




# Contra Costa County BMI Monitoring - Comparison of Results of 2007 Reach-wide Benthos (RWB) vs. 2006 Targeted Riffle Composite (TRC) Method for Collection of Benthic Macroinvertebrates



**Prepared by: Armand Ruby**  
Armand Ruby Consulting  
in association with Brown and Caldwell

# Thanks to:

- Ø Jamison Crosby, Contra Costa Clean Water Program
  - Ø Michelle Luebke, Contra Costa Volunteer Creek Monitoring Program
  - Ø CCCWP Watershed Assessment and Monitoring Subcommittee (WAM)
  - Ø Contra Costa Watershed Forum
  - Ø Chris Sommers, EOA
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# 2007 BMI Monitoring

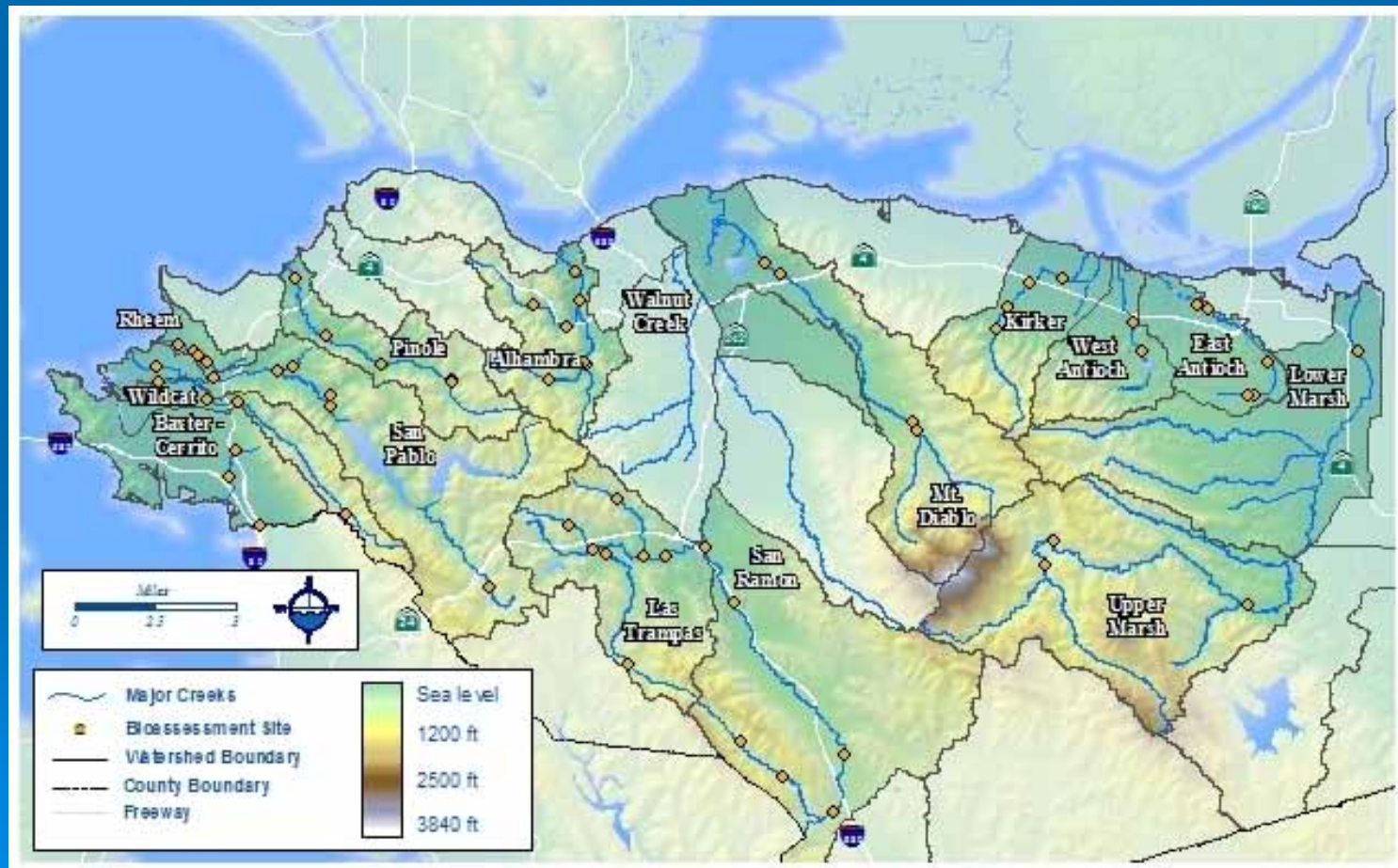
- Ø Switch to RWB sample collection per new SWAMP guidance (Feb., 2007)
- Ø All sampling performed by volunteers, led/overseen by Volunteer Coordinator





