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

Assessment of Target Viability

Double-click opens entry form					Bold = Current	Indicator Ratings		*Italics = Desired*					
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
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	groundwater pumping	Poor		Mar-07	
1	Egg	Landscape Context	Non-native species	Non-native egg predators	present throughout watershed	present in >50% of watershed	present in < 50% of watershed	absent				Mar-07	
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.				Mar-07	
1	Egg	Condition	Substrate quality	Avg. percent fines (<0.85mm) in potential spawning areas	> 17% fines	11-17% fines	5-10 % fines	< 5% fines				Aug-04	
1	Egg	Condition	Substrate quality	Embeddedness	> 75% embedded	50-75% embedded	25-49% embedded	< 25% embedded				May-06	
2	Fry	Landscape Context	Dispersal	Barriers between redds and rearing habitat	complete barrier	**partial barriers common**	partial barriers scarse	no barriers	groundwater pumping	Fair		Mar-07	
2	Fry	Landscape Context	Non-native species	Non-native fry predators	present throughout watershed	present > 50% watershed	present < 50% of watershed	absent				Mar-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				Mar-07	
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				May-06	
3	Juvenile	Landscape Context	Dispersal	Barriers between rearing habitat and estuary	**present**			absent	lower main stem dry	Poor		Mar-07	
3	Juvenile	Landscape Context	Flow during rearing period	Pool habitat > 3 feet in depth	pools scarse or absent	**low abundance of pools**	high abundance of pools	high abundance of pools with muliple "refuge" pools (> 5 ft deep)		Fair		Mar-07	
3	Juvenile	Landscape Context	Non-native species	Non-native juvenile predators	present throughout watershed	present > 50% watershed	present < 50% watershed	absent				Mar-07	
3	Juvenile	Landscape Context	Summer flow	Percent of unimpaired median summer baseflow (based on long-term mean monthly discharge)	< 70%s	**70-90%**	> 90%	100% over all IP-km	main stem goes dry	Fair		Aug-04	
3	Juvenile	Landscape Context	Water temperature	Median weekly average temperature (MWAT) in potential rearing habitat	> 21 C.	18-21 C.	< 18 C.	< 17 C.				Aug-04	

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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%				Mar-07	
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				Mar-07	
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.)				May-06	
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				Mar-07	
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		Fair		May-06	
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%				May-05	
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	some barriers	Good		Mar-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
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%				Mar-07	
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.				Mar-07	
5	Adult	Size	Population size	Mean annual adult spawner abundance		TRT criteria for low extinction risk (by watershed)						May-06	
6	Multiple Life Stages	Landscape Context	Barriers/diversions	Stream crossings/stream mile	> two/mile			< two/mile	avg 1.54 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%	moderate channelization	Fair		Jan-08	
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%	44%	Poor		Jan-08	
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	moderate	Fair		Jan-08	
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	75% accessible	Good		Jan-08	
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	much of main stem goes dry in summer	Fair		Mar-07	
6	Multiple Life Stages	Landscape Context	Hydrology	Hydrograph	severely modified			natural	groundwater pumping	Fair		Mar-07	

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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%	17% public ownership	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 1.4 mi/sq mi	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 3.4 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%**	4.9%	Very 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%	7%	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%	17% public ownership	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%				Mar-07	
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 P and N	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%**	2.3%	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%	0%	Poor		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	avg 51% canopy cover	Good		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	Condition	Riparian corridor quality	Riparian corridor species composition	< 25% native composition	25-50% native composition	50-75% native composition	> 75% native composition				Mar-07	

