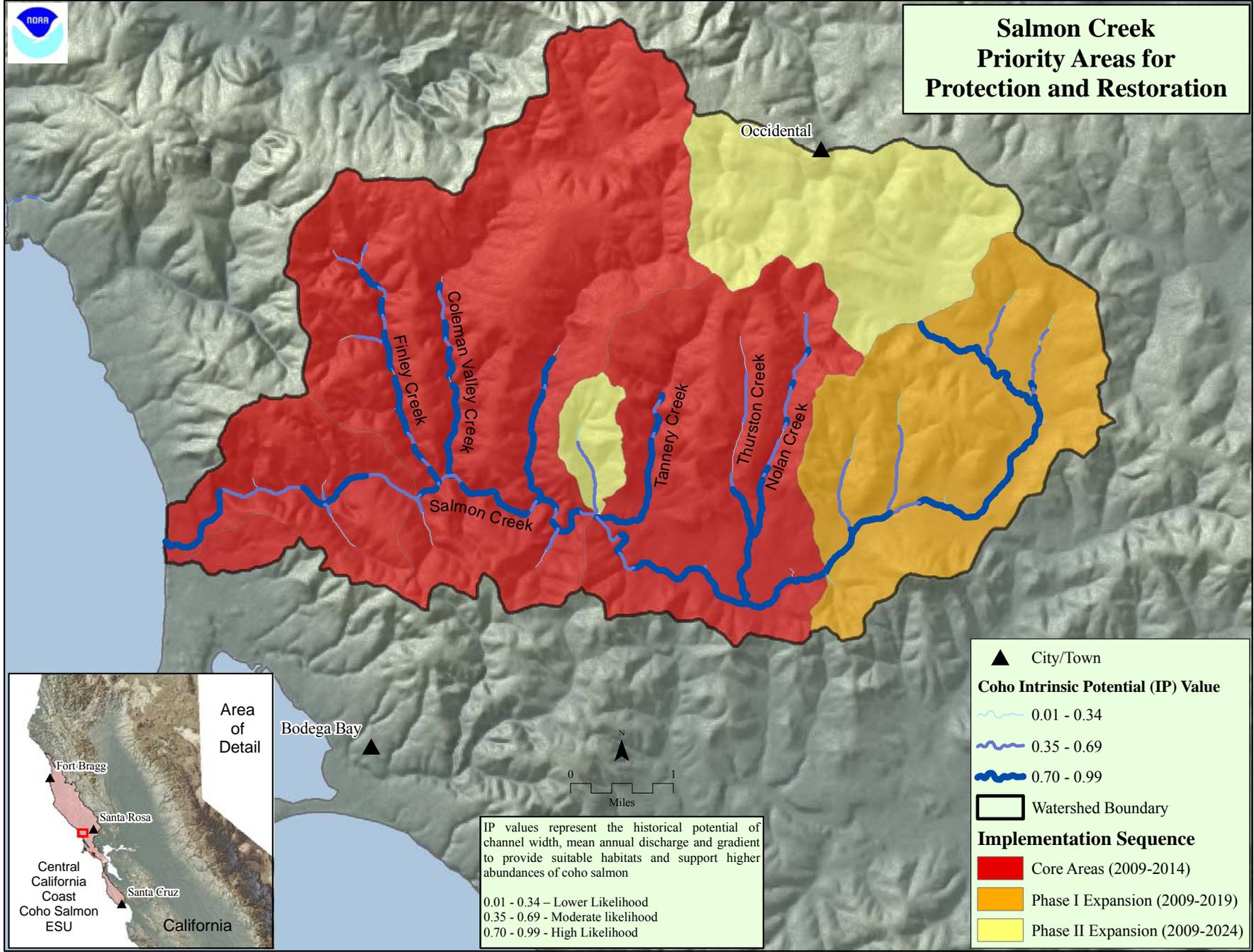




Salmon Creek Priority Areas for Protection and Restoration



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

Analyst	Source	Result	Rating	Target	Habitat Attribute	Indicator	Poor	Fair	Good	Very Good
Flow Panel	Decision Matrix	NA	NA	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	642 m ²	Fair	Spawning Adults	Sediment	Amount of Gravel*	<300 m ²	300-2200 m ²	2200-4200 m ²	>4200 m ²
NMFS	Best Prof. judgment	<5%	Good	Spawning Adults	Viability	Freshwater Harvest	>10% of pop.	5-10%	<5%	
Flow Panel	Decision Matrix	NA	NA	Eggs	Hydrology	Instantaneous Condition	>75 (score)	51-75	35-50	<35
Flow Panel	Decision Matrix	NA	NA	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	NA	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	NA	NA	Summer Rearing	Hydrology	Baseflow	>75 (score)	51-75	35-50	<35
SEC	CDFG HAB 8	21	Poor	Summer Rearing	Pool Habitat	Shelter Rating	<60 avg. rating	60-80	80-100	>100
SEC	CDFG HAB 8	14%	Poor	Summer Rearing	Pool Habitat	Primary Pools	<30% pools by length	30-40%	40-50%	>50%
SEC/NMFS	Many Sources	NA	Fair	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	0.06%	Poor	Winter Rearing	Floodplain	Complex Habitat**	<50% Connected	50-80% connected	>80% connected	
NMFS	NCWAP	Fair	Fair	Smolts	Estuary	Estuary				
Flow Panel	Decision Matrix	58	Fair	Smolts	Hydrology	Passage Flows	>75 (score)	51-75	35-50	<35
SEC	SWRCB	2.4/10 IP-km	Fair	Smolts	Passage	# of Diversions**	>5 / 10 IP km	1.1-5	0.01-1	0
SEC	CDFG HAB 8	21	Poor	Multiple Life Stages	Pool Habitat	Shelter Rating	<60 avg. rating	60-80	80-100	>100
NMFS	Best Prof. judgment	50-80%	Fair	Multiple Life Stages	Floodplain	Floodplain Connectivity	<50%	50-80%	>80%	not defined
NMFS	CDF CWHR	NA	Fair	Multiple Life Stages	Hydrology	Stand Age			>40 years old	
SEC	NLCDB	0.20%	Very Good	Multiple Life Stages	Hydrology	Impervious Surfaces	>12.01% of WS by area	7.01-12%	3.01-7%	0-3%
SEC	FMMP	7.44%	Good	Multiple Life Stages	Land disturbance	Agriculture	>30% of WS by area	10-30%	0.1-10%	<0.1%
NMFS	CDF THP Dataset	0%	Very Good	Multiple Life Stages	Land disturbance	Timber Harvest	>35% of WS by area	25 - 35%	10 - 25%	<10%
