BIG SALMON CREEK

Big Salmon Creek

Dependent Population
17.0 Km of Potential Habitat
Coho salmon and steelhead present

Big Salmon Creek drains approximately 13 square miles of the California Coast Range in western Mendocino County. Big Salmon Creek enters the Pacific Ocean about 1 mile south of the community of Albion. About 71 percent of the Big Salmon Creek watershed is redwood coniferous forest and about 16 percent of the watershed area is grassland or shrub land. The upper portions of the watershed consist of an uplifted marine terrace supporting a pygmy forest. The entire Big Salmon Creek watershed has intermediate susceptibility to erosion, after considering slope, precipitation, and the susceptibility of failure of underlying geology. The entire watershed is in private ownership. The dominant land use within the Big Salmon Creek watershed is forestry. The watershed was originally logged in late 1800s, and more or less continually since, with heavy clear cutting in the 1970s and 1980s. Within the past 10 years, about 20 percent of the Big Salmon Creek watershed has been under a timber harvest plan. Housing development within the Big Salmon Creek watershed is moderate – about 270 housing units are present in the watershed.

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Big Salmon Creek
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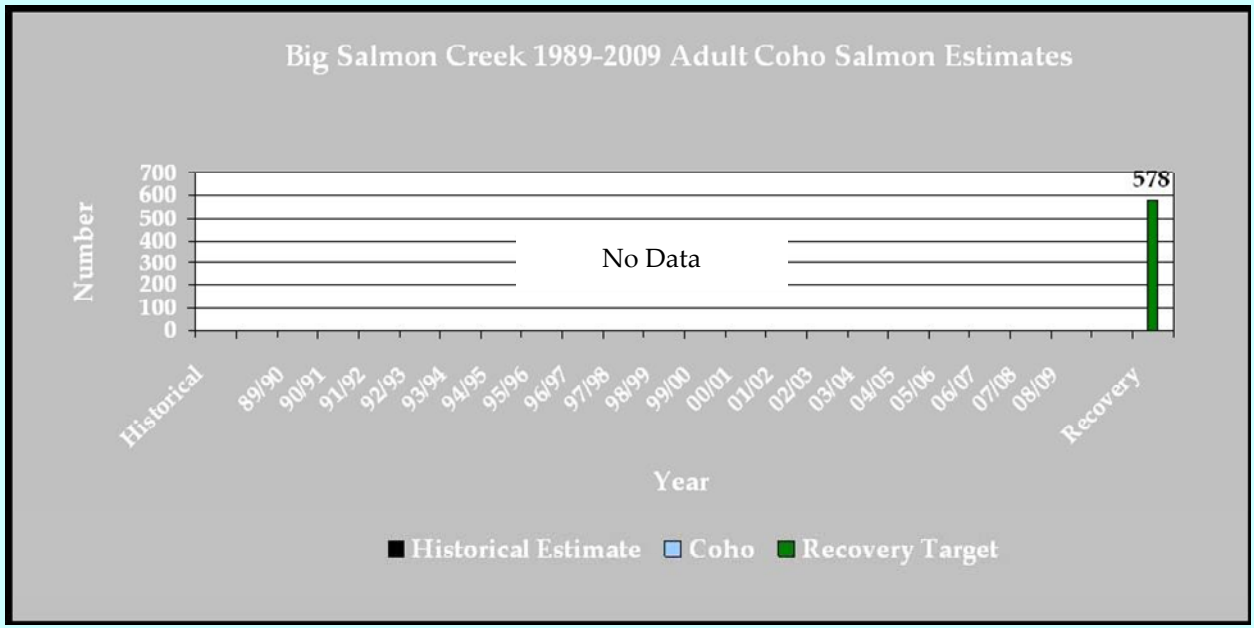
The Watershed at a Glance

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



Big Salmon Creek

Recovery Target: 578 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:

- Logging and Wood Harvest
- Roads and Railroads

Preventing the extinction of coho salmon

means **restoring** many key habitat attributes within the Big Salmon Creek watershed that are in poor condition. The highest priorities for restoration are to:

