

San Onofre Creek, San Diego county
CAP Workbook Threats Assessment Summary Tables
2008

**Assessment of Target Viability
San Onofre Creek, San Diego County**

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San Onofre Creek, San Diego County**

Double-click opens entry form

				Indicator Ratings									
				Bold = Current				<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	intermittent stream	Fair		Apr-96	
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	Poor		Oct-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.					
1	Egg	Condition	Substrate quality	Avg. percent fines (<0.85mm) in potential spawning areas	> 17% fines	11-17% fines	5-10 % fines	< 5% fines				Jan-06	
1	Egg	Condition	Substrate quality	Embeddedness	> 75% embedded	50-75% embedded	25-49% embedded	< 25% embedded				Jan-06	
2	Fry	Landscape Context	Dispersal	Barriers between redds and rearing habitat	complete barrier	partial barriers common	partial barriers scarce	no barriers				Jun-02	
2	Fry	Landscape Context	Non-native species	Non-native fry predators	present throughout watershed	present > 50% of watershed	present < 50% of watershed	absent	present	Poor		Aug-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				May-06	
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 complexity low			Jan-06	
3	Juvenile	Landscape Context	Dispersal	Barriers between rearing habitat and estuary	present			absent	intermittent flow	Poor		Jan-06	
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 scarce in lower reaches; common in upper reaches	Fair		Apr-96	
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	

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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	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.	high temperatures in pools in summer	Poor		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 stream	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	low to medium species richness	Fair		Mar-97	
3	Juvenile	Condition	Habitat complexity/refugia	Instream refugia	absent			present (boulders, overhanging banks, etc.)				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 stream	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%	excessive groundwater pumping	Poor		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	probably less than 30 days	Poor		Sep-96	

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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	no barriers	Very Good		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	probably less than 30 days	Poor		Sep-96	
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.	21 C	Poor		Apr-96	
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 1.1 crossings/mile	Good		Jan-08	
6 Multiple Life Stages	Landscape Context	Channel flow and morphology	Percent of total watercourse length channelized	> 25%	16-25%	5-15%	< 5%	low	Very Good		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%	24%	Fair		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	> 80%	Very 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	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	barriers above spawning habitat	Very 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	about 33% dry reaches	Fair		Jan-06	
6	Multiple Life Stages	Landscape Context	Hydrology	Hydrograph	severely modified			natural	groundwater pumping	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%				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	0.5-1.0 mi	0.1-0.49 mi	< 0.1 mi	avg 0.82 mi/sq mile	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 2.5 mi/sq mi	Good		Jan-08	
6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in agricultural use	> 30%	20-29%	10-19%	< 10%	< 0.1%	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%	< 1%	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%				Jan-06	
6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in urban/residential use	> 25%	10-25%	5-9%	< 5%	6%	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				Jun-02	
6	Multiple Life Stages	Landscape Context	Water quality	Percent total impervious surfaces as % of watershed area	>40%	21-40%	5-20%	< 5%	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%	20%	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	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		avg depth 0.9 m; freshwater	Poor		Sep-96	
6	Multiple Life Stages	Condition	Riparian corridor quality	Riparian canopy cover	< 25% cover	25-49% cover	50-75% cover	> 75% cover	avg 39%	Fair		Apr-96	
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				Jun-07	



Overall Viability Summary
San Onofre Creek, San Diego County

Summary of Threats										
San Onofre Creek, San Diego 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	-	Very High	Very High	Very High	Very High			Very High
2	Groundwater extraction	High	-	Very High	Very High	Very High	Very High			Very High
3	Recreational facilities and activities (ORV use, campgrounds, etc.)	Very High	Very High	Very High	-	Low	High			Very High
4	Non-native species present (incl. hatchery fish)	Very High	Very High	Very High	-	-	-			Very High
5	Roads in watershed and/or within 300 feet of watercourses	-	-	High	High	Low	High			High
6	Culverts, crossings, and bridges	-	-	-	-	Low	High			Medium
7	Invasive, non-native plants	-	-	Low	-	-	High			Medium
8	Non-point pollution from roads	-	-	Low	-	-	High			Medium
9	Urban wastewater effluents (incl. industrial and commercial effluents)	-	-	-	-	-	High			Medium
10	Wildland fires (incl. debris flows following fires)	-	-	-	-	-	High			Medium
11	Urban development	-	-	Medium	-	-	Low			Low
12	Agricultural effluents	-	-	-	-	-	-			-
13	Artificial lagoon breaching	-	-	-	-	-	-			-
14	Channel and/or estuary maintenance, dredging, and vegetation control (incl. flood control activities)	-	-	-	-	-	-			-
15	Conversion of watershed lands to row crop agriculture	-	-	-	-	-	-			-
16	Gas, water, and/or other utility pipelines	-	-	-	-	-	-			-
Threat Status for Targets and Project		Very High	-	-	Very High					