SEC	Best Prof. judgment	NA	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	Poor	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	25-50%	Fair	Multiple Life Stages	Riparian Veg.	Species Composition	<25%	25-50%	>50%	Historical Conditions
NMFS	CDF CWHR	40-54%	Fair	Multiple Life Stages	Riparian Veg.	DBH	<39% Class 5 and 6	40-54%	55-69%	>69%
SEC	CDFG HAB 8	75%	Fair	Multiple Life Stages	Riparian Veg.	Canopy Cover	<75 % avg. over IP-km	75-85%	85-95%	>95%
NMFS	CDF THP Dataset	2.9 mi/sq.mi.	Fair	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	4 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	Good	Good	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 per IP-km	Poor	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	<20% IP-km occupied	Poor	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

Salmon 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	Droughts	High	High	High	High	High	High			Very High
2	Storms and Flooding	High	High	High	High	High	High			Very High
3	Channel Modification	High	Medium	High	High	High	High			High
4	Climate Change	High	Medium	High	High	High	High			High
5	Livestock Farming and Ranching	Medium	Low	High	High	High	High			High
6	Water Diversion and Impoundment	Medium	High	High	Medium	High	Medium			High
7	Roads and Railroads	Medium	Low	Medium	Medium	High	Medium			Medium
8	Agricultural Practices	Medium	Medium	Medium	Medium	Medium	Medium			Medium
9	Fire and Fuel Management	Medium	Medium	Medium	Medium	Medium	Medium			Medium
10	Logging and Wood Harvesting	Medium	Medium	Medium	Medium	Medium	Medium			Medium
11	Residential and Commercial Development	Medium	Medium	Medium	Medium	Medium	Medium			Medium
12	Mining	Medium	Low	Medium	Medium	Medium	Medium			Medium
13	Recreational Areas and Activities	Medium	Low	Medium	Medium	Medium	Medium			Medium
14	Hatcheries and Aquaculture	-	-	-	Low	Low	Low			Low
15	Fishing and Collecting	-	-	-	Low	Low	-			Low
16	Disease, Predation, and Competition	-	-	-	-	-	Low			Low
Threat Status for Targets and Project		High	High	Very High	Very High	Very High	Very High	-	-	Very High

Salmon Creek (Coastal) 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		
SaC-A-1.1	Objective	Estuary	Continue restoration efforts on Salmon Creek Estuary to benefit coho salmon during all life phases and seasons.										