- Improve gravel quality by reducing sediment inputs
- Decrease rate of timber harvest
- Increase pool habitat complexity
- Increase size of riparian trees
- Increase riparian shading to cool streams
- Reduce riparian and watershed road density
- Decrease sources of sediment

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Big Salmon Creek
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Advancing recovery of coho

salmon in Big Salmon Creek requires these priority **recovery actions:**

- Construct/create alcoves, backwaters in areas where these habitat features are limiting carrying capacity.
- Develop and implement large woody debris supplementation programs to increase stream complexity and gravel retention, and improve pool frequency and depth.
- Discourage home building or other incompatible land use in areas identified as timber production zones.
- Limit winter use of unsurfaced roads and recreational trails by unauthorized individuals and impacting uses to decrease fine sediment loads.

. . . **throughout** the Big Salmon Creek watershed.

Conservation Highlights

- The Conservation Fund recently purchased from Hawthorne Timber Company, 4,350 acre tract of timber and plans on implementing practices to decrease the intensity of harvests, increase the time between harvests and widen riparian buffers.
- Hawthorne Timber Company has undertaken placement of large woody debris structures and sediment remediation projects.

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Big Salmon Creek
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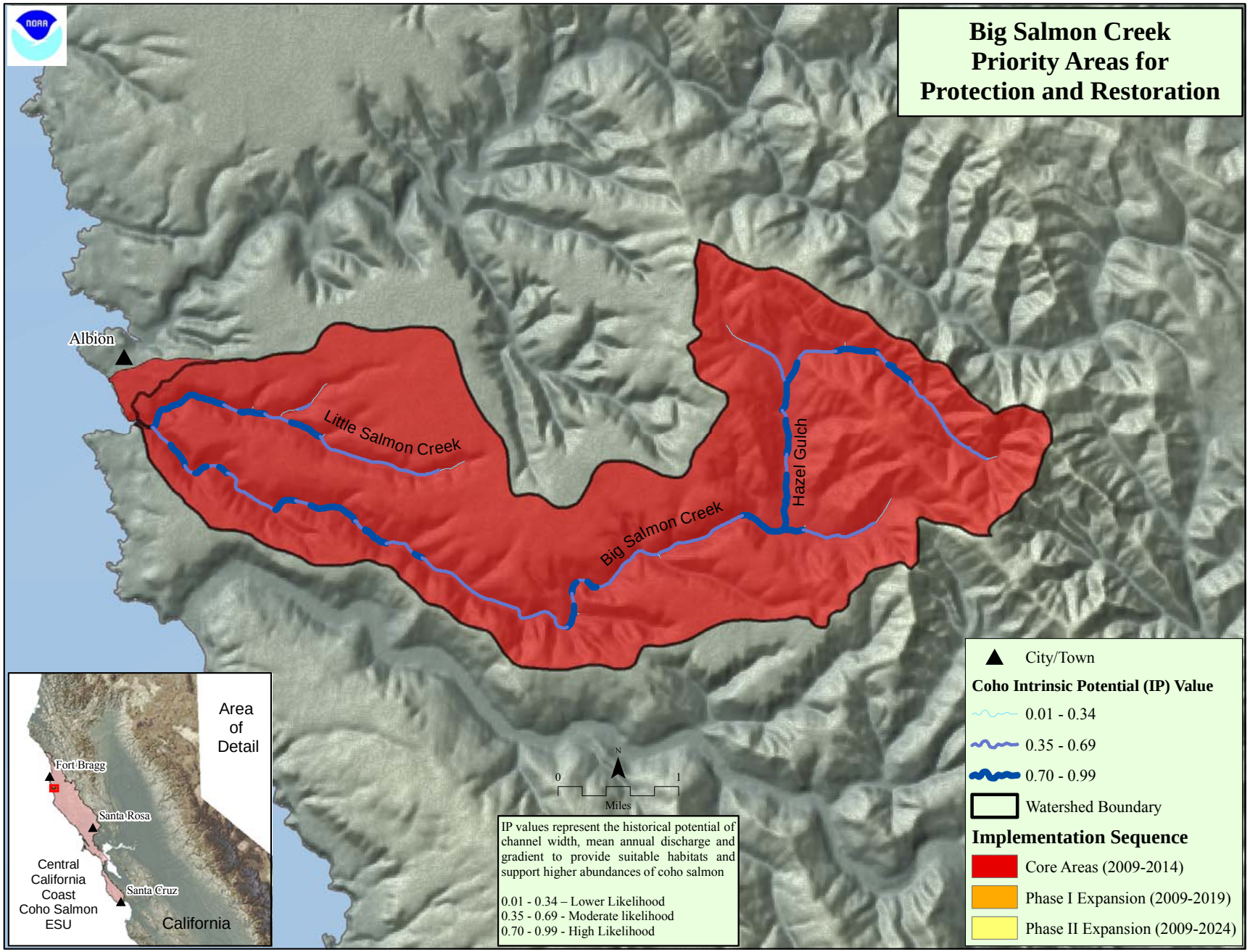
Immediate Needs

