

**San Luis Obispo Creek, San Luis Obispo County  
CAP Workbook Threats Assessment Summary Tables  
2008**

## Assessment of Target Viability

Double-click opens entry form				Indicator Ratings									
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				Jan-02	
1	Egg	Landscape Context	Non-native species	Non-native predators	<b>present throughout watershed</b>	present in >50% of watershed	present in < 50% of watershed	absent	present throughout lower and middle main stem	Poor		Jan-02	
1	Egg	Landscape Context	Water temperature	Mean weekly avg. temperature in redds	< 5 C. and > 13 C.	<b>11.1-13 C.</b>	10.1-11 C.	6-10 C.	elevated temps common	Fair		Jan-02	
1	Egg	Condition	Substrate quality	Avg. percent fines (<0.85mm) in potential spawning areas	<b>&gt; 17% fines</b>	11-17% fines	5-10 % fines	< 5% fines	high sediment loading due to widespread bank erosion in watershed	Poor		Jan-02	
1	Egg	Condition	Substrate quality	Embeddedness	<b>&gt; 75% embedded</b>	50-75% embedded	25-49% embedded	< 25% embedded	high embeddedness throughout main stem due to bank erosion	Poor		Jan-02	
2	Fry	Landscape Context	Dispersal	Barriers between redds and rearing habitat	complete barrier	<b>partial barriers common</b>	partial barriers scarce	no barriers	middle and upper main stem and tribs have dry reaches	Fair		Apr-04	
2	Fry	Landscape Context	Non-native species	Non-native predators	<b>present throughout watershed</b>	present > 50% watershed	present < 50% of watershed	absent	present throughout lower and middle main stem	Poor		Jan-02	
2	Fry	Landscape Context	Sediment supply	Turbidity (no. days turbidity is > 25 NTUs)	<b>&gt; 30 days during fry development period</b>	20-30 days	10-19 days	< 10 days	significant bank erosion	Poor		Jan-02	
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	<b>some</b>	common	abundant	urbanized reaches of main stem lack refuge habitat	Fair		Jan-95	
3	Juvenile	Landscape Context	Dispersal	Barriers between rearing habitat and estuary	present			absent	several barriers	Fair		Mar-05	

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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	Flow during rearing period	Pool habitat > 3 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)	pool habitat scarce; relatively shallow	Fair		Aug-03	
3	Juvenile	Landscape Context	Non-native species	Non-native predators	present throughout watershed	present > 50% watershed	present < 50% watershed	absent	present throughout lower and middle main stem	Poor		Jan-02	
3	Juvenile	Landscape Context	Summer flow	Percent of unimpaired median summer baseflow (based on long-term mean monthly discharge)	< 70% <sup>s</sup>	70-90%	> 90%	100% over all IP-km	perennial flow, but many surface diversions	Fair		Jan-02	
3	Juvenile	Landscape Context	Water temperature	Median weekly average temperature (MWAT) in potential rearing habitat	> 21 C.	18-21 C.	< 18 C.	< 17 C.	17-19 C in summer in upper main stem	Fair		Jan-02	
3	Juvenile	Condition	Estuarine inflows	Percentage of unimpaired freshwater inflow to estuary (necessary for maintaining brackish water < 15 ppt salinity)	< 25%	25-49%	50-75%	> 75%				Aug-04	
3	Juvenile	Condition	Estuarine 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				Jul-06	
3	Juvenile	Condition	Food availability	Species richness	< 25 taxa	25-29 taxa	30-40 taxa	> 40 taxa				Mar-07	
3	Juvenile	Condition	Habitat complexity/refugia	Instream refugia	absent			present (boulders, overhanging banks, etc.)	severely limited instream cover; seasonal surface flows	Poor		Jan-95	
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	highly modified	Fair		Jan-04	
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	perennial flows but many surface diversions	Fair		Jan-02	

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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
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%				Aug-04	
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				Mar-07	
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	Marre Dam; many semipermeable barriers	Fair		Apr-04	
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				Mar-07	
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%	perennial flows, but many diversions	Fair		Jan-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.	seasonally variable	Fair		Jan-02	
5 Adult	Size	Population size	Mean annual adult spawner abundance		TRT criteria for low extinction risk (by watershed)						Mar-03	
6 Multiple Life Stages	Landscape Context	Barriers/diversions	Stream crossings/stream mile	> two/mile			< two/mile	avg 1.67 crossings/mile	Fair		Jan-08	
6 Multiple Life Stages	Landscape Context	Channel flow and morphology	Percent of total watercourse length channelized	> 25%	16-25%	5-15%	< 5%	extensively incised creekbed	Poor		Mar-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%	18%	Fair		Jan-08	