SaC-A-1.1.1	Recovery Action	Estuary	Restore and enhance estuary habitat in the watershed.										
SaC-A-1.1.1.1	Action Step	Estuary	Regain as much of the historical capacity and area of the Salmon Creek Estuary as possible.	1	30	California Coastal Conservancy, CDFG, FishNet 4C, NMFS HCD, Private Landowners, RWQCB, Sonoma County, State Parks, USFWS						TBD	Costs and duration are dependent on the specific mechanisms chosen to accomplish the task.
SaC-A-1.1.1.2	Action Step	Estuary	Assess the need to dredge Salmon Creek Estuary to increase capacity of estuarine habitat.	2	10	California Coastal Conservancy, CDFG, NMFS HCD, USACE						TBD	Cost is difficult to ascertain at this time.
SaC-A-1.1.2	Recovery Action	Estuary	Restore and enhance estuary function within the watershed.										
SaC-A-1.1.2.1	Action Step	Estuary	Restore estuary function by reducing fine sediment input from the upper watershed.	1	30	CDFG, Gold Ridge RCD, NMFS, Private Landowners, Sonoma County Water Agency						TBD	
SaC-A-1.1.2.2	Action Step	Estuary	Restore estuary function by increasing in-stream flow in Salmon Creek and tributaries that will provide greater freshwater input into the estuary.	2	30	CDFG, Gold Ridge RCD, NMFS, Private Landowners						tbd	Increasing flow within Salmon Creek will likely entail purchasing water rights upstream. The cost of purchasing water rights is unknown at this time.
SaC-A-1.1.2.3	Action Step	Estuary	Restore estuary function in Salmon Creek Estuary by improving complex habitat features and restoring historical flooding patterns where possible.	2	30	California Coastal Conservancy, CDFG, NMFS HCD, NOAA RC, Sonoma County, USACE, USFWS						TBD	Costs may be significant depending on site conditions and number of devices installed
SaC-A-1.1.3	Recovery Action	Estuary	Restore estuarine habitat and the associated wetlands and sloughs by providing fully functioning habitat (DFG 2004).	2	60	Gold Ridge RCD, Sonoma County						TBD	Costs cannot be calculated at this time
SaC-A-1.2	Objective	Estuary	Monitor the habitat use of various life stages of coho salmon in the Salmon Creek estuary and associated wetlands.	2	30	CDFG, Gold Ridge RCD, NMFS						TBD	
SaC-A-1.3	Objective	Estuary	Monitor the effectiveness of LWD structures and other restoration projects in the estuary	2	30	CDFG, Gold Ridge RCD						TBD	
SaC-A-2.1	Objective	Floodplain	Improve over-winter survival by increasing the frequency and functionality of off-channel habitats.										
SaC-A-2.1.1	Recovery Action	Floodplain	Create flood refuge habitat, such as hydrologically connected floodplains with riparian forest.										
