

**San Juan Creek (incl Trabuco Creek), Orange County
CAP Workbook Threats Assessment Summary Tables
2008**

**Assessment of Target Viability
San Juan Creek (incl Trabuco Creek), Orange County**

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)	pools uncommon, but flatwater habitat common	Good		Jan-06	
3	Juvenile	Landscape Context	Non-native species	Non-native juvenile predators	present throughout watershed	present > 50% watershed	present < 50% watershed	absent	present	Poor		Oct-07	
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	intermittent summer flows	Fair		May-06	
3	Juvenile	Landscape Context	Water temperature	Median weekly average temperature (MWAT) in potential rearing habitat	> 21 C.	18-21 C.	< 18 C.	< 17 C.	avg 16.5 - 17.4 in spring	Good		May-06	
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%	intermittent flow	Fair		May-06	
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					
3	Juvenile	Condition	Food availability	Species richness	< 25 taxa	25-29 taxa	30-40 taxa	> 40 taxa	high sp richness			Mar-07	
3	Juvenile	Condition	Habitat complexity/refugia	Instream refugia	absent			present (boulders, overhanging banks, etc.)	good to very good in upper watershed; fair to poor in lower watershed	Fair		Jan-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					
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	intermittent channel	Poor		May-06	

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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%				Jun-02	
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	at least 2 complete barriers	Poor		May-06	
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%				Jun-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.	16.5 C to 17.4 C in Spring	Fair		May-06	
5	Adult	Size	Population size	Mean annual adult spawner abundance		TRT criteria for low extinction risk (by watershed)						May-07	
6	Multiple Life Stages	Landscape Context	Barriers/diversions	Stream crossings/stream mile	> two/mile			< two/mile	avg 1.8 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%	16-25% channelized	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%	27%	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	35-75% connected	Fair		May-06	
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	< 15% is accessible	Poor		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	50% dry in summer	Fair		Jan-06	
6	Multiple Life Stages	Landscape Context	Hydrology	Hydrograph	severely modified			natural	groundwater extraction	Fair		Jun-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%	37%	Fair		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 0.94 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 5.1 mi/sq mile	Poor		Jan-08	
6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in agricultural use	> 30%	20-29%	10-19%	< 10%	7%	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%	0.2%	Very 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%	37%	Fair		Jan-08	
6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in urban/residential use	> 25%	10-25%	5-9%	< 5%	23%	Fair		Jan-08	

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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	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%	10%	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%	10%	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						
6	Multiple Life Stages	Condition	Riparian corridor quality	Riparian canopy cover	< 25% cover	25-49% cover	50-75% cover	> 75% cover	avg 50-57%	Good		Jan-06	
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	heavy infestation along middle and lower reaches	Fair		Jun-07	

Overall Viability Summary
San Juan Creek (incl Trabuco Creek), Orange County

Summary of Threats Click the page-down icon ▼ to the right to view more summary tables.										
San Juan Creek (incl Trabuco Creek), Orange 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	Groundwater extraction	Medium	High	Very High	High	Very High	Very High			Very High
2	Urban development	High	High	Very High	High	High	Very High			Very High
3	Levees and channelization	Medium	High	High	-	Very High	Very High			Very High
4	Channel and/or estuary maintenance, dredging, and vegetation control (incl. flood control activities)	High	High	High	High	Very High	High			Very High
5	Culverts, crossings, and bridges	-	-	High	High	Very High	Very High			Very High
6	Conversion of watershed lands to row crop agriculture	High	High	High	-	High	Very High			Very High
7	Recreational facilities and activities (ORV use, campgrounds, etc.)	Low	Medium	High	-	-	Very High			High
8	Non-native species present (incl. hatchery fish)	Medium	High	Very High	-	-	-			High
9	Non-point pollution from roads	High	Medium	Low	-	High	High			High
10	Roads in watershed and/or within 300 feet of watercourses	-	-	-	-	-	Very High			High
11	Invasive, non-native plants	-	Medium	High	-	Medium	Medium			Medium
12	Dams and surface water diversions	Medium	-	-	-	High	-			Medium
13	Agricultural effluents	-	-	-	-	-	High			Medium
14	Wildland fires (incl. debris flows following fires)	-	-	-	-	-	Low			Low
15	Artificial lagoon breaching	-	-	-	-	-	-			-
16	Gas, water, and/or other utility pipelines	-	-	-	-	-	-			-
Threat Status for Targets and Project		High	Very High	Very High	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	Illegal collecting, poaching, and/or unauthorized angling	-	-	-	-	-	-			-
18	Livestock Farming & Ranching	-	-	-	-	-	-			-
19	Mining & Quarrying	-	-	-	-	-	-			-
20	Oil & Gas Drilling	-	-	-	-	-	-			-
21	Public ownership in watershed									-
22	Urban wastewater effluents (incl. industrial and commercial effluents)	-	-	-	-	-	-			-
23										-
24										-
25										-
26										-
27										-
28										-
29										-
30										-
31										-
32										-
Threat Status for Targets and Project		High	Very High	Very High	High	Very High	Very High	-	-	Very High

