

**Main stem lower Salinas River, Monterey and San Luis Obispo counties  
CAP Workbook Threats Assessment Summary Tables  
2008**

## Assessment of Target Viability

Double-click opens entry form				Indicator Ratings									
				<b>Bold = Current</b>				<i>Italics = Desired</i>					
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				Apr-07	
1	Egg	Landscape Context	Non-native species	Non-native egg predators	<b>present throughout watershed</b>	present in >50% of watershed	present in < 50% of watershed	absent	non-native fishes common throughout main stem	Poor		Aug-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.				Oct-05	
1	Egg	Condition	Substrate quality	Avg. percent fines (<0.85mm) in potential spawning areas	> 17% fines	<b>11-17% fines</b>	5-10 % fines	< 5% fines	significant soil erosion	Fair		Apr-07	
1	Egg	Condition	Substrate quality	Embeddedness	> 75% embedded	50-75% embedded	25-49% embedded	< 25% embedded				Apr-07	
2	Fry	Landscape Context	Dispersal	Barriers between redds and rearing habitat	complete barrier	partial barriers common	partial barriers scarce	no barriers				Apr-07	
2	Fry	Landscape Context	Non-native species	Non-native fry predators	<b>present throughout watershed</b>	present > 50% watershed	present < 50% of watershed	absent	present throughout main stem	Poor		Aug-07	
2	Fry	Landscape Context	Sediment supply	Turbidity (no. days turbidity is > 25 NTUs)	> 30 days during fry development period	<b>20-30 days</b>	10-19 days	< 10 days	probably high turbidity	Fair		Apr-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	<b>some</b>	common	abundant	very low abundance	Fair		Aug-02	
3	Juvenile	Landscape Context	Dispersal	Barriers between rearing habitat and estuary	<b>present</b>			absent	low flows	Poor		Apr-07	
3	Juvenile	Landscape Context	Flow during rearing period	Pool habitat > 3 feet in depth	<b>pools scarce or absent</b>	low abundance of pools	high abundance of pools	high abundance of pools with multiple "refuge" pools (> 5 ft deep)	pools scarce	Poor		Aug-02	
3	Juvenile	Landscape Context	Non-native species	Non-native juvenile predators	<b>present throughout watershed</b>	present > 50% watershed	present < 50% watershed	absent	present throughout main stem	Poor		Aug-07	
3	Juvenile	Landscape Context	Summer flow	Percent of unimpaired median summer baseflow (based on long-term mean monthly discharge)	< <b>70%<i>s</i></b>	70-90%	> 90%	100% over all IP-km	low flows	Poor		Apr-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
3	Juvenile	Landscape Context	Water temperature	Median weekly average temperature (MWAT) in potential rearing habitat	> 21 C.	18-21 C.	< 18 C.	< 17 C.	18 C	Fair		Aug-03	
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%	extensive groundwater extraction	Poor		Apr-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				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.)	no pools; moderate shelter values	Fair		Apr-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	significant, extensive disturbance	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	dry stream reaches	Poor		Sep-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%	4 dams; groundwater extraction	Poor		Apr-07	
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				Apr-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	4 dams	Poor		Apr-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%	dry reaches	Poor		Apr-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.	18 C	Poor		Oct-05	
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 1.1 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%	probably > 25%	Poor		Jul-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%	8.3%	Good		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 floodplain connectivity	agricultural encroachment	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	4 dams	Poor		Apr-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	probably 25-75% dry reaches	Fair		Apr-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	Hydrology	Hydrograph	<b>severely modified</b>		natural	4 dams	Poor		Apr-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%			Jun-07	
6	Multiple Life Stages	Landscape Context	Land use	Miles of road per square mile of watershed within 100 meters of watercourse	> 1 mi	<b>0.5-1.0 mi</b>	0.1-0.49 mi	< 0.1 mi	0.97 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	<b>2.6-3.0 mi</b>	1.6-2.5 mi	< 1.6 mi	2.7 mi/sq mi	Fair	Jan-08	
6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in agricultural use	> 30%	<b>20-29%</b>	10-19%	< 10%	12% in lower SR Basin	Fair	Jul-08	
6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in agriculture within 100 meters of watercourse	> 20%	<b>11-20%</b>	5-10%	< 5%	6%	Fair	Jan-08	
6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in public ownership	<b>&lt; 25 % public ownership</b>	25-50%	51-75%	> 75%	14% to 25%	Poor	Mar-07	
6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in urban/residential use	> 25%	10-25%	5-9%	<b>&lt; 5%</b>	1.4% to 3%	Very Good	Jan-08	
6	Multiple Life Stages	Landscape Context	Water quality	General index of toxicity based on severity of adverse effects on fish	<b>Acute lethal effects (fish kill)</b>	Sublethal effects (reduced growth, altered behavior, etc.)	Toxins detected but no sublethal effects	No toxins or contaminants detected	elevated nitrates and organophosphates in upper watershed	Poor	Jan-08	
6	Multiple Life Stages	Landscape Context	Water quality	Percent total impervious surfaces as % of watershed area	>40%	21-40%	5-20%	<b>&lt; 5%</b>	1.1%	Very Good	Jan-08	
6	Multiple Life Stages	Condition	Estuarine habitat quality	Current lagoon area as percentage of historic total area	<b>&lt; 25%</b>	26-50%	51-75%	> 75%	9%	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				Jul-06	
6	Multiple Life Stages	Condition	Riparian corridor quality	Riparian canopy cover	<b>&lt; 25% cover</b>	25-49% cover	50-75% cover	> 75% cover	37% cover	Poor	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-03	