# 2007 BMI Monitoring

Ø 14 watersheds, 61 sites



# Besides BMI Sampling...

- ∅ Physical habitat assessment
- ∅ Water chemistry (field parameters)
- ∅ QA/QC (QAPP; SWAMP comparable)
  - incl. independent taxonomic analysis



# Preliminary B-IBI Scoring Scheme

**Table 7.** Scoring ranges for the five metrics included in the preliminary Contra Costa County Benthic-IBI and scoring categories that define biotic condition.

IBI Score	Cumulative EPT Taxa	% Non-Insecta Taxa	Diptera Taxa	Predator Taxa	% Collectors
10	>9	0-17	> 5	> 9	0-78
9	9	18-22		9	79-80
8	8	23-28	5	8	81-82
7	7	29-33		7	83-85
6	6	34-39	4	6	86-87
5	5	40-44		5	88-89
4	4	45-50	3	4	90-91
3	3	51-55		3	92-94
2	2	56-61	2	2	95-96
1	1	62-66		1	97-99
0	0	>66	< 2	0	100
<b><i>B-IBI Scoring Categories</i></b>					
<b>Very Good</b>	<b>Good</b>	<b>Fair</b>	<b>Marginal</b>	<b>Poor</b>	
50-43	42-35	34-23	22-11	10-0	

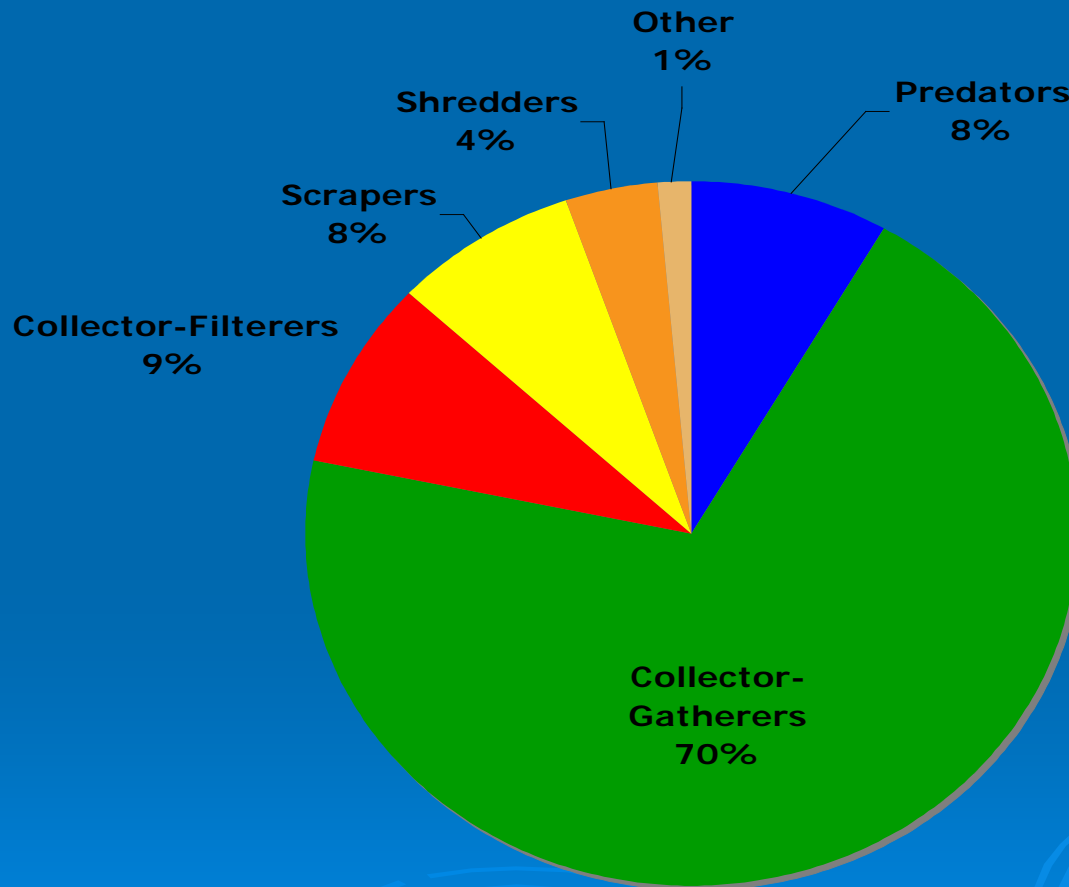
Waterbody Name	Site	Collection Date	EPT Taxa	Metric Score	Number Diptera Taxa	Metric Score	Number Predator Taxa	Metric Score	% Collectors	Metric Score	% Non-Insecta Taxa	Metric Score	Total IBI
Alhambra Creek	ALH020	5/3/2007	2	2	6	10	7	7	0.93	3	0.55	3	25
Alhambra Creek	ALH050	5/3/2007	1	1	12	10	9	9	0.96	2	0.35	6	28
Franklin Creek	ALH080	6/4/2007	2	2	6	10	6	6	0.81	8	0.36	6	32
Alhambra Creek	ALH140	5/15/2007	3	3	10	10	10	10	0.91	4	0.3	7	34
Arroyo del Hambre	ALH150	5/11/2007	7	7	11	10	12	10	0.47	10	0.21	9	46
Arroyo del Hambre	ALH170	5/15/2007	4	4	9	10	12	10	0.81	8	0.33	7	39