Overall Viability Summary
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Summary of Threats										
San Onofre Creek, San Diego 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	Illegal collecting, poaching, and/or unauthorized angling	-	-	-	-	-	-			-
18	Levees and channelization	-	-	-	-	-	-			-
19	Livestock Farming & Ranching	-	-	-	-	-	-			-
20	Mining & Quarrying	-	-	-	-	-	-			-
21	Oil & Gas Drilling	-	-	-	-	-	-			-
22	Public ownership in watershed									-
23										-
24										-
25										-
26										-
27										-
28										-
29										-
30										-
31										-
32										-
Threat Status for Targets and Project		Very High	-	-	Very High					

Overall Viability Summary
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Stress Matrix									
San Onofre Creek, San Diego 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 water temperatures in migration corridor	-	-	-	-	Very High	-	-	-
4	Non-native egg predators	Very High	-	-	-	-	-	-	-
5	Impaired access to stream from ocean (stream mouth closed)	-	-	-	-	Very High	-	-	-
6	Impaired access to ocean	-	-	-	Very High	-	-	-	-
7	Impaired water temperature	-	-	Very High	-	-	-	-	-
8	Impaired access to estuary	-	-	Very High	-	-	-	-	-
9	Altered riparian habitat quality	-	-	-	-	-	High	-	-
10	Altered base flows during incubation	High	-	-	-	-	-	-	-
11	Altered hydrograph	-	-	-	-	-	High	-	-
12	Altered fire regime/recent fire in watershed	-	-	-	-	-	High	-	-
13	Impaired summer base flows	-	-	High	-	-	-	-	-
14	Impaired food availability	-	-	High	-	-	-	-	-
15	Impaired estuarine inflows	-	-	High	-	-	-	-	-
16	Altered land use from natural condition	-	-	-	-	-	Medium	-	-

Overall Viability Summary
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Stress Matrix									
San Onofre Creek, San Diego 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 flows during rearing period	-	-	Medium	-	-	-	-	-
18	Impaired water quality	-	-	-	-	-	Medium	-	-
19	Impaired floodplain connectivity	-	-	-	-	-	Low	-	-
20	Impaired access to spawning areas	-	-	-	-	Low	-	-	-
21	Impaired access to rearing and/or spawning habitat	-	-	-	-	-	Low	-	-
22	Impaired riparian habitat quality	-	-	-	-	-	-	-	-
23	Low adult population size	-	-	-	-	-	-	-	-
24	Impaired water temperature in spawning areas	-	-	-	-	-	-	-	-
25	Impaired substrate quality (sedimentation and embeddedness)	-	-	-	-	-	-	-	-
26	Dispersal barriers between redds and rearing habitat	-	-	-	-	-	-	-	-
27	Impaired instream habitat complexity/refugia	-	-	-	-	-	-	-	-
28	Altered sediment supply	-	-	-	-	-	-	-	-
29	Impaired habitat complexity/refugia	-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-
31		-	-	-	-	-	-	-	-
32		-	-	-	-	-	-	-	-

**Overall Viability Summary
San Onofre Creek, San Diego County**

Overall Viability Summary San Onofre Creek, San Diego County								
Conservation Targets		Landscape Context		Condition		Size		Viability Rank
		Grade	Weight	Grade	Weight	Grade	Weight	
1	Egg	Poor	1	-	1	-	1	Poor
2	Fry	Poor	1	-	1	-	1	Poor
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	-
Project Biodiversity Health Rank								Poor

Overall Viability Summary

San Onofre Creek, San Diego County

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