Otay River, San Diego County
CAP Workbook Threats Assessment Summary Tables
2008

Assessment of Target Viability

Otay River, San Diego 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				Sep-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				Oct-98	
1	Egg	Landscape Context	Water temperature	Mean weekly avg. temperature in	< 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	> 17% fines	11-17% fines	5-10 % fines	< 5% fines				May-95	
1	Egg	Condition	Substrate quality	Embeddedness	> 75% embedded	50-75% embedded	25-49% embedded	< 25% embedded				May-95	
2	Fry	Landscape Context	Dispersal	Barriers between redds and rearing habitat	complete barrier	partial barriers common	partial barriers scarse	no barriers				Jun-02	
2	Fry	Landscape Context	Non-native species	Non-native fry predators	present throughout watershed	present > 50% watershed	present < 50% of watershed	absent				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				Sep-07	
2	Fry	Condition	Habitat complexity/refugia	Amount of functional high velocity refuge habitat with flows < 15 cm/sec (boulders,	none; watercourse in rearing habitat is channelized	some	common	abundant				Jan-06	
3	Juvenile	Landscape Context	Dispersal	Barriers between rearing habitat and estuary	**present**			absent	dam	Poor		Sep-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)				May-95	
3	Juvenile	Landscape Context	Non-native species	Non-native juvenile predators	present throughout watershed	present > 50% watershed	present < 50% watershed	absent				Oct-07	
3	Juvenile	Landscape Context	Summer flow	Percent of unimpaired median summer baseflow (based on long-term	< 70%	70-90%	> 90%	100% over all IP-km				Sep-07	
3	Juvenile	Landscape Context	Water temperature	Median weekly average temperature	> 21 C.	18-21 C.	< 18 C.	< 17 C.				May-95	
3	Juvenile	Condition	Estuarine inflows	Percentage of unimpaired freshwater inflow to estuary (necessary for maintaining	< 25%	25-49%	50-75%	> 75%				Sep-07	

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3	Juvenile	Condition	Estuarine inflows	Persistence of hypoxic or anoxic saline layer (> 15 ppt) in potential rearing habitat areas between	3 months	1 month	1 week	< 3 days				Sep-96	
3	Juvenile	Condition	Food availability	Species richness	< 25 taxa	25-29 taxa	30-40 taxa	> 40 taxa				Mar-95	
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-	< 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	> 10 days	6-10 days	1-5 days	0 days				Sep-07	
4	Smolt	Landscape Context	Flow for downstream passage March through June	Maximum potential rate of diversion by pumping during April and May (expressed as	**> 150%**	100-150%	50-99%	< 50%	dam and groundwater pumping	Poor		Sep-07	
4	Smolt	Landscape Context	Passage to ocean	Number of days stream mouth is open with adequate flow during	< 30 days	30-60 days	60-90 days	> 90 days				Sep-96	
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	dam	Poor		Sep-07	
5	Adult	Landscape Context	Dispersal	Number of days stream mouth is open with adequate flow during entry	< 30 days	30-60 days	60-90 days	> 90 days				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	> 10%	6-10%	3-5%	< 3%				Jun-02	
5	Adult	Landscape Context	Water temperature	Median weekly average temperature in	> 17 C.	15-16.9 C.	13-14.9 C.	10-12.9 C.				May-96	

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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 1.4 crossings/mile	Fair		Jan-08	
6	Multiple Life Stages	Landscape Context	Channel flow and morphology	Percent of total watercourse length	> 25%	16-25%	**5-15%**	< 5%	5-15%	Good		Jan-08	
6	Multiple Life Stages	Landscape Context	Fire regime/vegetation maturity	Percent of watershed affected by high intensity fire	**> 25%**	10-24%	5-9%	< 5%	47%	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	66-80%	Good		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	1.2% accessible (dam; groundwater extraction)	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				Sep-07	
6	Multiple Life Stages	Landscape Context	Hydrology	Hydrograph	**severely modified**			natural	dam in watershed; groundwater pumping	Poor		Sep-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%	10%	Poor		Jan-08	
6	Multiple Life Stages	Landscape Context	Land use	Miles of road per square mile of watershed within 100 meters of	> 1 mi	**0.5-1.0 mi**	0.1-0.49 mi	< 0.1 mi	avg 0.94 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 4.4 mi/sq mile	Poor		Jan-08	
6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in	> 30%	20-29%	10-19%	**< 10%**	9%	Very Good		Jan-08	