## Stresses and Threats

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	Channel and/or estuary maintenance, dredging, and vegetation control (incl. flood control activities)	Very High	Very High	Very High	-	High	Very High			Very High
4	Levees and channelization	Very High	Very High	Very High	-	-	Very High			Very High
5	Recreational facilities and activities (ORV use, campgrounds, etc.)	Very High	Very High	Very High	-	-	High			Very High
6	Urban development	Very High	Very High	Very High	-	-	High			Very High
7	Conversion of watershed lands to row crop agriculture	-	Very High	-	-	Very High	Very High			Very High
8	Non-native species present (incl. hatchery fish)	Very High	Very High	Very High	-	-	-			Very High
9	Non-point pollution from roads	Very High	Very High	-	-	-	High			Very High
10	Roads in watershed and/or within 300 feet of watercourses	-	Very High	-	-	-	Very High			Very High
11	Agricultural effluents	-	Very High	-	-	-	High			High
12	Culverts, crossings, and bridges	-	Very High	-	-	-	High			High
13	Livestock Farming & Ranching	Very High	High	-	-	-	-			High
14	Urban wastewater effluents (incl. industrial and commercial effluents)	-	-	-	-	-	Very High			High
15	Mining & Quarrying	-	-	-	-	-	High			Medium
16	Natural barriers					-	Medium			Low
<b>Threat Status for Targets and Project</b>		Very High	-	-	Very High					

**Overall Viability Summary**  
**Arroyo Seco, Monterey County**

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	Invasive non-native plants						-			-
18	Levees and channelization	-	-	-	-	-	-			-
19	Livestock Farming & Ranching	-	-	-	-	-	-			-
20	Log jams and other removable barriers									-
21	Logging	-	-	-			-			-
22	Natural barriers					-	-			-
23	Oil & Gas Drilling	-	-	-	-	-	-			-
24	Public ownership in watershed									-
25	Urban wastewater effluents (incl. industrial and commercial effluents)	-	-	-	-	-	-			-
26										-

## Overall Viability Summary Arroyo Seco, Monterey 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	-	-	-	-	-
2	Impaired estuarine habitat quality	-	-	-	-	-	Very High	-	-
3	Impaired access to spawning areas	-	-	-	-	Very High	-	-	-
4	Non-native egg predators	Very High	-	-	-	-	-	-	-
5	Impaired access to ocean	-	-	-	Very High	-	-	-	-
6	Impaired access to estuary	-	-	Very High	-	-	-	-	-
7	Impaired riparian habitat quality	-	-	High	-	-	-	-	-
8	Altered hydrograph	-	-	-	-	-	High	-	-
9	Altered fire regime/recent fire in watershed	-	-	-	-	-	High	-	-
10	Impaired access to rearing and/or spawning habitat	-	-	-	-	-	High	-	-
11	Impaired water temperatures in migration corridor	-	-	-	-	High	-	-	-
12	Impaired water temperature	-	-	High	-	-	-	-	-
13	Altered sediment supply	-	Medium	-	-	-	-	-	-
14	Impaired flows during rearing period	-	-	Medium	-	-	-	-	-
15	Impaired instream habitat complexity/refugia	-	-	Medium	-	-	-	-	-
16	Impaired water quality	-	-	-	-	-	Low	-	-

**Overall Viability Summary**  
**Arroyo Seco, Monterey 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	Altered riparian habitat quality	-	-	-	-	-	Low	-	-
18	Impaired substrate quality (sedimentation and embeddedness)	Low	-	-	-	-	-	-	-
19	Altered base flows during incubation	Low	-	-	-	-	-	-	-
20	Altered land use from natural condition	-	-	-	-	-	Low	-	-
21	Impaired summer base flows	-	-	Low	-	-	-	-	-
22	Impaired habitat complexity/refugia	-	Low	-	-	-	-	-	-
23	Dispersal barriers between redds and rearing habitat	-	Low	-	-	-	-	-	-
24	Impaired floodplain connectivity	-	-	-	-	-	Low	-	-
25	Impaired food availability	-	-	-	-	-	-	-	-
26	Low adult population size	-	-	-	-	-	-	-	-
27	Impaired estuarine inflows	-	-	-	-	-	-	-	-
28	Impaired water temperature in spawning areas	-	-	-	-	-	-	-	-
29	Impaired access to stream from ocean (stream mouth closed)	-	-	-	-	-	-	-	-

**Overall Viability Summary**  
**Arroyo Seco, Monterey County**

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

## Overall Viability Summary Arroyo Seco, Monterey 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>Fair</b>	
	Landscape Context	1			1	1			1	Poor		
	Condition				1				1	Very Good		
	Size									-		
2	<b>Fry</b>										<b>Fair</b>	
	Landscape Context	1	1		1	1	1		1	Poor		
	Condition			1				1		Good		
	Size									-		
3	<b>Juvenile</b>										<b>Fair</b>	
	Landscape Context	1	2	1	1	1	2	1	1	Poor		
	Condition		1	1			1	1		Fair		
	Size									-		
4	<b>Smolt</b>										<b>Poor</b>	
	Landscape Context	1			1	1			1	Poor		
	Condition									-		
	Size									-		
5	<b>Adult</b>										<b>Poor</b>	
	Landscape Context	1	2			1	2			Poor		
	Condition									-		
	Size									-		
6	<b>Multiple Life Stages</b>										<b>Fair</b>	
	Landscape Context		4		3	1	4	2	5	Fair		
	Condition	1		1		1		1		Poor		
	Size									-		
7											-	
	Landscape Context									-		
	Condition									-		
	Size									-		
8											-	
	Landscape Context									-		
	Condition									-		
	Size									-		