# 2007 Taxonomic Summary

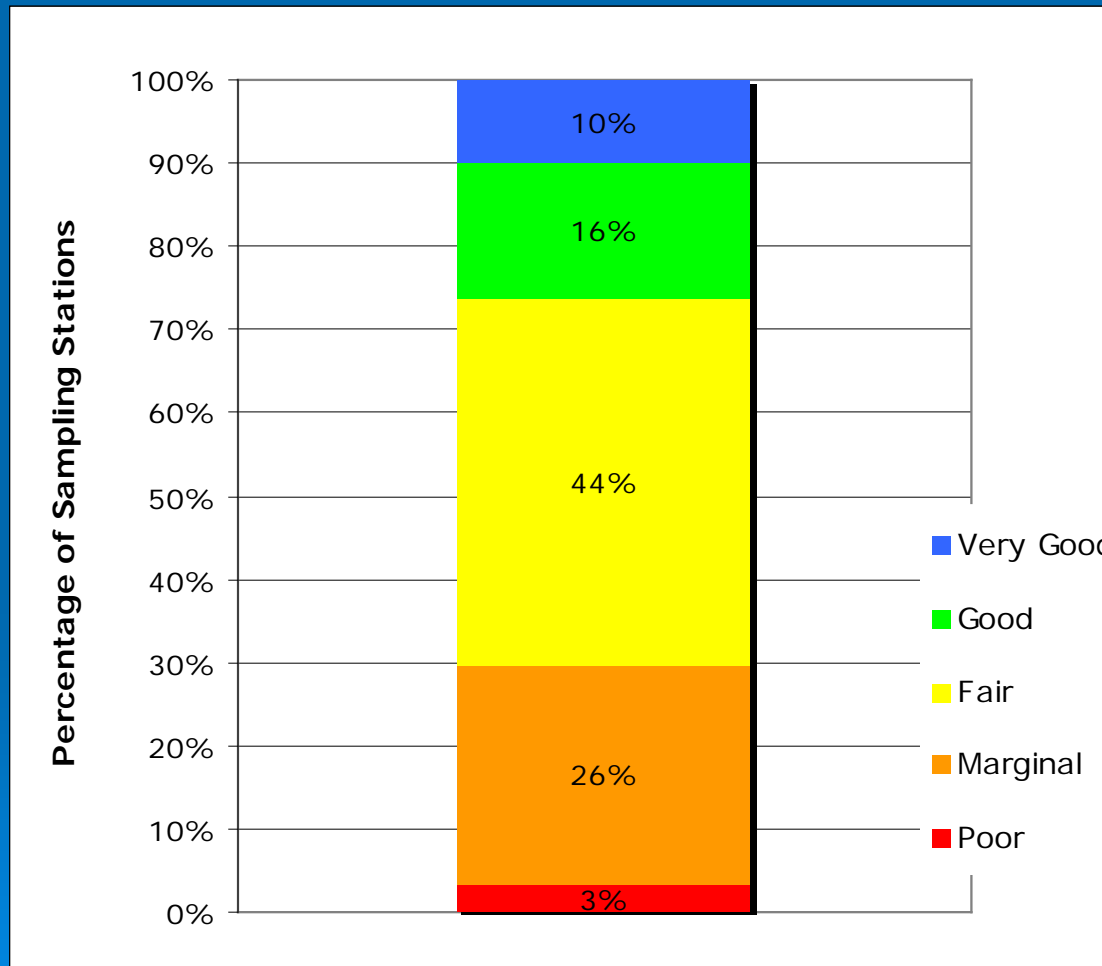
GROUPS OF BENTHIC MACROINVERTEBRATES IDENTIFIED	% OF ALL ORGANISMS
<b>Aquatic Insects/Spiders/Crustaceans (Arthropoda)</b>	<b>72.9%</b>
<i>Aquatic Insects:</i>	
True Flies (Diptera)	41.6%
Mayflies (Ephemeroptera)	5.8%
Stoneflies (Plecoptera)	0.2%
Caddisflies (Trichoptera)	5.7%
Beetles (Coleoptera)	1.3%
Dragonflies and Damselflies (Odonata)	1.0%
Acari	1.4%
Amphipoda	5.8%
Ostracoda	10.0%
Alderflies and Dobsonflies (Megaloptera)	0.1%
<b>Segmented Worms (Annelida)</b>	<b>16.9%</b>
<i>Oligochaetes</i>	16.7%
<b>Snails and Clams (Mollusca)</b>	<b>9.8%</b>
<b>Flat Worms (Platyhelminthes)</b>	<b>0.4%</b>
<b>Other (Cnidaria and Nemertea)</b>	<b>0.1%</b>



