

**Santa Maria River main stem, Santa Barbara-San Luis Obispo County
CAP Workbook Threats Assessment Summary Tables
2008**

Assessment of Target Viability
Santa Maria River main stem, Santa Barbara-San Luis Obispo County

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Double-click opens entry form

Conservation Target	Category	Key Attribute	Indicator	Indicator Ratings				Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for Desired Rating
				Poor	Fair	Good	Very Good					
1 Egg	Landscape Context	Flow during incubation period	Baseflow in relation to avg. annual daily flow	< 25% of avg. annual daily flow	26-50% of avg. annual daily flow		> 50% of avg. annual daily flow	likely much less than 25% of avg. annual daily flow	Poor			
1 Egg	Landscape Context	Non-native species	Non-native egg predators	present throughout	present in >50% of stream reaches	present; isolated reaches	absent	present throughout	Poor			
1 Egg	Landscape Context	Water temperature	Mean weekly avg. temperature in redds	< 5 C. and > 13 C.	11.1-13 C.	10.1-11 C.	6-10 C.					
1 Egg	Condition	Substrate quality	Avg. percent fines (<0.85mm) in potential spawning areas	> 17% fines	11-17% fines	5-10 % fines	< 5% fines	suitable spawning habitat uncommon	Fair		Dec-02	
1 Egg	Condition	Substrate quality	Embeddedness	> 75% embedded	50-75% embedded	25-49% embedded	< 25% embedded	>75% embedded	Poor		Dec-02	
2 Fry	Landscape Context	Dispersal	Barriers between redds and rearing habitat	complete barrier	partial barriers common	partial barriers scarce	no barriers	complete barriers (dry reaches) common	Poor		Dec-02	
2 Fry	Landscape Context	Non-native species	Non-native fry predators	present throughout	present in >50% of stream reaches	present; isolated reaches	absent	present throughout	Poor		Sep-07	
2 Fry	Landscape Context	Sediment supply	Turbidity (no. days turbidity is > 25 NTUs)	> 30 days during fry development period	20-30 days	10-19 days	< 10 days					
2 Fry	Condition	Habitat complexity/refugia	Amount of functional high velocity refuge habitat with flows < 15 cm/sec (boulders, overhanging banks, etc.)	none; watercourse in rearing habitat is channelized	some	common	abundant	scarce or absent	Poor		Dec-02	
3 Juvenile	Landscape Context	Dispersal	Barriers between rearing habitat and estuary	present			absent	present	Poor		Dec-02	
3 Juvenile	Landscape Context	Non-native species	Non-native juvenile predators	present throughout	present in >50% of stream reaches	present; isolated reaches	absent	present throughout	Poor			

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Conservation Target	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for Desired Rating
3 Juvenile	Landscape Context	Spawning habitat accessibility	Pool habitat > 2 feet in depth	pools scarce or absent	low abundance of pools	high abundance of pools	high abundance of pools with multiple "refuge pools" (> 5 ft deep)	low abundance of pools	Poor		Dec-02	
3 Juvenile	Landscape Context	Summer flow	Percent of unimpaired median summer baseflow (based on long-term mean monthly discharge)	< 70%	70-90%	> 90%	100% over all IP-km	50% or less summer; reaches typically dry	Poor			
3 Juvenile	Landscape Context	Water temperature	Median weekly average temperature (MWAT) in potential rearing habitat	> 21 C.	18-21 C.	< 18 C.	< 17 C.					
3 Juvenile	Condition	Estuarine freshwater inflows	Percentage of unimpaired freshwater inflow to estuary (necessary for maintaining brackish water < 15 ppt salinity)	< 25%	25-49%	50-75%	> 75%	50% or greater	Good		Sep-02	
3 Juvenile	Condition	Estuarine freshwater inflows	Persistence of hypoxic or anoxic saline layer (> 15 ppt) in potential rearing habitat areas between May and onset of winter rains	3 months	1 month	1 week	< 3 days	2.8 ppt to 4.8 ppt salinity; 7.5 ppm to 15 ppm oxygen	Very Good		May-02	
3 Juvenile	Condition	Food availability	Species richness	< 25 taxa	25-29 taxa	30-40 taxa	> 40 taxa					
3 Juvenile	Condition	Habitat complexity/refugia	Instream refugia	absent	scarce	common	abundant instream cover	scarce or absent	Poor		Dec-02	
3 Juvenile	Condition	Riparian corridor species composition and structure	Mean percent native, undisturbed composition and structure in 100-foot riparian buffer	< 25%	25-50%	51-75%	historic conditions	< 25%	Poor			
4 Smolt	Landscape Context	Dispersal	Number of days when depths are < 0.4 ft anywhere in migration corridor during outmigration period (March through June)	> 10 days	6-10 days	1-5 days	0 days	likely much greater than 10 days	Poor		Dec-02	
4 Smolt	Landscape Context	Flow for downstream passage March through June	Maximum potential rate of diversion by pumping during April and May (expressed as percent of estimate unimpaired median flow in April)	> 150%	100-150%	50-99%	< 50%	> 150%	Poor		Dec-02	