SaC-A-2.1.1.1	Action Step	Floodplain	Delineate reaches possessing both potential winter rearing habitat and floodplain areas.	2	30	California Coastal Conservancy, CDFG, Coastside Land Trust, County of San Mateo, Farm Bureau, Mid Peninsula Open Space District, NMFS HCD, NOAA RC, NRCS, POST, RWQCB, San Mateo RCD, SWRCB, USFWS						TBD	Costs may be significant depending on site conditions and number of devices installed
SaC-A-2.1.1.2	Action Step	Floodplain	Promote restoration projects designed to create or restore alcove, backchannel, ephemeral tributary, or seasonal pond habitats. Focus efforts on lower gradient areas of the mainstem	2	5	CDFG, RWQCB						tbd	

Salmon Creek (Coastal) 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		
SaC-A-2.1.1.3	Action Step	Floodplain	Identify and provide technical support to project applicants.	2	10	CDFG, Gold Ridge RCD, RWQCB						TBD	Costs may be significant depending on site conditions and number of devices installed
SaC-A-2.1.1.4	Action Step	Floodplain	Target habitat restoration and enhancement that will function between winter base flow and flood stage.	2	60	CDFG, Gold Ridge RCD						tbd	
SaC-A-2.1.1.5	Action Step	Floodplain	Support landowners and the Gold Ridge RCD in developing projects to improve channel conditions and restore natural channel geomorphology, including side channels and dense contiguous riparian vegetation (DFG 2004).	3	60	Gold Ridge RCD, Private Landowners						tbd	
SaC-A-2.1.1.6	Action Step	Floodplain	Restore channel function in the lower gradient reaches of the watershed to create off channel habitat.	3	60	CDFG, Gold Ridge RCD, NOAA RC, Private Landowners						tbd	
SaC-A-2.1.2	Recovery Action	Floodplain	Minimize the effect of new development on floodplain function and habitat value.										
SaC-A-2.1.2.1	Action Step	Floodplain	Design new development to allow streams to meander in historical patterns. Protecting riparian zones and their floodplains or channel migration zones averts the need for bank erosion control in most situations.	2	5	CDFG, Gold Ridge RCD, NOAA RC						tbd	
SaC-A-2.1.2.2	Action Step	Floodplain	Avoid new development within riparian zones and the 100 year floodprone zones.	2	30	CDFG, NMFS, Sonoma County						tbd	
SaC-A-3.1	Objective	Hydrology	Improve survival at all life stages by restoring the historical, spatial, and temporal pattern of surface flows.										
SaC-A-3.1.1	Recovery Action	Hydrology	Low in-stream flow should be addressed by increasing summer baseflows during the low rainfall seasons especially in reaches impacted by water diversions and by increasing riparian protection and restoration, erosion control, and employing best management practices that encourage permeability and infiltration. (Gold Ridge Resource Conservation District & Prunuske Chatham, Inc., 2007; DFG 2004).										
SaC-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	60	Gold Ridge RCD, Private Landowners						tbd	
SaC-A-3.1.2	Recovery Action	Hydrology	Patterns of water runoff, including surface and subsurface drainage, should match, to the greatest extent possible, the natural hydrologic pattern for the watershed in timing, quantity, and quality.	2	60	Gold Ridge RCD, Private Consultants, Private Landowners, Sonoma County						TBD	
SaC-A-3.1.3	Recovery Action	Hydrology	Avoid and/or minimize the adverse effects of water diversion on coho salmon by establishing: a more natural hydrograph, by-pass flows, season of diversion, and off-stream storage (BM-HU-04 in DFG 2004).	1	20	Gold Ridge RCD, Private Consultants, Private Landowners, Sonoma County	25.00	25.00	25.00	25.00	25.00	500	
SaC-A-3.1.4	Recovery Action	Hydrology	Support the water conservation training conducted by the Occidental Arts and Ecology Center Water Institute, Gold Ridge RCD, and Salmon Creek Watershed Council.	2	20	Gold Ridge RCD, Private Consultants, Private Landowners, Sonoma County	15.00	15.00	15.00	15.00	15.00	300	
SaC-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.										