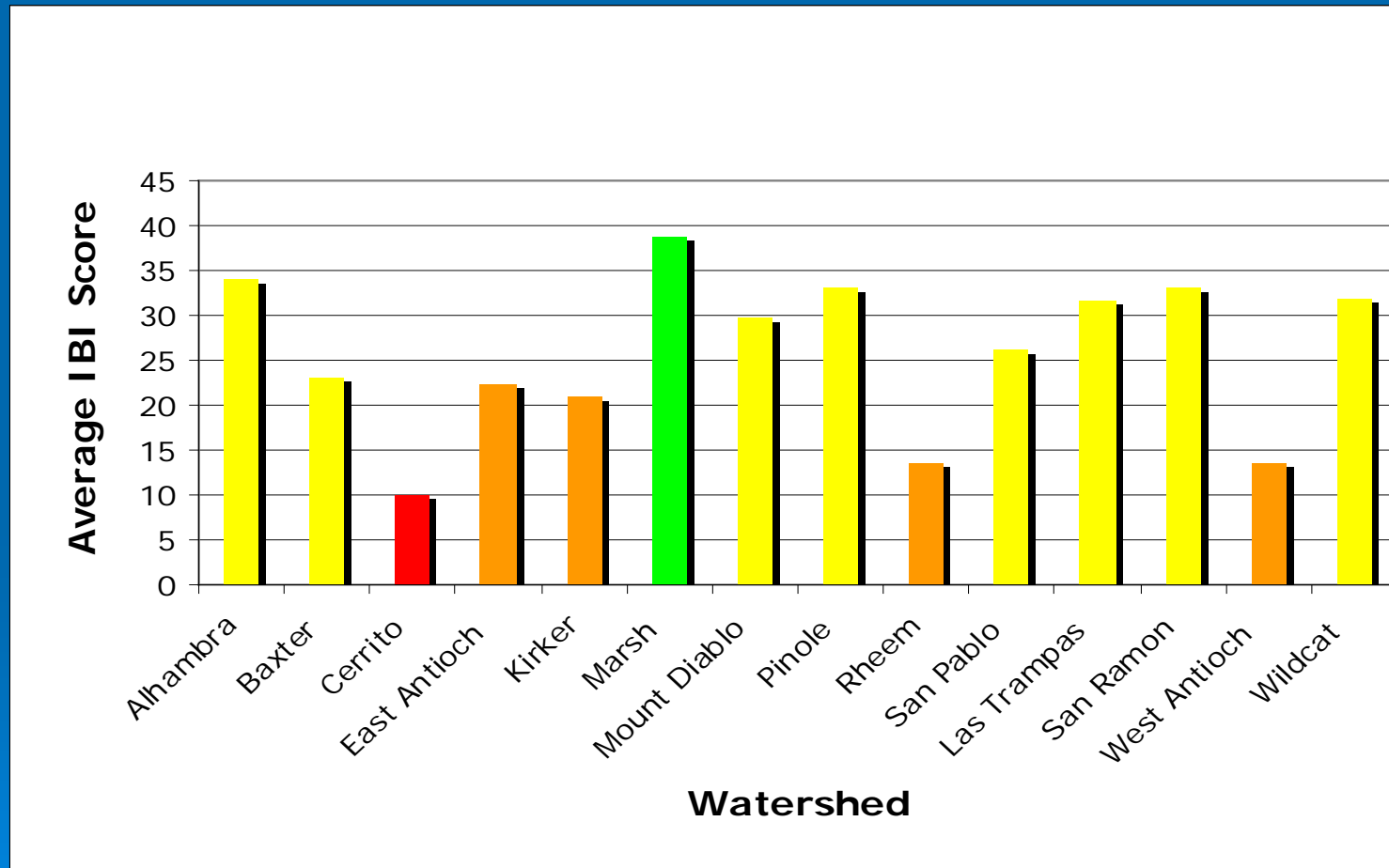
# Distribution of Functional Feeding Groups - 2007