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4	Smolt	Landscape Context	Passage to ocean	Number of days stream mouth is open with adequate flow during outmigration period (March through June)	< 30 days	30-60 days	60-90 days	> 90 days					
5	Adult	Landscape Context	Dispersal	Accessibility of suitable spawning areas (based on TRT criteria)	accessible sites are clumped in one location or < 25% of all tributaries are accessible	25-50% of all tributaries are accessible	50-75% of all tributaries are accessible	> 75% of all tributaries are accessible	< 3% of all tributaries are accessible because main stem of SM River is frequently dry and Twitchell Dam	Poor		Dec-02	
5	Adult	Landscape Context	Dispersal	Number of days stream mouth is open with adequate flow during entry period (1 November to 1 June)	< 30 days	30-60 days	60-90 days	> 90 days					
5	Adult	Landscape Context	Flow during spawning period (spawning and upstream/downstream passage)	Percent of net discharge (unimpaired flow minus total diversions) occurring between 1 December to 1 June, in all water years	> 10%	6-10%	3-5%	< 3%	likely much greater than 10%	Poor		Dec-02	
5	Adult	Landscape Context	Water temperature	Median weekly average temperature in migration corridor	> 17 C.	15-16.9 C.	13-14.9 C.	10-12.9 C.					
5	Adult	Size	Population size	Mean annual adult spawner abundance		TRT criteria for low extinction risk (by watershed)							
6	Multiple Life Stages	Landscape Context	Barriers/diversions	Stream crossings/stream mile	> two crossings/stream mile			< two crossings/stream mile	avg 0.50 crossings/mile	Good		Jan-08	
6	Multiple Life Stages	Landscape Context	Channel flow and morphology	Percent of total watercourse length channelized	> 25%	16-25%	5-15%	< 5%	likely much greater than 25%	Poor		Sep-07	
6	Multiple Life Stages	Landscape Context	Fire regime/vegetation maturity	Percent of watershed affected by high intensity fire within previous 100 yrs	> 25%	10-24%	5-9%	< 5%	12% overall; probably much higher in Sisquoc sub-watershed	Fair		Sep-07	

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6	Multiple Life Stages	Landscape Context	Floodplain connectivity	Floodplain connectivity	< 50% of response reaches in watershed have inundation of historic floodplains by bankfull flows (connectivity)	50-65% of response reaches in watershed demonstrate floodplain connectivity	66-80% of response reaches in watershed demonstrate floodplain connectivity	> 80% of response reaches in watershed demonstrate connectivity	likely much less than 50%	Poor		
6	Multiple Life Stages	Landscape Context	Historic vs Current Spawning Habitat	Fraction of historic spawning tributaries currently accessible to spawners	< 15% available	16-50% available	51-90% available	>90% available	< 3% accessible	Poor		Jan-08
6	Multiple Life Stages	Landscape Context	Hydrology	Dry stream reaches	> 75% dry reaches	26-50% dry reaches	1-25% dry reaches	no dry reaches; perennial flows	>75% dry reaches	Poor		Dec-02
6	Multiple Life Stages	Landscape Context	Hydrology	Modified hydrograph	severe (dams present)			natural	dam present	Poor		Dec-02
6	Multiple Life Stages	Landscape Context	Land use	Distribution of public ownership along main stem of watercourse	< 25% of land bordering main stem of drainage is publicly owned	25-50%	51-75%	> 75%	Most or all of watershed in SM River is private property	Poor		Sep-07
6	Multiple Life Stages	Landscape Context	Land Use	Miles of road per square mile of watershed within 100 meters of watercourse	> 1 mi	0.5-1.0 mi	0.1-0.49 mi	< 0.1 mi	> 0.42 mi/sq mile	Fair		Jan-08
6	Multiple Life Stages	Landscape Context	Land Use	Miles of roads per square mile of watershed	> 3.0 mi	2.6-3.0 mi	1.6-2.5 mi	< 1.6 mi	> 1.55 mi/sq mile	Fair		
6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in agricultural use	> 30%	20-29%	10-19%	< 10%	Likely >> 50%	Poor		Sep-07
6	Multiple Life Stages	Landscape Context	Land Use	Percent of watershed area in agriculture within 100 meters of watercourse	> 20%	11-20%	5-10%	< 5%	2.8%	Good		Jan-08
6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in public ownership	< 25 % public ownership	25-50%	51-75%	> 75%	Most or all or SM River main stem watershed is private property	Poor		Sep-07