SaC-A-6.1.1	Recovery Action	Pool Habitat	Conserve and manage forestlands and riparian corridors to retain shade and provide sources of LWD.										
SaC-A-6.1.1.1	Action Step	Pool Habitat	Promote growth of larger diameter trees where appropriate.	2a	2	CDFG, MMWD, NMFS						0	Cost of initial dialog is expected to be minimal.
SaC-A-6.1.1.2	Action Step	Pool Habitat	Protect existing riparian areas to maintain LWD supply and canopy.	2	20	CDFG, Gold Ridge RCD						tbd	

Salmon Creek (Coastal) 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		
SaC-A-6.1.2	Recovery Action	Pool Habitat	Develop a Large Wood Recruitment Plan that assesses instream wood needs, and sites potentially responsive to wood recruitment or placement, and develop a riparian strategy to ensure long term natural recruitment of wood via large tree retention.										
SaC-A-6.1.2.1	Action Step	Pool Habitat	Allow trees in riparian areas to age, die, and recruit into the stream naturally.	3	60	CDFG, Gold Ridge RCD						tbd	
SaC-A-6.1.2.2	Action Step	Pool Habitat	Encourage landowners to implement restoration projects as part of their ongoing operations in stream reaches where large woody debris is lacking.	2	60	CDFG, Gold Ridge RCD						tbd	
SaC-A-6.1.2.3	Action Step	Pool Habitat	Continue to study the effects of LWD placement and subsequent sheltered pool formation and monitor response of summer and winter rearing juvenile use.	3	5	CDFG						tbd	
SaC-A-6.1.3	Recovery Action	Pool Habitat	Maintain current LWD, boulders, and other structure-providing features to maintain current stream complexity, pool frequency, and depth (DFG 2004).	2	60	Gold Ridge RCD, Private Consultants, Private Landowners, Sonoma County						TBD	
SaC-A-6.1.4	Recovery Action	Pool Habitat	Install LWD, boulders, and other instream features to increase habitat complexity and improve pool frequency and depth (DFG 2004).										
SaC-A-6.1.4.1	Action Step	Pool Habitat	Where feasible, design and engineer pool enhancement structures to increase the number of pools (Gold Ridge Resource Conservation District & Prunuske Chatham, Inc., 2007; DFG 2004).	3	60	CDFG, Gold Ridge RCD, NOAA RC						tbd	
SaC-A-7.1	Objective	Riparian Vegetation	Improve the structure and composition of riparian areas to provide shade, large woody debris input, nutrient input, bank stabilization, and other CCC coho salmon needs.										
SaC-A-7.1.1	Recovery Action	Riparian Vegetation	Increase the canopy along Salmon Creek by planting a succession of native riparian vegetation where shade canopy is not at acceptable levels. Non-anadromous reaches should also be assessed for revegetation as water temperatures throughout are affected from upstream (Gold Ridge Resource Conservation District & Prunuske Chatham, Inc., 2007; DFG 2004).										