Overall Viability Summary
Morro 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	Dams and surface water diversions	High	High	Very High	High	High	Very High			Very High
2	Groundwater extraction	High	High	Very High	High	High	Very High			Very High
3	Conversion of watershed lands to row crop agriculture	High	High	Very High	High	-	Very High			Very High
4	Urban development	Medium	Medium	Medium	-	Medium	Very High			High
5	Culverts, crossings, and bridges	-	-	High	Medium	High	High			High
6	Non-point pollution from roads	-	-	-	-	-	Very High			High
7	Agricultural effluents	-	-	-	-	-	High			Medium
8	Levees and channelization	-	-	-	-	-	High			Medium
9	Natural barriers			High	-	-	-			Medium
10	Roads in watershed and/or within 300 feet of watercourses	-	-	-	-	-	High			Medium
11	Invasive non-native plants						Low			Low
12	Artificial lagoon breaching	-	-	-	-	-	-			-
13	Channel and/or estuary maintenance, dredging, an vegetation control (incl. flood control activities)	-	-	-	-	-	-			-
14	Gas, water, and/or other utility pipelines	-	-	-	-	-	-			-
15	Illegal collecting, poaching, and/or unauthorized angling	-	-	-	-	-	-			-
16	Livestock Farming & Ranching	-	-	-	-	-	-			-
Threat Status for Targets and Project		High	High	Very High	High	High	Very High	-	-	Very High

Overall Viability Summary
Morro 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	Log jams and other removable barriers									-
18	Mining & Quarrying	-	-	-	-	-	-			-
19	Non-native species present (incl. hatchery fish)	-	-	-	-	-	-			-
20	Oil & Gas Drilling	-	-	-	-	-	-			-
21	Public ownership in watershed									-
22	Recreational facilities and activities (ORV use, campgrounds, etc.)	-	-	-	-	-	-			-
23	Urban wastewater effluents (incl. industrial and commercial effluents)	-	-	-	-	-	-			-
24	Wildland fires (incl. debris flows following fires)	-	-	-	-	-	-			-
25										-

Overall Viability Summary
Morro 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	Impaired estuarine habitat quality	-	-	-	-	-	Very High	-	-
2	Impaired water quality	-	-	-	-	-	Very High	-	-
3	Altered fire regime/recent fire in watershed	-	-	-	-	-	Very High	-	-
4	Impaired access to estuary	-	-	Very High	-	-	-	-	-
5	Altered base flows during incubation	High	-	-	-	-	-	-	-
6	Altered land use from natural condition	-	-	-	-	-	High	-	-
7	Dispersal barriers between redds and rearing habitat	-	High	-	-	-	-	-	-
8	Altered hydrograph	-	-	-	-	-	High	-	-
9	Impaired floodplain connectivity	-	-	-	-	-	High	-	-
10	Impaired access to rearing and/or spawning habitat	-	-	-	-	-	High	-	-
11	Impaired access to spawning areas	-	-	-	-	High	-	-	-
12	Impaired flows during rearing period	-	-	High	-	-	-	-	-
13	Impaired summer base flows	-	-	High	-	-	-	-	-
14	Impaired access to ocean	-	-	-	High	-	-	-	-
15	Altered riparian habitat quality	-	-	-	-	-	Medium	-	-
16	Impaired riparian habitat quality	-	-	-	-	-	-	-	-

Overall Viability Summary
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	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 instream habitat complexity/refugia	-	-	-	-	-	-	-	-
18	Impaired estuarine inflows	-	-	-	-	-	-	-	-
19	Impaired access to stream from ocean (stream mouth closed)	-	-	-	-	-	-	-	-
20	Impaired water temperature	-	-	-	-	-	-	-	-
21	Impaired water temperatures in migration corridor	-	-	-	-	-	-	-	-
22	Low adult population size	-	-	-	-	-	-	-	-
23	Impaired water temperature in spawning areas	-	-	-	-	-	-	-	-
24	Impaired habitat complexity/refugia	-	-	-	-	-	-	-	-
25	Non-native egg predators	-	-	-	-	-	-	-	-
26	Altered sediment supply	-	-	-	-	-	-	-	-
27	Non-native predators	-	-	-	-	-	-	-	-
28	Impaired substrate quality (sedimentation and embeddedness)	-	-	-	-	-	-	-	-
29	Impaired food availability	-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-

Overall Viability Summary
Morro Creek, San Luis Obispo County

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

Overall Viability Summary
Morro Creek, San Luis Obispo County

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