Overall Viability Summary
San Juan Creek (incl Trabuco Creek), Orange County

Stress Matrix									
San Juan Creek (incl Trabuco Creek), Orange 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	-	High	Very High	-	-	-	-	-
2	Impaired estuarine habitat quality	-	-	-	-	-	Very High	-	-
3	Altered fire regime/recent fire in watershed	-	-	-	-	-	Very High	-	-
4	Impaired access to rearing and/or spawning habitat	-	-	-	-	-	Very High	-	-
5	Impaired access to spawning areas	-	-	-	-	Very High	-	-	-
6	Altered land use from natural condition	-	-	-	-	-	High	-	-
7	Altered hydrograph	-	-	-	-	-	High	-	-
8	Impaired water quality	-	-	-	-	-	High	-	-
9	Impaired floodplain connectivity	-	-	-	-	-	High	-	-
10	Impaired habitat complexity/refugia	-	High	-	-	-	-	-	-
11	Impaired access to estuary	-	-	High	-	-	-	-	-
12	Impaired water temperatures in migration corridor	-	-	-	-	High	-	-	-
13	Impaired summer base flows	-	-	High	-	-	-	-	-
14	Impaired substrate quality (sedimentation and embeddedness)	High	-	-	-	-	-	-	-
15	Impaired estuarine inflows	-	-	High	-	-	-	-	-
16	Impaired access to ocean	-	-	-	High	-	-	-	-

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Stress Matrix									
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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	Altered riparian habitat quality	-	-	-	-	-	Medium	-	-
19	Altered base flows during incubation	Medium	-	-	-	-	-	-	-
20	Altered sediment supply	-	Medium	-	-	-	-	-	-
21	Impaired water temperature	-	-	Medium	-	-	-	-	-
22	Non-native egg predators	Medium	-	-	-	-	-	-	-
23	Impaired flows during rearing period	-	-	Medium	-	-	-	-	-
24	Impaired riparian habitat quality	-	-	-	-	-	-	-	-
25	Impaired water temperature in spawning areas	-	-	-	-	-	-	-	-
26	Low adult population size	-	-	-	-	-	-	-	-
27	Dispersal barriers between redds and rearing habitat	-	-	-	-	-	-	-	-
28	Impaired food availability	-	-	-	-	-	-	-	-
29	Impaired access to stream from ocean (stream mouth closed)	-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-
31		-	-	-	-	-	-	-	-
32		-	-	-	-	-	-	-	-

**Overall Viability Summary
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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	Fair	1	Good	1	-	1	Good
2	Fry	Poor	1	Fair	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	Poor	1	Poor	1	-	1	Poor
7		-	1	-	1	-	1	-
8		-	1	-	1	-	1	-
Project Biodiversity Health Rank								Fair

Overall Viability Summary

San Juan Creek (incl Trabuco Creek), Orange County

Detailed Viability Summary											
San Juan Creek (incl Trabuco Creek), Orange County											
Conservation Targets		Key Ecological Attributes				Indicators				Calculated Rank	User Override
		Poor	Fair	Good	Very Good	Poor	Fair	Good	Very Good		
1	Egg									Good	
	Landscape Context		1	1			1	1		Fair	
	Condition			1			1	1		Good	
	Size									-	
2	Fry									Fair	
	Landscape Context	1		1		1		1		Poor	
	Condition		1				1			Fair	
	Size									-	
3	Juvenile									Fair	
	Landscape Context	2	1	2		2	1	2		Poor	
	Condition		2				2			Fair	
	Size									-	
4	Smolt									Poor	
	Landscape Context	1				1				Poor	
	Condition									-	
	Size									-	
5	Adult									Poor	
	Landscape Context	1	1			1	1			Poor	
	Condition									-	
	Size									-	
6	Multiple Life Stages									Poor	
	Landscape Context	2	5	1		3	10	1	2	Poor	
	Condition	1		1		1	1	1		Poor	
	Size									-	
7											-
	Landscape Context									-	
	Condition									-	
	Size									-	
8											-
	Landscape Context									-	
	Condition									-	
	Size									-	