Garrapata Creek, Monterey County
CAP Workbook Threats Assessment Summary Tables
2008

Assessment of Target Viability

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**		Very Good		Jul-06	
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				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.	11-14C	Good		Oct-05	
1	Egg	Condition	Substrate quality	Avg. percent fines (<0.85mm) in potential spawning areas	**> 17% fines**	11-17% fines	5-10 % fines	< 5% fines	probably high	Poor		Mar-02	
1	Egg	Condition	Substrate quality	Embeddedness	**> 75% embedded**	50-75% embedded	25-49% embedded	< 25% embedded	probably high embeddedness	Poor		Mar-03	
2	Fry	Landscape Context	Dispersal	Barriers between redds and rearing habitat	complete barrier	partial barriers common	**partial barriers scarse**	no barriers	some partial barriers	Good		Jul-06	
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	probably high	Poor		Jul-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 refugia common	Good		Jul-06	
3	Juvenile	Landscape Context	Dispersal	Barriers between rearing habitat and estuary	present			absent	partial	Good		Mar-03	
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)	high abundance	Good		Jul-06	
3	Juvenile	Landscape Context	Non-native species	Non-native juvenile predators	present throughout watershed	present > 50% watershed	present < 50% watershed	absent				Aug-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**	perennial surface flows	Very Good		Mar-03	

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3	Juvenile	Landscape Context	Water temperature	Median weekly average temperature (MWAT) in potential rearing habitat	> 21 C.	18-21 C.	< 18 C.	**< 17 C.**	11-14C	Very Good		Oct-05	
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%	> 75%	Good		Jul-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	about one month	Fair		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.)	good in lower main stem	Good		Jul-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	invasives common	Fair		Jul-06	
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	perennial flows	Good		Jul-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%**	31%	Very Good		Jul-06	
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**	> 30 days	Very Good		Jul-06	
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	fair	Fair		Mar-03	

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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 > 90 days	Very Good		Jul-06	
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%**	probably < 3%	Very Good		Jul-06	
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.**	11-14C	Very Good		Oct-05	
5	Adult	Size	Population size	Mean annual adult spawner abundance		**TRT criteria for low extinction risk (by watershed)**			low numbers of adults	Fair		Mar-03	
6	Multiple Life Stages	Landscape Context	Barriers/diversions	Stream crossings/stream mile	> two/mile			< two/mile	avg 0.39 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		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%**	0%	Very 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 connectivity**	> 80%	Very 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	fair	Fair		Jul-06	
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**	perennial surface flows	Very Good		Mar-03	

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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	severely modified			natural	mostly good	Good		Jul-06	
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 0.31 mi/sq mi.	Good		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 1.57 mi/sq mi	Very 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%	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%	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%**	80%	Very Good		Jan-08	
6	Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in urban/residential use	> 25%	10-25%	5-9%	**< 5%**	0%	Very 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**	low total N and P	Very Good		Jan-08	
6	Multiple Life Stages	Landscape Context	Water quality	Percent total impervious surfaces as % of watershed area	>40%	21-40%	5-20%	**< 5%**	0%	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%**	100%	Very Good		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		limited habitat	Fair		Jul-06	
6	Multiple Life Stages	Condition	Riparian corridor quality	Riparian canopy cover	< 25% cover	25-49% cover	50-75% cover	**> 75% cover**	98%	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	Condition	Riparian corridor quality	Riparian corridor species composition	< 25% native composition	**25-50% native composition**	50-75% native composition	> 75% native composition	invasives common	Fair		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	Non-point pollution from roads	Very High	Very High	Very High	Low	High	Very High			Very High
2	Roads in watershed and/or within 300 feet of watercourses	Very High	Very High	Very High	Low	High	Very High			Very High
3	Culverts, crossings, and bridges	Very High	Very High	-	Low	-	High			Very High
4	Natural barriers					High	High			High
5	Invasive non-native plants						High			Medium
6	Logging						High			Medium
7	Groundwater extraction	Medium	Low	Low	Low	Medium	Medium			Medium
8	Urban development	Low	-	Medium	-	-	Low			Low
9	Livestock Farming & Ranching	-	-	-	-	-	Low			Low
10	Agricultural effluents	-	-	-	-	-	-			-
11	Artificial lagoon breaching	-	-	-	-	-	-			-
12	Channel and/or estuary maintenance, dredging, and vegetation control (incl. flood control activities)	-	-	-	-	-	-			-
13	Conversion of watershed lands to row crop agriculture	-	-	-	-	-	-			-
14	Dams and surface water diversions	-	-	-	-	-	-			-
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	Low	High	Very High	-	-	Very High