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Conservation Target	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for Desired Rating	
6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in urban/residential use	> 25%	10-25%	5-9%	< 5%	3% for entire watershed; prob higher for SM River subwatershed alone	Good		Jan-08	
6	Multiple Life Stages	Landscape Context	Water quality	General index of toxicity based on severity of adverse effects on fish	Acute lethal effects (fish kill)	Sublethal effects (reduced growth, altered behavior, etc.)	Toxins detected but no sublethal effects	No toxins or contaminants detected	Toxins present in estuary due to intensive land use throughout watershed	Fair		Jan-08	
6	Multiple Life Stages	Landscape Context	Water Quality	Percent total impervious surfaces as % of watershed area	>40%	21-40%	5-20%	< 5%	0.6%	Very Good		Jan-08	
6	Multiple Life Stages	Condition	Estuarine habitat quality	Current lagoon area as percentage of historic total area	< 25%	26-50%	51-75%	> 75%	81%	Very Good		Jan-08	
6	Multiple Life Stages	Condition	Estuarine habitat quality	Depth, LWD, and other habitat elements (e.g. eelgrass)	depth < 1 meter; LWD and/or overhanging banks absent		depth > 1 meter; LWD and/or overhanging banks present		depth > 1 meter during winter	Good		Nov-02	
6	Multiple Life Stages	Condition	Riparian corridor quality	Riparian canopy cover	< 25% canopy cover	25-49% cover	50-75% cover	> 75% cover	< 25% cover	Poor			
6	Multiple Life Stages	Condition	Riparian corridor quality	Riparian habitat condition	< 25% native composition	25-49% native composition	50-75% native composition	> 75% native composition					

Overall Viability Summary
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Summary of Threats										
Click the page-down icon ▼ to the right to view more summary tables.										
Santa Maria River main stem, Santa Barbara-San Luis Obispo County										
Threats Across Targets		Egg	Fry	Juvenile	Smolt	Adult	Multiple Life Stages			Overall Threat Rank
Project-specific threats		1	2	3	4	5	6	7	8	
1	Dams and surface water diversions	Very High			Very High					
2	Groundwater extraction	Very High			Very High					
3	Conversion of watershed lands to row crop agriculture	Very High		Very High	Very High	Very High	Very High			Very High
4	Agricultural effluents	Very High	Very High	Very High	-	-	High			Very High
5	Levees and channelization	-	Very High	Very High	-	-	Very High			Very High
6	Channel and/or estuary maintenance, dredging, and vegetation control (including flood control activities)	Medium	Very High	High	-	-	Very High			Very High
7	Urban development	High	High	High	-	-	Very High			Very High
8	Urban wastewater effluents (including industrial and commercial effluents)	-	-	Very High	-	-	High			High
9	Conversion of natural habitats to row-crop agriculture		Very High							High
10	Non-native animals (incl. hatchery fish)	High	High		-	-	High			High
11	Recreational facilities and activities (incl. ORV use, campgrounds, etc.)	High	High	-	-	-	High			High
12	Roads in watershed and/or within 300 feet of watercourse	High	High	-	-	-	High			High
13	Culverts, crossings, and bridges	-	-	High	-	-	High			High
14	Invasive non-native vegetation	-	-	High	-	-	-			Medium
15	Non-point pollution	-	-	-	-	-	High			Medium
16	Livestock farming and ranching	-	-	Medium	-	-	Medium			Medium
Threat Status for Targets and Project		Very High	-	-	Very High					

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Threats Across Targets		Egg	Fry	Juvenile	Smolt	Adult	Multiple Life Stages			Overall Threat Rank
Project-specific threats		1	2	3	4	5	6	7	8	
17	Wildland fires (including debris flows following fires)	-	-	-	-	-	Medium			Low
18	Artificial lagoon breaching	-	-	-	-	-	-			-
19	Gas, water, and/or other utility pipelines	-	-	-	-	-	-			-
20	Illegal collecting, poaching, and/or unauthorized angling	-	-	-	-	-	-			-
21	Mining and quarrying	-	-	-	-	-	-			-
22										-
23										-
24										-
25										-
26										-
27										-
28										-
29										-
30										-
31										-
32										-
Threat Status for Targets and Project		Very High	-	-	Very High					