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6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in agriculture within 100 meters of	> 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%	< 25%	Poor		Jan-07	
6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in urban/residential	> 25%	**10-25%**	5-9%	< 5%	16%	Fair		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	urbanized watershed; road runoff; high mean total N; low total P	Poor		Jan-08	
6	Multiple Life Stages	Landscape Context	Water quality	Percent total impervious surfaces as % of	>40%	**21-40%**	5-20%	< 5%	large urban area; 8%	Fair		Jan-08	
6	Multiple Life Stages	Condition	Estuarine habitat quality	Current lagoon area as percentage of	**< 25%**	26-50%	51-75%	> 75%	14%	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					Sep-96	
6	Multiple Life Stages	Condition	Riparian corridor quality	Riparian canopy cover	< 25% cover	25-49% cover	**50-75% cover**	> 75% cover	67%	Good		Jan-08	
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				Sep-07	

Overall Viability Summary
Otay River, San Diego County

Summary of Threats

Click the page-down icon ▼to the right to view more summary tables.

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

Overall Viability Summary
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Stress Matrix

Otay River, 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	Impaired estuarine habitat quality	-	-	-	-	-	Very High	-	-
2	Impaired water quality	-	-	-	-	-	Very High	-	-
3	Altered hydrograph	-	-	-	-	-	Very High	-	-
4	Altered fire regime/recent fire in watershed	-	-	-	-	-	Very High	-	-
5	Impaired access to rearing and/or spawning habitat	-	-	-	-	-	Very High	-	-
6	Impaired access to spawning areas	-	-	-	-	Very High	-	-	-
7	Impaired access to ocean	-	-	-	Very High	-	-	-	-
8	Impaired access to estuary	-	-	Very High	-	-	-	-	-
9	Altered land use from natural condition	-	-	-	-	-	High	-	-
10	Altered riparian habitat quality	-	-	-	-	-	Medium	-	-
11	Impaired floodplain connectivity	-	-	-	-	-	Medium	-	-
12	Impaired riparian habitat quality	-	-	-	-	-	-	-	-
13	Impaired summer base flows	-	-	-	-	-	-	-	-
14	Impaired water temperature	-	-	-	-	-	-	-	-
15	Impaired estuarine inflows	-	-	-	-	-	-	-	-
16	Impaired food availability	-	-	-	-	-	-	-	-

Overall Viability Summary
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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	-	-	-	-	-	-	-	-
18	Non-native predators	-	-	-	-	-	-	-	-
19	Impaired access to stream from ocean (stream mouth closed)	-	-	-	-	-	-	-	-
20	Dispersal barriers between redds and rearing habitat	-	-	-	-	-	-	-	-
21	Impaired water temperatures in migration corridor	-	-	-	-	-	-	-	-
22	Low adult population size	-	-	-	-	-	-	-	-
23	Impaired substrate quality (sedimentation and embeddedness)	-	-	-	-	-	-	-	-
24	Impaired flows during rearing period	-	-	-	-	-	-	-	-
25	Impaired water temperature in spawning areas	-	-	-	-	-	-	-	-
26	Non-native egg predators	-	-	-	-	-	-	-	-
27	Impaired habitat complexity/refugia	-	-	-	-	-	-	-	-
28	Altered base flows during incubation	-	-	-	-	-	-	-	-
29	Altered sediment supply	-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-
31		-	-	-	-	-	-	-	-
32		-	-	-	-	-	-	-	-

Overall Viability Summary
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	Conservation Targets	Landscape Context		Condition		Size		Viability Rank
		Grade	Weight	Grade	Weight	Grade	Weight	
1	Egg	-	1	-	1	-	1	**-**
2	Fry	-	1	-	1	-	1	**-**
3	Juvenile	Poor	1	-	1	-	1	**Poor**
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								**Poor**

Overall Viability Summary
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Detailed Viability Summary
Otay River, 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**										-
	Landscape Context									-	
	Condition									-	
	Size									-	
2	**Fry**										-
	Landscape Context									-	
	Condition									-	
	Size									-	
3	**Juvenile**										**Poor**
	Landscape Context	1				1				Poor	
	Condition									-	
	Size									-	
4	**Smolt**										**Poor**
	Landscape Context	1				1				Poor	
	Condition									-	
	Size									-	
5	**Adult**										**Poor**
	Landscape Context	1				1				Poor	
	Condition									-	
	Size									-	
6	**Multiple Life Stages**										**Poor**
	Landscape Context	3	3	2		7	4	2	2	Poor	
	Condition	1		1		1		1		Poor	
	Size									-	
7											-
	Landscape Context									-	
	Condition									-	
	Size									-	
8											-
	Landscape Context									-	
	Condition									-	
	Size									-	