SaC-A-7.1.1.1	Action Step	Riparian Vegetation	Encourage the cultivation and availability of locally indigenous riparian plants for use in restoration and bank stabilization (DFG 2004)	2	60	CDFG, Gold Ridge RCD, NRCS, Private Consultants, Private Landowners						tbd	
SaC-A-7.1.2	Recovery Action	Riparian Vegetation	Support landowners and the RCD to restore riparian zones and manage livestock to increase stream protection and soil retention (Gold Ridge Resource Conservation District & Prunuske Chatham, Inc., 2007; DFG 2004).	3	20	Gold Ridge RCD, Private Consultants, Private Landowners						TBD	
SaC-A-7.1.3	Recovery Action	Riparian Vegetation	Assess riparian canopy and impacts of exotic vegetation (e.g., Arundo donax, etc.), prioritize and develop riparian habitat reclamation and enhancement programs (DFG 2004).	3	5	Gold Ridge RCD, Private Consultants, Private Landowners	40.00	40.00	40.00	40.00	40.00	200	
SaC-A-7.1.4	Recovery Action	Riparian Vegetation	Promote bio-engineering solutions as appropriate (e.g. where critical infrastructure is located) for bank hardening projects.	3	20	Gold Ridge RCD, Private Consultants, Private Landowners, Sonoma County						TBD	
SaC-A-7.1.5	Recovery Action	Riparian Vegetation	Promote streamside conservation measures, including conservation easements, setbacks, and riparian buffers (DFG 2004).	2	20	CDFG, Gold Ridge RCD, NMFS, NRCS, Private Consultants, Private Landowners, USFWS						TBD	

Salmon Creek (Coastal) 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		
SaC-CCC-7.1.6	Recovery Action	Riparian Vegetation	Promote the re-vegetation of the native riparian plant community within inset floodplains and riparian corridors to ameliorate instream temperature and provide a source of future large woody debris recruitment.	2	20	California Coastal Conservancy, CDFG, Sonoma County						tbd	
SaC-CCC-7.1.7	Recovery Action	Riparian Vegetation	Manage riparian areas for their site potential composition and structure.	2	30	Farm Bureau, Gold Ridge RCD, NRCS, Private Landowners, Sonoma County						TBD	
SaC-CCC-8.1	Objective	Sediment	Improve habitat conditions at multiple life stages by reducing sediment inputs to the stream at the watershed scale.										
SaC-CCC-8.1.1	Recovery Action	Sediment	Continue to implement erosion control projects that were assessed and inventoried in sediment assessment plans (DFG 2004).	3	60	Gold Ridge RCD, Private Consultants, Private Landowners, Sonoma County						TBD	
SaC-CCC-8.1.2	Recovery Action	Sediment	Re-establish natural sediment delivery processes by assessing sediment delivery sources at the sub-watershed scale and prioritizing sediment reduction activities.	3	60	Gold Ridge RCD, NRCS, Private Consultants, Private Landowners, Sonoma County						TBD	
SaC-CCC-8.1.3	Recovery Action	Sediment	Address sources from slides and gullies that deliver sediment and runoff to stream channels.	3	20	Gold Ridge RCD, NRCS, Private Consultants, Private Landowners, Sonoma County						TBD	
SaC-CCC-9.1	Objective	Viability	Re-establish a naturally reproducing run of coho salmon in appropriate subwatersheds.										
SaC-CCC-9.1.1	Recovery Action	Viability	Continue the operation of the Captive Broodstock Program in Salmon Creek.										
SaC-CCC-9.1.1.1	Action Step	Viability	Fund monitoring actions in Salmon Creek to evaluate success of adult reintroductions towards salmon recovery.	1	10	CDFG						TBD	
SaC-CCC-9.1.1.2	Action Step	Viability	Conduct outreach with landowners to expand broodstock releases within core areas, and remaining extirpated streams within the watershed.	1	2	Gold Ridge RCD						TBD	
SaC-CCC-9.1.2	Recovery Action	Viability	Minimize departure from the genetic profile that historically existed in the population.										