√ Identify and address sources of sediment input to streams from roads.
√ Protect existing stream flows.

Recovery Partners

DFG
The Conservation Fund
Hawthorne Timber Company


Big Salmon Creek
Priority Areas for
Protection and Restoration
Albion
Little Salmon Creek
Big Salmon Creek
Hazel Gulch
Area
of
Detail
Fort Bragg
Santa Rosa
Santa Cruz
Central
California
Coast
Coho Salmon
ESU
California
N
0
1
Miles
IP values represent the historical potential of channel width, mean annual discharge and gradient to provide suitable habitats and support higher abundances of coho salmon
0.01 - 0.34 – Lower Likelihood
0.35 - 0.69 - Moderate likelihood
0.70 - 0.99 - High Likelihood
City/Town
Coho Intrinsic Potential (IP) Value
0.01 - 0.34
0.35 - 0.69
0.70 - 0.99
Watershed Boundary
Implementation Sequence
Core Areas (2009-2014)
Phase I Expansion (2009-2019)
Phase II Expansion (2009-2024)

CCC Coho Salmon
Big Salmon Creek
CAP Viability Table Results

Analyst	Source	Result	Rating	Target	Habitat Attribute	Indicator	Poor	Fair	Good	Very Good
Flow Panel	Decision Matrix	<35	Very 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	>90 days	Very Good	Spawning Adults	Passage	Passage at Mouth	<30 days	30-60 days	60-90 days	>90 days
SEC	CDFG HAB 8	100-900 m^2	Fair	Spawning Adults	Sediment	Amount of Gravel*	<100 m^2	100-900 m^2	900-1900 m^2	>1900 m^2
NMFS	Best Prof. judgment	<5%	Good	Spawning Adults	Viability	Freshwater Harvest	>10% of pop.	5-10%	<5%	
Flow Panel	Decision Matrix	<35	Very Good	Eggs	Hydrology	Instantaneous Condition	>75 (score)	51-75	35-50	<35
Flow Panel	Decision Matrix	50	Good	Eggs	Hydrology	Redd Scour	>75 (score)	51-75	35-50	<35
SEC	Many Sources	NA	Poor	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	77%	Good	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	35-50	Good	Summer Rearing	Hydrology	Baseflow	>75 (score)	51-75	35-50	<35
SEC	CDFG HAB 8	34	Poor	Summer Rearing	Pool Habitat	Shelter Rating	<60 avg. rating	60-80	80-100	>100
SEC	CDFG HAB 8	16%	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	34	Poor	Winter Rearing	Floodplain	Complex Habitat**	<50% Connected	50-80% connected	>80% connected	
NMFS	NCWAP	Good	Good	Smolts	Estuary	Estuary				
Flow Panel	Decision Matrix	<35	Very Good	Smolts	Hydrology	Passage Flows	>75 (score)	51-75	35-50	<35
SEC	SWRCB	0.59/10 IP-km	Good	Smolts	Passage	# of Diversions**	>5 / 10 IP km	1.1-5	0.01-1	0
SEC	CDFG HAB 8	34	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	38%	Good	Multiple Life Stages	Hydrology	Stand Age			>40 years old	
SEC	NLCDB	0.26%	Very Good	Multiple Life Stages	Hydrology	Impervious Surfaces	>12.01% of WS by area	7.01-12%	3.01-7%	0-3%
SEC	FMMP	0%	Very Good	Multiple Life Stages	Land disturbance	Agriculture	>30% of WS by area	10-30%	0.1-10%	<0.1%
NMFS	CDF THP Dataset	20.0%	Poor	Multiple Life Stages	Land disturbance	Timber Harvest	>35% of WS by area	25 - 35%	10 - 25%	<10%
SEC	Best Prof. judgment	NA	Fair	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	33%	Poor	Multiple Life Stages	Riparian Veg.	DBH	<39% Class 5 and 6	40-54%	55-69%	>69%
SEC	CDFG HAB 8	33%	Poor	Multiple Life Stages	Riparian Veg.	Canopy Cover	<45 % avg. over IP-km	75-85%	85-95%	>95%
NMFS	CDF THP Dataset	7.5 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	6.1 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	1-20 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