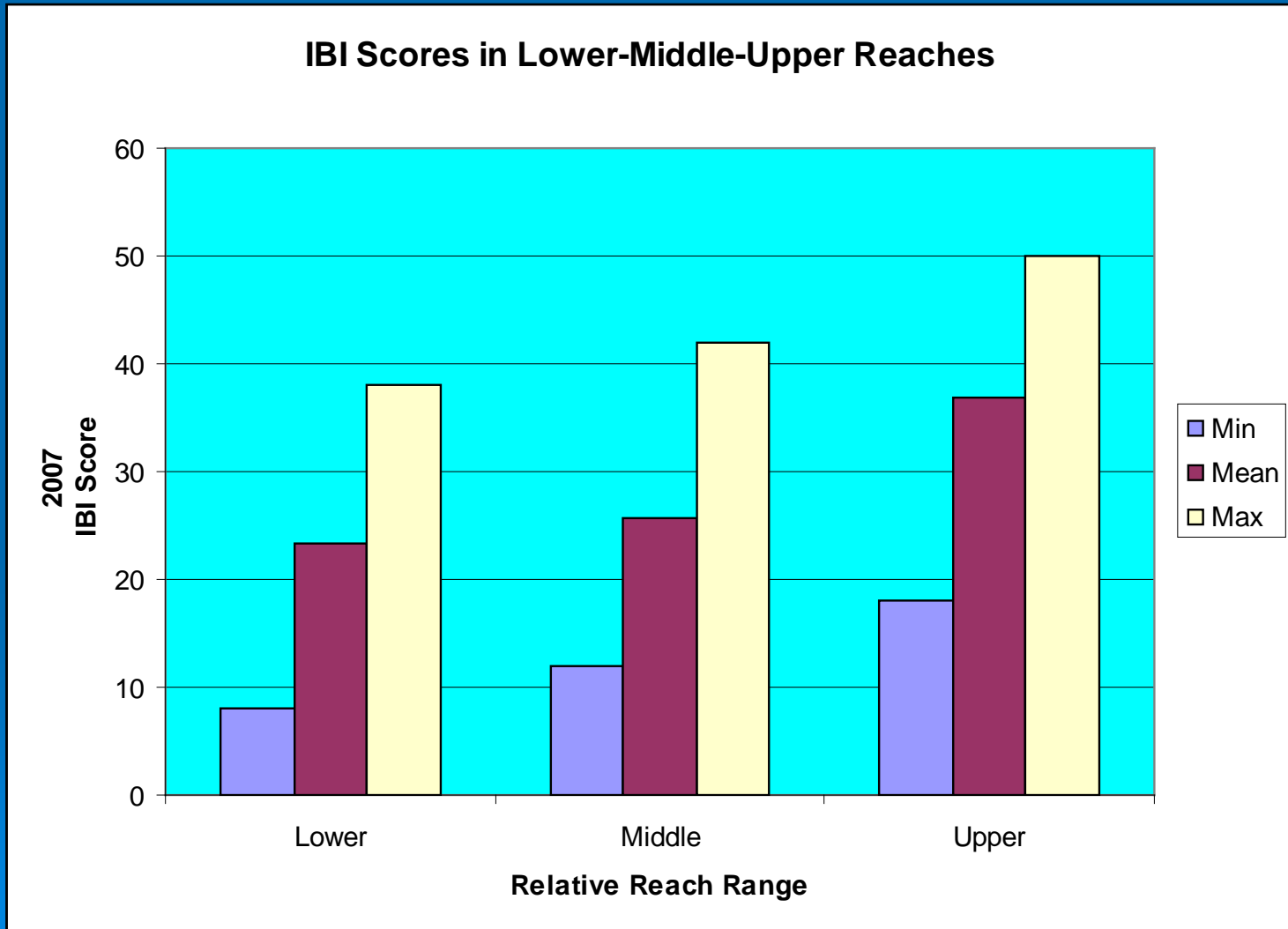
# Percentage of 2007 Sampling Stations in B-IBI Categories



