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

Assessment of Target Viability
Arroyo Grande Creek, San Luis Obispo County

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	Avg daily flow is 26-33% of what is released by dam	Fair		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	present throughout main stem	Poor		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	erosion probably widespread in watershed	Fair		Aug-04	
1	Egg	Condition	Substrate quality	Embeddedness	> 75% embedded	**50-75% embedded**	25-49% embedded	< 25% embedded	high embeddedness in many tail-outs of pools	Fair		Aug-04	
2	Fry	Landscape Context	Dispersal	Barriers between redds and rearing habitat	complete barrier	partial barriers common	**partial barriers scarse**	no barriers	probably few to no barriers	Good		Mar-07	
2	Fry	Landscape Context	Non-native species	Non-native fry predators	**present throughout watershed**	present > 50% watershed	present < 50% of watershed	absent	present throughout main stem	Poor		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	significant bank erosion	Fair		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	instream refugia limited	Fair		Mar-07	
3	Juvenile	Landscape Context	Dispersal	Barriers between rearing habitat and estuary	**present**			absent	seasonal surface water; Cecchetti Rd crossing	Poor		Mar-07	

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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)	pool habitat abundance probably good, but seasonal	Fair		Mar-07	
3	Juvenile	Landscape Context	Non-native species	Non-native juvenile predators	**present throughout watershed**	present > 50% watershed	present < 50% watershed	absent	present throughout main stem	Poor		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	instream summer flows 26-33% of total released by Lopez Dam	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.	15-23 C in July-August 2004	Good		Aug-04	
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%	seasonal surface flows; dam	Fair		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.)	limited instream cover; seasonal surface flows	Fair		Mar-07	
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	Poor		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	seasonal flows	Fair		Mar-07	

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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%	probably high	Fair		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	56% of watershed is below Lopez Dam	Fair		Mar-07	
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%	seasonal flows; dam	Fair		Aug-04	
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)						Mar-03	
6	Multiple Life Stages	Landscape Context	Barriers/diversions	Stream crossings/stream mile	> two/mile			< two/mile	avg 1.06 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%	41%	Poor		Jan-08	

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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	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	Lopez Dam; 28%	Fair		Mar-07	
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	seasonal surface flows; dam	Poor		Mar-07	
6	Multiple Life Stages	Landscape Context	Hydrology	Hydrograph	**severely modified**			natural	probably highly modified	Poor		Mar-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%	below Lopez Dam	Poor		Mar-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	main access road; avg 0.9 mi/sq mi	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	avg 3.3 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%**	6.5 to 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%	extensive irrig agriculture; 6%	Fair		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%	28%	Fair		Aug-04	

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6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in urban/residential use	> 25%	10-25%	**5-9%**	< 5%	lower watershed urbanized; 7%	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	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%**	2.4%	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%	20%	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	79% to 81% riparian canopy cover	Good		Mar-07	
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
Arroyo Grande 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	Conversion of watershed lands to row crop agriculture	High	High	Very High	High	Very High	Very High			Very High
2	Groundwater extraction	High	High	Very High	High	Very High	Very High			Very High
3	Levees and channelization	High	High	Very High	High	Very High	Very High			Very High
4	Roads in watershed and/or within 300 feet of watercourses	High	High	Very High	High	Very High	Very High			Very High
5	Dams and surface water diversions	High	High	Very High	-	Very High	Very High			Very High
6	Recreational facilities and activities (ORV use, campgrounds, etc.)	Very High	-	Very High	High	High	Very High			Very High
7	Urban development	Very High	-	Very High	High	High	Very High			Very High
8	Non-native species present (incl. hatchery fish)	Very High	Very High	Very High	-	-	-			Very High
9	Culverts, crossings, and bridges	-	-	-	High	Very High	Very High			Very High
10	Channel and/or estuary maintenance, dredging, an vegetation control (incl. flood control activities)	-	High	Medium	High	Very High	High			Very High
11	Livestock Farming & Ranching	High	Medium	High	-	-	High			High
12	Agricultural effluents	-	-	-	-	-	Very High			High
13	Mining & Quarrying	-	-	High	-	Medium	High			High
14	Wildland fires (incl. debris flows following fires)	-	High	-	-	-	High			High
15	Invasive, non-native plants	-	Medium	High	-	-				Medium
16	Natural barriers					Low	High			Medium
Threat Status for Targets and Project		Very High	Very High	Very High	Very High	Very High	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	Artificial lagoon breaching	-	-	-	-	-	-			-
18	Gas, water, and/or other utility pipelines	-	-	-	-	-	-			-
19	Illegal collecting, poaching, and/or unauthorized angling	-	-	-	-	-	-			-
20	Log jams and other removable barriers									-
21	Non-point pollution from roads	-	-	-	-	-	-			-
22	Oil & Gas Drilling	-	-	-	-	-	-			-
23	Public ownership in watershed									-
24	Urban wastewater effluents (incl. industrial and commercial effluents)	-	-	-	-	-	-			-
25										-

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
1	Non-native predators	-	Very High	Very High	-	-	-	-	-
2	Impaired estuarine habitat quality	-	-	-	-	-	Very High	-	-
3	Altered hydrograph	-	-	-	-	-	Very High	-	-
4	Non-native egg predators	Very High	-	-	-	-	-	-	-
5	Altered fire regime/recent fire in watershed	-	-	-	-	-	Very High	-	-
6	Impaired floodplain connectivity	-	-	-	-	-	Very High	-	-
7	Impaired access to spawning areas	-	-	-	-	Very High	-	-	-
8	Impaired water quality	-	-	-	-	-	Very High	-	-
9	Impaired access to estuary	-	-	Very High	-	-	-	-	-
10	Impaired riparian habitat quality	-	-	High	-	-	-	-	-
11	Impaired habitat complexity/refugia	-	High	-	-	-	-	-	-
12	Impaired flows during rearing period	-	-	High	-	-	-	-	-
13	Impaired summer base flows	-	-	High	-	-	-	-	-
14	Altered base flows during incubation	High	-	-	-	-	-	-	-
15	Impaired estuarine inflows	-	-	High	-	-	-	-	-
16	Altered land use from natural condition	-	-	-	-	-	High	-	-

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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	-	-	High	-	-	-	-	-
18	Impaired access to ocean	-	-	-	High	-	-	-	-
19	Impaired substrate quality (sedimentation and embeddedness)	High	-	-	-	-	-	-	-
20	Altered sediment supply	-	High	-	-	-	-	-	-
21	Impaired access to rearing and/or spawning habitat	-	-	-	-	-	High	-	-
22	Impaired water temperature	-	-	Medium	-	-	-	-	-
23	Altered riparian habitat quality	-	-	-	-	-	Medium	-	-
24	Dispersal barriers between redds and rearing habitat	-	Medium	-	-	-	-	-	-
25	Low adult population size	-	-	-	-	-	-	-	-
26	Impaired water temperature in spawning areas	-	-	-	-	-	-	-	-
27	Impaired access to stream from ocean (stream mouth closed)	-	-	-	-	-	-	-	-
28	Impaired food availability	-	-	-	-	-	-	-	-
29	Impaired water temperatures in migration corridor	-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-

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	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	Poor	1	-	1	**Poor**
7		-	1	-	1	-	1	**-**
8		-	1	-	1	-	1	**-**
Project Biodiversity Health Rank								**Fair**

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