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

Big Salmon Creek (Lost Coast-Navarro Point) Threats and Associated Recovery Actions

Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs ($K)						Comments
							FY1	FY2	FY3	FY4	FY5	Entire Duration	
BSC-A-6.1.1.1	Action Step	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).	1	60	CDFG, Conservation Fund, NMFS, Private Landowners	2.50	2.50	2.50	2.50	2.50	150	Cost is a rough estimate to improve instream LWD complexity to viability table targets. Due to the lack of downstream infrastructure in Big Salmon Creek, it is assumed that most of the instream structure will consist of LWD and that most of this structure will be left unanchored. LWD should consist of logs 1.5 to 2 times the bankfull channel width.
BSC-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	CDFG, Conservation Fund, NMFS PRD						0	Cost will likely be captured within the costs of future restoration designs. Due to the lack of infrastructure in Salmon Creek it is assumed that this recommendation will be used primarily for the purpose of road stabilization. Road stabilization should only occur if the road is an essential transportation corridor and cannot be relocated.
BSC-A-6.2	Objective	Pool Habitat	Maintain current LWD, boulders, and other structure-providing features to maintain current stream complexity, pool frequency, and depth (DFG 2004).	1	60	CDFG, Conservation Fund, Private Landowners						0	Cost expected to be minimal to maintain current conditions.
BSC-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.										
BSC-A-7.1.1	Recovery Action	Riparian Vegetation	Restore and protect riparian vegetation to improve migration and summer/overwintering habitat for coho salmon (DFG 2004).	3	60	CDFG, Conservation Fund, NMFS, Private Landowners						TBD	Cost is likely minimal.
BSC-A-7.1.2	Recovery Action	Riparian Vegetation	Conduct conifer release to promote rapid shade-tree development.	2	60	CalFire, CDFG, Conservation Fund, NMFS, NOAA RC, Private Landowners						TBD	Cost is dependent on area treated and treatment used. Costs may be minimal if this recommendation is incorporated into future timber harvest plans. Cost would likely increase if this recommendation is implemented as a stand-alone project. However, a stand-alone project could more effectively target areas that could directly benefit riparian processes.
BSC-A-8.1	Objective	Sediment	Improve habitat conditions at multiple life stages by reducing sediment inputs to the stream at the watershed scale.										
BSC-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.										
BSC-A-8.1.1.1	Action Step	Sediment	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.	2	2	CDFG, NOAA RC, Private Landowners, Trout Unlimited	25.00	25.00				50	Cost based on consultant development and onsite review of the watershed and development of the plan.
BSC-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.	3	10	CDFG, Conservation Fund, Mendocino Redwood Company, Private Landowners, RWQCB	1.00	1.00	1.00	1.00	1.00	10	
BSC-A-8.1.2.1	Action Step	Sediment	Locations for sediment catchment basins should be identified, developed and maintained, where appropriate.	3	60	CalFire, California Department of Mines and Geology, CDFG, Conservation Fund, Private Landowners, RWQCB						TBD	Cost for construction is likely low since action will likely be captured in future timber harvest costs. However, costs of ongoing maintenance may be significant depending on magnitude of sediment input, types of structures developed, difficulty of access, etc. The expense of maintenance should be considered an ongoing requirement for all landowners with roads.
BSC-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	60	CDFG, Conservation Fund, NMFS, NOAA RC, Private Landowners						0	Cost of prioritizing restoration actions is expected to be low.