Overall Viability Summary
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Stress Matrix									
Santa Maria River main stem, Santa Barbara-San Luis Obispo County									
Stresses (Altered Key Ecological Attributes) Across Targets		Egg	Fry	Juvenile	Smolt	Adult	Multiple Life Stages		
		1	2	3	4	5	6	7	8
1	Non-native predators	Very High	Very High	Very High	-	-	-	-	-
2	Impaired instream habitat complexity/refugia	-	Very High	Very High	-	-	-	-	-
3	Altered sediment supply (increased sedimentation and embeddedness)	-	Very High	-	-	-	-	-	-
4	Impaired substrate quality (sedimentation and embeddedness)	Very High	-	-	-	-	-	-	-
5	Dispersal barriers between redds and rearing habitat	-	Very High	-	-	-	-	-	-
6	Impaired base flows during incubation period	Very High	-	-	-	-	-	-	-
7	Impaired access to estuary	-	-	Very High	-	-	-	-	-
8	Impaired flows during rearing period	-	-	Very High	-	-	-	-	-
9	Impaired summer base flows	-	-	Very High	-	-	-	-	-
10	Impaired instream flows during outmigration period (March-June)	-	-	-	Very High	-	-	-	-
11	Impaired riparian habitat quality	-	-	Very High	-	-	-	-	-
12	Altered riparian habitat quality	-	-	-	-	-	Very High	-	-
13	Altered hydrograph	-	-	-	-	-	Very High	-	-
14	Impaired access to stream from ocean (stream mouth closed)	-	-	-	-	Very High	-	-	-
15	Impaired access to spawning areas	-	-	-	-	Very High	-	-	-
16	Impaired floodplain connectivity	-	-	-	-	-	Very High	-	-

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Stress Matrix									
Santa Maria River main stem, Santa Barbara-San Luis Obispo County									
Stresses (Altered Key Ecological Attributes) Across Targets		Egg	Fry	Juvenile	Smolt	Adult	Multiple Life Stages		
		1	2	3	4	5	6	7	8
17	Impaired access to rearing and/or spawning habitat	-	-	-	-	-	Very High	-	-
18	Impaired water quality	-	-	-	-	-	High	-	-
19	Altered fire regime/recent fire in watershed	-	-	-	-	-	High	-	-
20	Altered land use from natural condition	-	-	-	-	-	High	-	-
21	Impaired estuarine inflows	-	-	Medium	-	-	-	-	-
22	Impaired estuarine habitat quality	-	-	-	-	-	Low	-	-
23	Impaired water temperature in migration corridor	-	-	-	-	-	-	-	-
24	Impaired food availability	-	-	-	-	-	-	-	-
25	Impaired water temperature in spawning areas	-	-	-	-	-	-	-	-
26	Insufficient flows to keep estuary mouth open during outmigration period (April-June)	-	-	-	-	-	-	-	-
27	Impaired water temperature	-	-	-	-	-	-	-	-
28	Low adult population size	-	-	-	-	-	-	-	-
29		-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-
31		-	-	-	-	-	-	-	-
32		-	-	-	-	-	-	-	-

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Overall Viability Summary								
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Conservation Targets		Landscape Context		Condition		Size		Viability Rank
		Grade	Weight	Grade	Weight	Grade	Weight	
1	Egg	Poor	1	Fair	1	-	1	Fair
2	Fry	Poor	1	Poor	1	-	1	Poor
3	Juvenile	Poor	1	Poor	1	-	1	Poor
4	Smolt	Poor	1	-	1	-	1	Poor
5	Adult	Poor	1	-	1	-	1	Poor
6	Multiple Life Stages	Poor	1	Poor	1	-	1	Poor
7		-	1	-	1	-	1	-
8		-	1	-	1	-	1	-
Project Biodiversity Health Rank								Poor

Overall Viability Summary
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Detailed Viability Summary
Santa Maria River main stem, Santa Barbara-San Luis Obispo County

Conservation Targets		Key Ecological Attributes				Indicators				Calculated Rank	User Override
		Poor	Fair	Good	Very Good	Poor	Fair	Good	Very Good		
1	Egg									Fair	
	Landscape Context	2				2				Poor	
	Condition		1			1	1			Fair	
	Size									-	
2	Fry									Poor	
	Landscape Context	2				2				Poor	
	Condition	1				1				Poor	
	Size									-	
3	Juvenile									Poor	
	Landscape Context	4				4				Poor	
	Condition	2			1	2		1	1	Poor	
	Size									-	
4	Smolt									Poor	
	Landscape Context	2				2				Poor	
	Condition									-	
	Size									-	
5	Adult									Poor	
	Landscape Context	2				2				Poor	
	Condition									-	
	Size									-	
6	Multiple Life Stages									Poor	
	Landscape Context	4	2	2		8	4	3	1	Poor	
	Condition	1			1	1		1	1	Poor	
	Size									-	
7										-	
	Landscape Context									-	
	Condition									-	
	Size									-	
8										-	
	Landscape Context									-	
	Condition									-	
	Size									-	