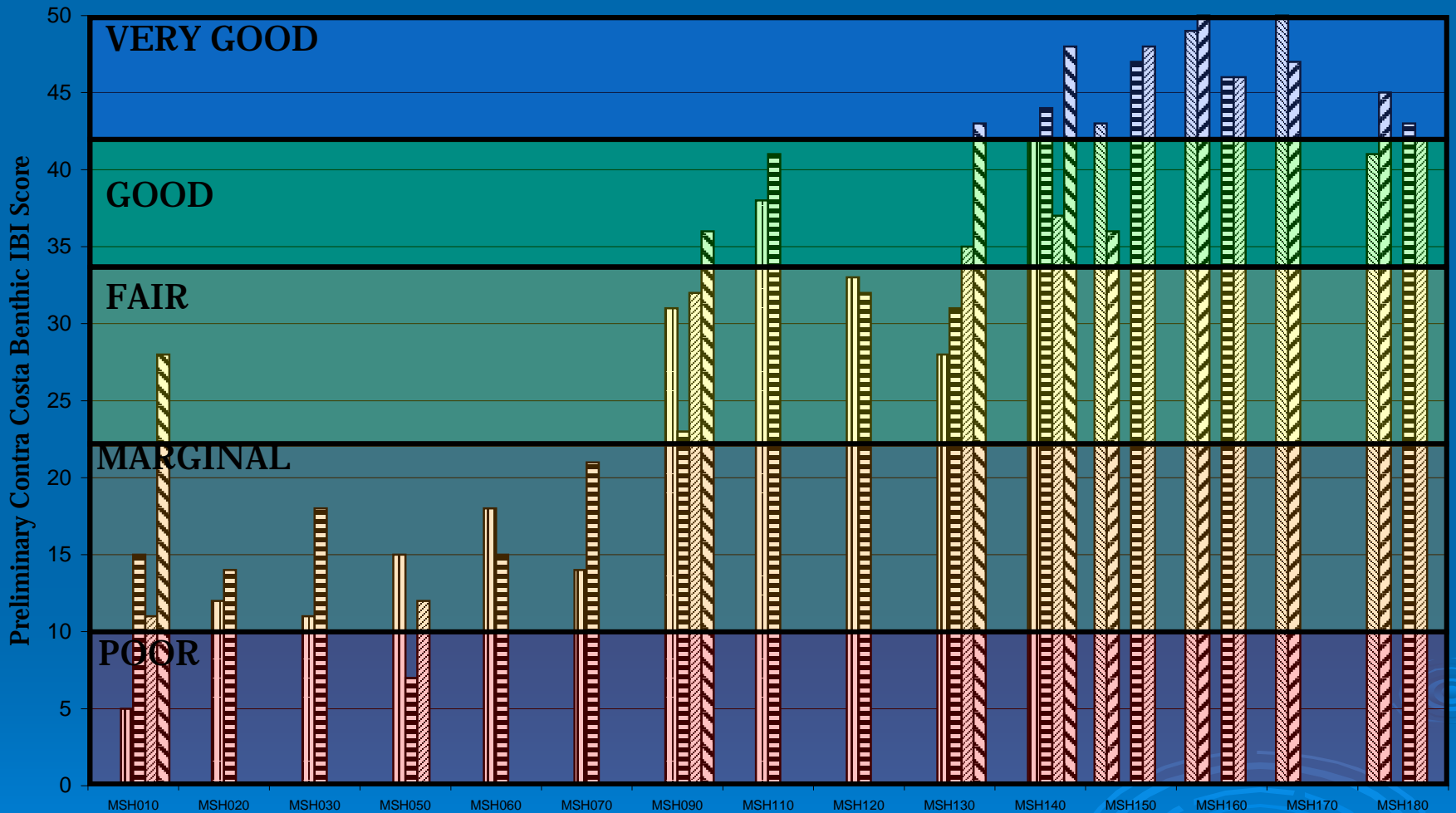
# Average 2007 IBI Score by Watershed



# Effect of