Big Salmon Creek (Lost Coast-Navarro Point) Threats and Associated Recovery Actions

Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs ($K)						Comments
							FY1	FY2	FY3	FY4	FY5	Entire Duration	
BSC-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	10	California Department of Mines and Geology, CDFG, Conservation Fund, NOAA RC, NRCS, Private Landowners, Trout Unlimited	5.00	5.00	5.00	5.00	5.00	50	Costs based on decommissioning a minimum of 0.5 mile per year ($10k/mile) for a ten year period.
BSC-A-8.1.3	Recovery Action	Sediment	Work with landowners to assess the effectiveness of erosion control measures throughout the winter period.	2	5	Conservation Fund, Mendocino Redwood Company, Private Landowners, RWQCB	10.00	10.00	10.00	10.00	10.00	50	Cost based on a subset of roads that represent watershed conditions.
BSC-A-9.1	Objective	Viability	Conduct periodic, standardized spawning surveys to estimate adult abundance in the watershed. Surveys should include all three cohorts.	3	9	CDFG, Conservation Fund, NMFS, Private Landowners	8.89	8.89	8.89	8.89	8.89	80	Cost is difficult to estimate and are dependent on frequency and number of sampling events. It is assumed that only sporadic sampling will occur in the Salmon Creek watershed due to its status as a Dependent watershed, and the overall magnitude of ongoing sampling occurring elsewhere in the Lost Coast Diversity stratum. Cost are estimated from survey methods developed by Gallagher and Gallagher (2005).
BSC-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.										
BSC-A-10.1.1	Recovery Action	Water Quality	Initiate thinning of ceanothus fields adjacent to stream with perennial flow to help release conifers for streamside shade.	3	10	Conservation Fund, Private Landowners						TBD	
BSC-A-10.1.2	Recovery Action	Water Quality	Plant native vegetation to promote streamside shade.	3	60	CDFG, NMFS, Private Landowners, SWRCB						TBD	
BSC-A-15.1	Objective	Droughts	Work with land owners or public agencies to acquire water that would be utilized to minimize effects of droughts.										
BSC-A-15.1.1	Recovery Action	Droughts	Pursue opportunities to acquire or lease water, or acquire water rights from willing sellers, for coho salmon recovery purposes. Develop incentives for water right holders to dedicate instream flows for the protection of coho salmon (DFG 2004)(Water Code § 1707).	2	60	CDFG, NMFS, Private Landowners, SWRCB						TBD	Costs can be highly variable and dependent on location and quantity of water right.
BSC-A-15.2	Objective	Droughts	Minimize water use and seek alternatives during droughts.										
BSC-A-15.2.1	Recovery Action	Droughts	DFG, SWRCB, and Conservation Fund, and other agencies and landowners, in cooperation with NMFS, should evaluate the rate and volume of water drafting for dust control in streams or tributaries and where appropriate, minimize water withdrawals that could impact coho salmon. These agencies should consider existing regulations or other mechanisms when evaluating alternatives to water as a dust palliative (including EPA-certified compounds) that are consistent with maintaining or improving water quality (DFG 2004).	3	60	CalFire, CalTrans, CDFG, Conservation Fund, NMFS, NOAA RC, NRCS, Private Landowners						TBD	Cost is expected to be minimal. Most diversions in the Big Salmon watershed for dust control are for timber management actions. Most of these diversion have a 1600 agreement with the Department of Fish and Game and are likely incorporated into existing operations.
BSC-A-15.3	Objective	Droughts	All local and state planning and development should consider, and provide contingencies for, droughts in a manner compatible with CCC coho salmon recovery needs.										
BSC-A-15.3.1	Recovery Action	Droughts	Identify and work with water users to minimize depletion of summer base flows from unauthorized water uses.										
BSC-A-15.3.1.1	Action Step	Droughts	Encourage SWRCB to bring illegal water diverters and out-of-compliance diverters into compliance with State law.	1	20	CDFG, NMFS HCD, NMFS OLE						0	Cost of encouraging SWRCB is expected to be low and likely captured through agency staff time.
BSC-A-20.1	Objective	Logging and Wood Harvesting	Maintain and expand California's working forestlands and prevent future conversion of forestlands to agriculture or other land uses.										