SaC-CCC-9.1.2.1	Action Step	Viability	Evaluate recent adult stocking efforts to guide adult spawner release sources.	2	5	NOAA SWFSC						TBD	
SaC-CCC-9.1.2.2	Action Step	Viability	Annually capture or retain (during rescue efforts) - small numbers of surplus fish from drying streams/habitats in Marin and Sonoma Counties for purposes of broodstock in Russian River, Walker and Salmon Creeks.	1	10	CDFG						tbd	
SaC-CCC-9.1.2.3	Action Step	Viability	Use surplus broodstock to repopulate remaining extirpated streams within the watershed.	1	10	CDFG, NMFS						tbd	
SaC-CCC-9.1.3	Recovery Action	Viability	Continue to rescue juvenile coho salmon with existing permittees that are under an imminent risk of stranding and mortality and relocate to suitable habitat when deemed appropriate by NMFS and CDFG	1	10	CDFG, Gold Ridge RCD, NMFS, Trout Unlimited							Existing operations
SaC-CCC-9.2	Objective	Viability	Conduct periodic, standardized spawning surveys to estimate adult abundance in the watershed. Surveys should include all three cohorts.	1	20	CDFG, Gold Ridge RCD, NMFS	200	200	200	200	200	4,000	
SaC-CCC-9.3	Objective	Viability	Conduct periodic, standardized smolt outmigration surveys to estimate smolt abundance in the watershed. Surveys should occur during the same period as adult spawning surveys.	2	20	CDFG, Gold Ridge RCD, NMFS	400	400	400	400	400	8,000	
SaC-CCC-9.4	Objective	Viability	Monitor the effectiveness and maintenance of watershed restoration projects and augment inventories as needed (DFG 2004).	2	20	CDFG, Gold Ridge RCD, NMFS	50.00	50.00	50.00	50.00	50.00	1,000	

Salmon Creek (Coastal) 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		
SaC-CCC-15.1.1	Recovery Action	Droughts	Work with land owners or public agencies to acquire water that would be utilized to minimize effects of droughts.	2	20	, Gold Ridge RCD, Private Landowners, Sonoma County						TBD	
SaC-CCC-15.1.2	Recovery Action	Droughts	Work with DFG, County of Sonoma, State Parks, municipalities, and knowledgeable biologists to develop emergency rules and adopt implementation agreements.	1	20	, Cities, Sonoma County, State Parks						TBD	
SaC-CCC-15.2	Objective	Droughts	Minimize water use and seek alternatives during droughts.	1	20	, Cities, Private Landowners, Sonoma County						TBD	
SaC-CCC-19.1	Objective	Livestock Farming and Ranching	Reduce the adverse effects of grazing and ranching to water quality.										
SaC-CCC-19.1.1	Recovery Action	Livestock Farming and Ranching	Support grazing practices that minimize impacts to riparian and instream habitat: livestock exclusion, rotational grazing, etc.										
SaC-CCC-19.1.1.1	Action Step	Livestock Farming and Ranching	Provide funding assistance to landowners willing to fence riparian and other sensitive areas (areas prone to erosion) to exclude cattle and sheep. Calf/cow operations should take priority for riparian fencing programs over steer operations.	2	20	Farm Bureau, Gold Ridge RCD, NRCS						TBD	
SaC-CCC-19.1.1.2	Action Step	Livestock Farming and Ranching	To minimize gully initiation, grazing should be kept at relatively low intensities on the steeper slopes in this area.	2	60	Farm Bureau, Gold Ridge RCD, Private Landowners, Sonoma County						TBD	
SaC-CCC-19.1.1.3	Action Step	Livestock Farming and Ranching	Where necessary, establish predetermined stream crossings when herding cattle between pastures.	2	20	Farm Bureau, Gold Ridge RCD, NRCS, Private Landowners						TBD	
SaC-CCC-19.1.2	Recovery Action	Livestock Farming and Ranching	Address sediment and runoff sources from road networks and other actions that deliver sediment and runoff to stream channels.	2	20	Farm Bureau, Gold Ridge RCD, NRCS, Private Landowners						TBD	
SaC-CCC-19.2	Objective	Livestock Farming and Ranching	Locate water sources away from riparian areas.										
SaC-CCC-19.2.1	Recovery Action	Livestock Farming and Ranching	Encourage riparian restoration to regain riparian corridors damaged from livestock and other causes.	2	30	Farm Bureau, Gold Ridge RCD, NRCS, Private Landowners						TBD	
SaC-CCC-19.2.2	Recovery Action	Livestock Farming and Ranching	Increase the use of water storage and catchment systems that collect rainwater in the winter for use during the dry summer and fall seasons.	2	30	Farm Bureau, Gold Ridge RCD, NRCS, Private Landowners						TBD	
SaC-CCC-24.1	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.	2	20	, Private Landowners, Sonoma County						TBD	This is the only road parameter that received a high or very high threat (density of roads in riparian zone)
SaC-CCC-25.1	Objective	Storms and Flooding	Conduct outreach and education regarding how local, city, county, State and Federal planning can put in place mechanisms that provide community resiliency to storms and flooding.										