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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	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	highly incised channel	Poor		Mar-07	
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	Marre Dam; many semi-permeable barriers	Fair		Apr-04	
6	Multiple Life Stages	Landscape Context	Hydrology	Dry stream reaches	> 75% dry reaches	26-75% dry reaches	1-25% dry reaches	no dry reaches; perennial surface flows	perennial surface flows, but many diversions	Fair		Jan-02	
6	Multiple Life Stages	Landscape Context	Hydrology	Hydrograph	severely modified			natural	probably highly modified	Poor		Jan-07	
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%	2.1%	Poor		Jan-08	
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	avg 1.5 mi/sq mile	Poor		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	avg 4.6 mi/sq mi	Poor		Jan-08	
6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in agricultural use	> 30%	20-29%	10-19%	< 10%	6-7%	Good		Jan-08	
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%	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%	2.1%	Poor		Jan-08	
6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in urban/residential use	> 25%	10-25%	5-9%	< 5%	16%	Fair		Jan-08	

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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	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	high total N and P	Poor		Jan-08	
6	Multiple Life Stages	Landscape Context	Water quality	Percent total impervious surfaces as % of watershed area	>40%	21-40%	5-20%	< 5%	5.2%	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%	61%	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					Mar-07	
6	Multiple Life Stages	Condition	Riparian corridor quality	Riparian canopy cover	< 25% cover	25-49% cover	50-75% cover	> 75% cover	heavily disturbed; 46% cover	Fair		Jan-08	
6	Multiple Life Stages	Condition	Riparian corridor quality	Riparian corridor species composition	< 25% native composition	25-50% native composition	50-75% native composition	> 75% native composition	non-natives common along lower and middle main stem	Fair		Mar-07	

**Overall Viability Summary**  
**San Luis Obispo Creek, 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	Channel and/or estuary maintenance, dredging, and vegetation control (incl. flood control activities)	Very High	Very High	Very High	High	High	Very High			Very High
2	Conversion of watershed lands to row crop agriculture	Very High	Very High	Very High	High	High	Very High			Very High
3	Dams and surface water diversions	Very High	Very High	Very High	High	High	Very High			Very High
4	Levees and channelization	Very High	Very High	Very High	High	High	Very High			Very High
5	Non-point pollution from roads	Very High	Very High	Very High	-	High	Very High			Very High
6	Urban development	Very High	High	Very High	High	High	Very High			Very High
7	Groundwater extraction	High	High	Very High	High	High	Very High			Very High
8	Agricultural effluents	Very High	Very High	-	-	-	Very High			Very High
9	Non-native species present (incl. hatchery fish)	Very High	High	Very High	-	-	-			Very High
10	Recreational facilities and activities (ORV use, campgrounds, etc.)	Very High	Medium	Very High	-	-	-			Very High
11	Culverts, crossings, and bridges	-	High	High	High	High	High			High
12	Livestock Farming & Ranching	High	High	High	-	Medium	High			High
13	Urban wastewater effluents (incl. industrial and commercial effluents)	High	-	-	-	-	Very High			High
14	Roads in watershed and/or within 300 feet of watercourses	-	-	-	-	-	High			Medium
15	Invasive, non-native plants	Medium	-	Medium	-	Medium				Medium
16	Artificial lagoon breaching	-	-	-	-	-	-			-
<b>Threat Status for Targets and Project</b>		Very High	-	-	Very High					

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Threats Across Targets		Egg	Fry	Juvenile	Smolt	Adult	Multiple Life Stages			Overall Threat Rank
		1	2	3	4	5	6	7	8	
Project-specific threats		1	2	3	4	5	6	7	8	
17	Gas, water, and/or other utility pipelines	-	-	-	-	-	-			-
18	Illegal collecting, poaching, and/or unauthorized angling	-	-	-	-	-	-			-
19	Log jams and other removable barriers									-
20	Mining & Quarrying	-	-	-	-	-	-			-
21	Natural barriers					-	-			-
22	Oil & Gas Drilling	-	-	-	-	-	-			-
23	Public ownership in watershed									-
24	Wildland fires (incl. debris flows following fires)	-	-	-	-	-	-			-

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Threats Across Targets		Egg	Fry	Juvenile	Smolt	Adult	Multiple Life Stages			Overall Threat Rank
		1	2	3	4	5	6	7	8	
1	Channel and/or estuary maintenance, dredging, and vegetation control (incl. flood control activities)	Very High	Very High	Very High	High	High	Very High			Very High
2	Conversion of watershed lands to row crop agriculture	Very High	Very High	Very High	High	High	Very High			Very High
3	Dams and surface water diversions	Very High	Very High	Very High	High	High	Very High			Very High
4	Levees and channelization	Very High	Very High	Very High	High	High	Very High			Very High
5	Non-point pollution from roads	Very High	Very High	Very High	-	High	Very High			Very High
6	Urban development	Very High	High	Very High	High	High	Very High			Very High
7	Groundwater extraction	High	High	Very High	High	High	Very High			Very High
8	Agricultural effluents	Very High	Very High	-	-	-	Very High			Very High
9	Non-native species present (incl. hatchery fish)	Very High	High	Very High	-	-	-			Very High
10	Recreational facilities and activities (ORV use, campgrounds, etc.)	Very High	Medium	Very High	-	-	-			Very High
11	Culverts, crossings, and bridges	-	High	High	High	High	High			High
12	Livestock Farming & Ranching	High	High	High	-	Medium	High			High
13	Urban wastewater effluents (incl. industrial and commercial effluents)	High	-	-	-	-	Very High			High
14	Roads in watershed and/or within 300 feet of watercourses	-	-	-	-	-	High			Medium
15	Invasive, non-native plants	Medium	-	Medium	-	Medium				Medium
16	Artificial lagoon breaching	-	-	-	-	-	-			-
<b>Threat Status for Targets and Project</b>		Very High	-	-	Very High					