Big Salmon Creek (Lost Coast-Navarro Point) Threats and Associated Recovery Actions

Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs ($K)						Comments
							FY1	FY2	FY3	FY4	FY5	Entire Duration	
BSC-A-20.1.1	Recovery Action	Logging and Wood Harvesting	Coordinate with the agencies that authorize conversions to minimize conversions in key watersheds and discourage forestland conversions.										
BSC-A-20.1.1.1	Action Step	Logging and Wood Harvesting	Discourage Counties from rezoning forestlands to rural residential or other land uses (e.g., vineyards).	1	60	CalFire, CDFG, Mendocino County, NMFS, RWQCB, Trout Unlimited						0	
BSC-A-20.1.1.2	Action Step	Logging and Wood Harvesting	Discourage home building or other incompatible land use in areas identified as timber production zones (TPZ).	1	60	CalFire, CDFG, Mendocino County, NMFS PRD, Private Landowners, Public						TBD	Cost may be minimal if action is conducted within current regulatory framework.
BSC-A-20.2	Objective	Logging and Wood Harvesting	Encourage landowners to implement restoration projects as part of their ongoing practices in priority stream reaches, particularly where large woody debris is found lacking.										
BSC-A-20.2.1	Recovery Action	Logging and Wood Harvesting	Particular focus should be directed to stream reaches in Hazel and Ketty Gulch.	2	10	CDFG, Conservation Fund, RWQCB, Trout Unlimited	4.00	4.00	4.00	4.00	4.00	40	Overall Salmon Creek costs captured in Pool Habitat estimate. However, additional costs may be incurred if the recommendation moves forward as a stand alone project.
BSC-A-20.3	Objective	Logging and Wood Harvesting	Provide for properly functioning watershed processes (e.g., cycles of wood, water and sediment) by promoting long term sustainable forestry practices that support coho salmon habitats.										
BSC-A-20.3.1	Recovery Action	Logging and Wood Harvesting	Minimize sediment-related effects to coho salmon habitat from road building and other soil-disturbing activities.										
BSC-A-20.3.1.1	Action Step	Logging and Wood Harvesting	Extend the monitoring period and upgrade THP road maintenance after harvest.	2	60	CDFG, Conservation Fund, Mendocino County, NMFS, NMFS OLE, Private Landowners, Public						TBD	Cost is difficult to determine at this time.
BSC-A-20.3.1.2	Action Step	Logging and Wood Harvesting	New THPs should identify problematic legacy roads within WLPZ's, decommission them, and revegetate the area with appropriate native species.	2	30	CalFire, CDFG, Mendocino County, NMFS						0	Action duration extended due to unknown rate of harvest. Assumed most of watershed will be entered within 30 years. Costs equal 0 because this should be considered a mitigation measure for future harvest activities.
BSC-A-20.3.1.3	Action Step	Logging and Wood Harvesting	Map unstable soils and use that information to guide land use decisions, road design, THPs, and other activities that can promote erosion.	3	60	CalFire, California Department of Mines and Geology, CDFG, Conservation Fund, Mendocino County, Private Landowners, Public, RPFs						0	Cost may be minimal if the action is conducted within the current regulatory framework and the task should be considered a standard business practice.
BSC-A-20.3.2	Recovery Action	Logging and Wood Harvesting	Promote logging practices that minimize erosion and maximize forest diversity and health.										
BSC-A-20.3.2.1	Action Step	Logging and Wood Harvesting	Encourage tree retention on the axis of headwall swales. Any deviations should be reviewed and receive written approval by a licensed engineering geologist.	3	60	CalFire, California Department of Mines and Geology, CDFG, Mendocino County, NMFS PRD, RPFs, RWQCB						0	Cost may be minimal if action is conducted the within current regulatory framework.
BSC-A-20.3.2.2	Action Step	Logging and Wood Harvesting	Conserve and manage forestlands for older forest stages.	3	60	CalFire, CDFG, Conservation Fund, Private Landowners, RPFs, RWQCB						0	Cost may be minimal if the action is conducted within the current regulatory framework.
BSC-A-24.1	Objective	Roads and Railroads	Conduct outreach and education regarding the adverse effects of roads, and the types of best management practices protective of salmonids.										