SaC-CCC-25.1.1	Recovery Action	Storms and Flooding	Agencies should develop large woody debris retention programs and move away from the practice of removing instream large woody debris under high flow "emergencies".	1	20	Cities, FEMA, Sonoma County, Water Agencies						TBD	
SaC-CCC-25.1.2	Recovery Action	Storms and Flooding	Land use zoning should be appropriate to the site and be tolerant to anticipated conditions (e.g., tolerant to frequent flooding).	2	60	Bodega Land Trust, CalFire, Farm Bureau, FEMA, FishNet 4C, Gold Ridge RCD, NRCS, Private Landowners, RWQCB						TBD	Costs will vary significantly depending on site specific conditions and landowner willingness to have roads addressed.

Salmon Creek (Coastal) 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		
SaC-CCC-25.1.3	Recovery Action	Storms and Flooding	Develop Bank Stabilization and Floodplain Guidelines for use by private and public entities.	2	5	CDFG, FEMA, FishNet 4C, Gold Ridge RCD, NMFS, NRCS, Sonoma County, USACE, USFWS	4.00	4.00	4.00	4.00	4.00	20	Existing documents and policies can be used for this recommendation. Costs would increase if a number of site specific conditions and criteria are developed.
SaC-CCC-25.1.4	Recovery Action	Storms and Flooding	Patterns of water runoff, including surface and subsurface drainage, should match, to the greatest extent possible, the natural hydrologic pattern for the watershed in timing, quantity, and quality.	1	60	CalFire, CalTrans, FEMA, Gold Ridge RCD, RWQCB, San Mateo RCD, Sonoma County, USACE						TBD	Costs will vary significantly depending on site specific conditions and landowner willingness to have roads and other infrastructure addressed to improve hydrologic function. As a general recommendation for future development cost may vary depending on existing infrastructure and site specific conditions.
SaC-CCC-25.1.5	Recovery Action	Storms and Flooding	Work with local governments to incorporate protection of CCC coho salmon in any flood management activity (DFG 2004).	2	10	CDFG, Cities, FEMA, Gold Ridge RCD, NMFS, Sonoma County, USACE						0	Outreach and education are ongoing, and additional costs are expected to be minimal.
SaC-CCC-26.1	Objective	Water Diversion and Impoundment	Improve current laws and policies to control diversions and water use in order to maintain and restore surface flows.	1	Ongoing	CDFG, NMFS, RWQCB, SWRCB						TBD	
SaC-CCC-26.2	Objective	Water Diversion and Impoundment	Promote water conservation by the public, water agencies, agriculture, private industry, and the citizenry.										
SaC-CCC-26.2.1	Recovery Action	Water Diversion and Impoundment	Promote off-channel storage to reduce impacts of water diversion (e.g., storage tanks for rural residential users).	2	5	CDFG, Gold Ridge RCD, Private Landowners, RWQCB, Sonoma County						TBD	
SaC-CCC-26.2.2	Recovery Action	Water Diversion and Impoundment	Promote the use of reclaimed water for agricultural or other uses.	2	10	Gold Ridge RCD, Private Landowners, RWQCB, Sonoma County, Sonoma County Water Agency						TBD	
SaC-CCC-26.3	Objective	Water Diversion and Impoundment	Develop new policies and regulations and or enforce existing policies and regulations to provide suitable flow conditions for CCC coho salmon.										
SaC-CCC-26.3.1	Recovery Action	Water Diversion and Impoundment	Avoid and/or minimize the adverse effects of water diversion on CCC coho salmon.										
SaC-CCC-26.3.1.1	Action Step	Water Diversion and Impoundment	Determine and monitor 1600 program compliance related to water diversions (DFG 2004).	2	5	CDFG Law Enforcement, NMFS OLE, SWRCB						TBD	
SaC-CCC-26.3.1.2	Action Step	Water Diversion and Impoundment	Develop and implement regulations for groundwater use.	2	5	RWQCB, Sonoma County, SWRCB						TBD	