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	
17	Levees and channelization	-	-	-	-	-	-			-
18	Log jams and other removable barriers									-
19	Mining & Quarrying	-	-	-	-	-	-			-
20	Non-native species present (incl. hatchery fish)	-	-	-	-	-	-			-
21	Oil & Gas Drilling	-	-	-	-	-	-			-
22	Public ownership in watershed									-
23	Recreational facilities and activities (ORV use, campgrounds, etc.)	-	-	-	-	-	-			-
24	Urban wastewater effluents (incl. industrial and commercial effluents)	-	-	-	-	-	-			-
25	Wildland fires (incl. debris flows following fires)	-	-	-	-	-	-			-

Stresses and Threats

	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 instream habitat complexity/refugia	-	-	Very High	-	-	-	-	-
2	Impaired water quality	-	-	-	-	-	Very High	-	-
3	Altered sediment supply	-	Very High	-	-	-	-	-	-
4	Impaired substrate quality (sedimentation and embeddedness)	Very High	-	-	-	-	-	-	-
5	Altered riparian habitat quality	-	-	-	-	-	High	-	-
6	Impaired access to rearing and/or spawning habitat	-	-	-	-	-	High	-	-
7	Low adult population size	-	-	-	-	High	-	-	-
8	Impaired access to spawning areas	-	-	-	-	High	-	-	-
9	Impaired access to estuary	-	-	High	-	-	-	-	-
10	Impaired water temperature in spawning areas	Medium	-	-	-	-	-	-	-
11	Impaired habitat complexity/refugia	-	Medium	-	-	-	-	-	-
12	Impaired flows during rearing period	-	-	Medium	-	-	-	-	-
13	Impaired estuarine habitat quality	-	-	-	-	-	Medium	-	-
14	Altered hydrograph	-	-	-	-	-	Medium	-	-
15	Impaired estuarine inflows	-	-	Medium	-	-	-	-	-
16	Dispersal barriers between redds and rearing habitat	-	Medium	-	-	-	-	-	-

Stresses and Threats

	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 summer base flows	-	-	Low	-	-	-	-	-
18	Impaired access to ocean	-	-	-	Low	-	-	-	-
19	Impaired access to stream from ocean (stream mouth closed)	-	-	-	-	Low	-	-	-
20	Impaired water temperature	-	-	Low	-	-	-	-	-
21	Impaired water temperatures in migration corridor	-	-	-	-	Low	-	-	-
22	Altered land use from natural condition	-	-	-	-	-	Low	-	-
23	Altered base flows during incubation	Low	-	-	-	-	-	-	-
24	Impaired floodplain connectivity	-	-	-	-	-	Low	-	-
25	Altered fire regime/recent fire in watershed	-	-	-	-	-	Low	-	-
26	Impaired riparian habitat quality	-	-	-	-	-	-	-	-
27	Impaired food availability	-	-	-	-	-	-	-	-
28	Non-native predators	-	-	-	-	-	-	-	-
29	Non-native egg predators	-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-

Stresses and Threats

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

Stresses and Threats

		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	Good	
	Condition	1				2				Poor	
	Size									-	
2	**Fry**									**Fair**	
	Landscape Context	1		1		1		1		Poor	
	Condition			1				1		Good	
	Size									-	
3	**Juvenile**									**Good**	
	Landscape Context			2	2			2	2	Good	
	Condition		1	2			2	2		Fair	
	Size									-	
4	**Smolt**									**Very Good**	
	Landscape Context			1	2			1	2	Very Good	
	Condition									-	
	Size									-	
5	**Adult**									**Good**	
	Landscape Context			1	2		1		3	Very Good	
	Condition									-	
	Size		1				1			Fair	
6	**Multiple Life Stages**									**Good**	
	Landscape Context		1	1	6		1	3	11	Fair	
	Condition			2			2		2	Good	
	Size									-	
7										**-**	
	Landscape Context									-	
	Condition									-	
	Size									-	
8										**-**	
	Landscape Context									-	
	Condition									-	
	Size									-	