Big Salmon Creek (Lost Coast-Navarro Point) Threats and Associated Recovery Actions

Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs ($K)						Comments
							FY1	FY2	FY3	FY4	FY5	Entire Duration	
BSC-A-24.1.1	Recovery Action	Roads and Railroads	Develop a Salmon Certification Program for road maintenance staff.	3	5	Conservation Fund, Mendocino County Department of Public Works, Private Landowners						TBD	Adoption of existing programs should result in reduced costs.
BSC-A-24.1.2	Recovery Action	Roads and Railroads	Conduct collaborative evaluations of priorities for treatment of CCC coho salmon passage barriers, such as the Fish Passage Forum (DFG 2004).	3	60	CalFire, California Coastal Conservancy, CalTrans, CDFG, Conservation Fund, Mendocino County Department of Public Works, NOAA RC, Private Landowners, RCD						TBD	Similar existing programs could be modified and implemented at minimal cost. Few barriers to passage exist in the Big Salmon Creek watershed, and it is anticipated that they have already been identified.
BSC-A-24.2	Objective	Roads and Railroads	Minimize sediment input from existing road networks into the aquatic environment.										
BSC-A-24.2.1	Recovery Action	Roads and Railroads	Conduct actions that hydrologically disconnect roads.										
BSC-A-24.2.1.1	Action Step	Roads and Railroads	Evaluate and remove roadside berms that lead to increased runoff velocities and result in increased sediment discharge.	2	30	CalFire, CalTrans, Conservation Fund, Mendocino County Department of Public Works, Private Landowners						0	Cost is expected to be minimal and should be incorporated into ongoing road maintenance activities. Initial focus should be directed toward riparian roads.
BSC-A-24.2.2	Recovery Action	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	10	CalFire, CDFG, Conservation Fund, Mendocino County Department of Public Works, NMFS, Private Landowners	20.00	20.00	20.00	20.00	20.00	200	Cost is dependent on measures taken to reduce road density.
BSC-A-24.2.3	Recovery Action	Roads and Railroads	Licensed engineering geologists should review and approve grading on inner gorge slopes.	2	60	CalFire, Conservation Fund, Private Landowners						TBD	
BSC-A-24.2.4	Recovery Action	Roads and Railroads	Minimize sediment delivery from roads during the winter period.										
BSC-A-24.2.4.1	Action Step	Roads and Railroads	Limit winter use of unsurfaced roads and recreational trails by unauthorized individuals and impacting uses to decrease fine sediment loads.	2	60	CalFire, CDFG, Conservation Fund, Mendocino County Department of Public Works, NMFS OLE, Private Landowners						0	Costs are not estimated because this action should be considered an obligation of the landowner.
BSC-A-24.2.5	Recovery Action	Roads and Railroads	Use best management practices for road construction, maintenance, management and decommissioning (e.g. Hagans & Weaver, 1994; Sommarstrom, 2002; Oregon Department of Transportation, 1999).	1	60	CalFire, California Department of Mines and Geology, Conservation Fund, Mendocino County Department of Public Works, Private Landowners, RPFs, RWQCB, Trout Unlimited						0	