**Overall Viability Summary**  
**San Luis Obispo Creek, 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	
17	Gas, water, and/or other utility pipelines	-	-	-	-	-	-			-
18	Illegal collecting, poaching, and/or unauthorized angling	-	-	-	-	-	-			-
19	Log jams and other removable barriers									-
20	Mining & Quarrying	-	-	-	-	-	-			-
21	Natural barriers					-	-			-
22	Oil & Gas Drilling	-	-	-	-	-	-			-
23	Public ownership in watershed									-
24	Wildland fires (incl. debris flows following fires)	-	-	-	-	-	-			-

**Overall Viability Summary**  
**San Luis Obispo Creek, 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	Altered hydrograph	-	-	-	-	-	Very High	-	-
3	Impaired floodplain connectivity	-	-	-	-	-	Very High	-	-
4	Impaired instream habitat complexity/refugia	-	-	Very High	-	-	-	-	-
5	Impaired substrate quality (sedimentation and embeddedness)	Very High	-	-	-	-	-	-	-
6	Altered sediment supply	-	Very High	-	-	-	-	-	-
7	Impaired water quality	-	-	-	-	-	Very High	-	-
8	Impaired riparian habitat quality	-	-	High	-	-	-	-	-
9	Impaired habitat complexity/refugia	-	High	-	-	-	-	-	-
10	Impaired access to estuary	-	-	High	-	-	-	-	-
11	Impaired flows during rearing period	-	-	High	-	-	-	-	-
12	Impaired summer base flows	-	-	High	-	-	-	-	-
13	Impaired water temperature	-	-	High	-	-	-	-	-
14	Impaired estuarine inflows	-	-	High	-	-	-	-	-
15	Altered riparian habitat quality	-	-	-	-	-	High	-	-
16	Dispersal barriers between redds and rearing habitat	-	High	-	-	-	-	-	-

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**San Luis Obispo Creek, 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 ocean	-	-	-	High	-	-	-	-
18	Altered land use from natural condition	-	-	-	-	-	High	-	-
19	Impaired access to spawning areas	-	-	-	-	High	-	-	-
20	Impaired water temperatures in migration corridor	-	-	-	-	High	-	-	-
21	Altered fire regime/recent fire in watershed	-	-	-	-	-	High	-	-
22	Impaired access to rearing and/or spawning habitat	-	-	-	-	-	High	-	-
23	Impaired water temperature in spawning areas	High	-	-	-	-	-	-	-
24	Impaired estuarine habitat quality	-	-	-	-	-	Medium	-	-
25	Impaired food availability	-	-	-	-	-	-	-	-
26	Low adult population size	-	-	-	-	-	-	-	-
27	Altered base flows during incubation	-	-	-	-	-	-	-	-
28	Impaired access to stream from ocean (stream mouth closed)	-	-	-	-	-	-	-	-

**Overall Viability Summary**  
**San Luis Obispo Creek, San Luis Obispo County**

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

## Overall Viability Summary

### San Luis Obispo Creek, 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	<b>Egg</b>	<b>Poor</b>									
	Landscape Context	1	1			1	1			Poor	
	Condition	1				2				Poor	
	Size									-	
2	<b>Fry</b>	<b>Fair</b>									
	Landscape Context	2	1			2	1			Poor	
	Condition		1				1			Fair	
	Size									-	
3	<b>Juvenile</b>	<b>Poor</b>									
	Landscape Context	1	4			1	4			Poor	
	Condition	1	1			1	1			Poor	
	Size									-	
4	<b>Smolt</b>	<b>Fair</b>									
	Landscape Context		1				1			Fair	
	Condition									-	
	Size									-	
5	<b>Adult</b>	<b>Fair</b>									
	Landscape Context		3				3			Fair	
	Condition									-	
	Size									-	
6	<b>Multiple Life Stages</b>	<b>Fair</b>									
	Landscape Context	2	6			8	5	3		Poor	
	Condition		1	1			2	1		Fair	
	Size									-	
7											
	Landscape Context									-	
	Condition									-	
	Size									-	
8											
	Landscape Context									-	
	Condition									-	
	Size									-	