Urbanization/Reach



# Marsh Creek



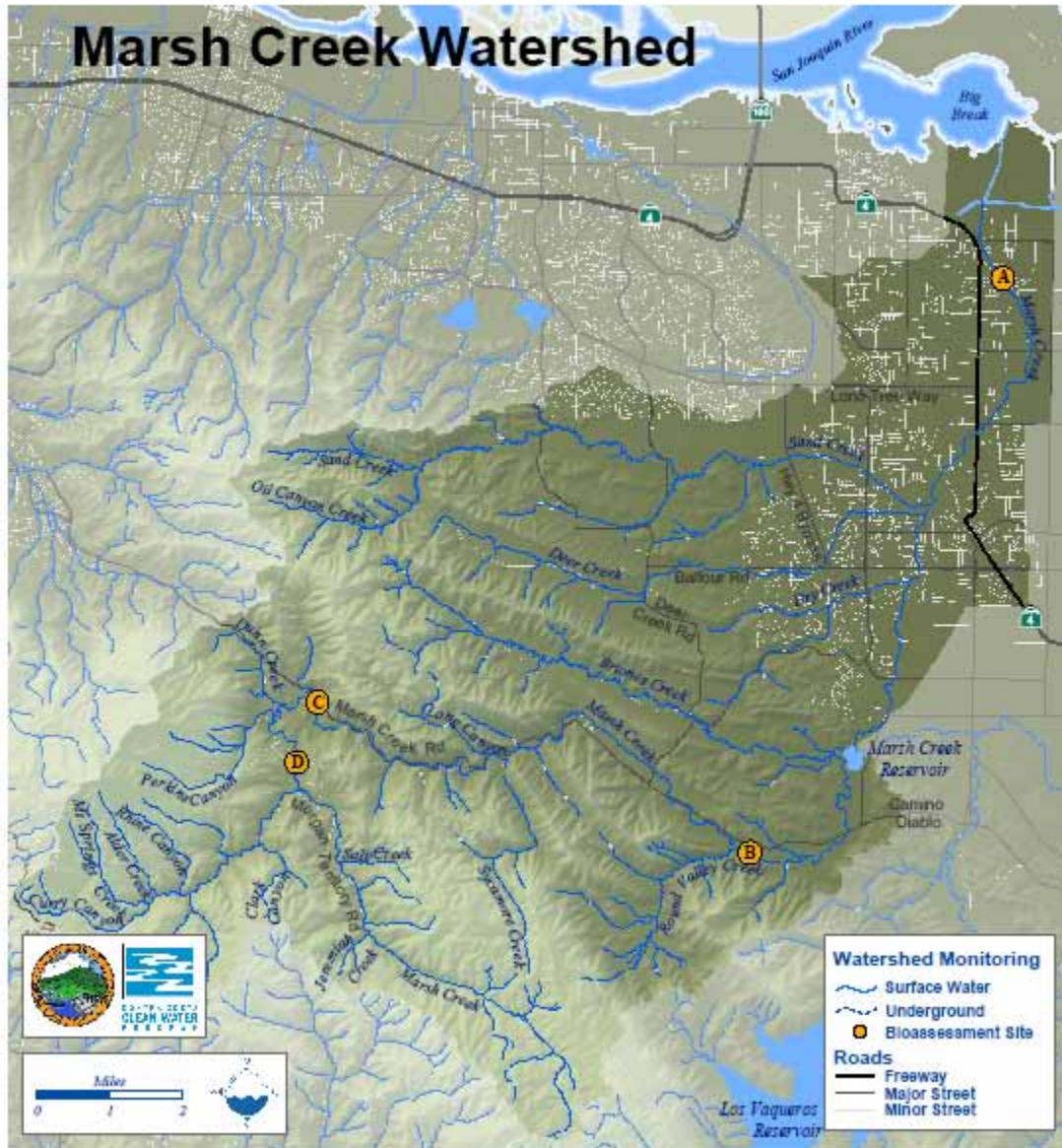
Downstream



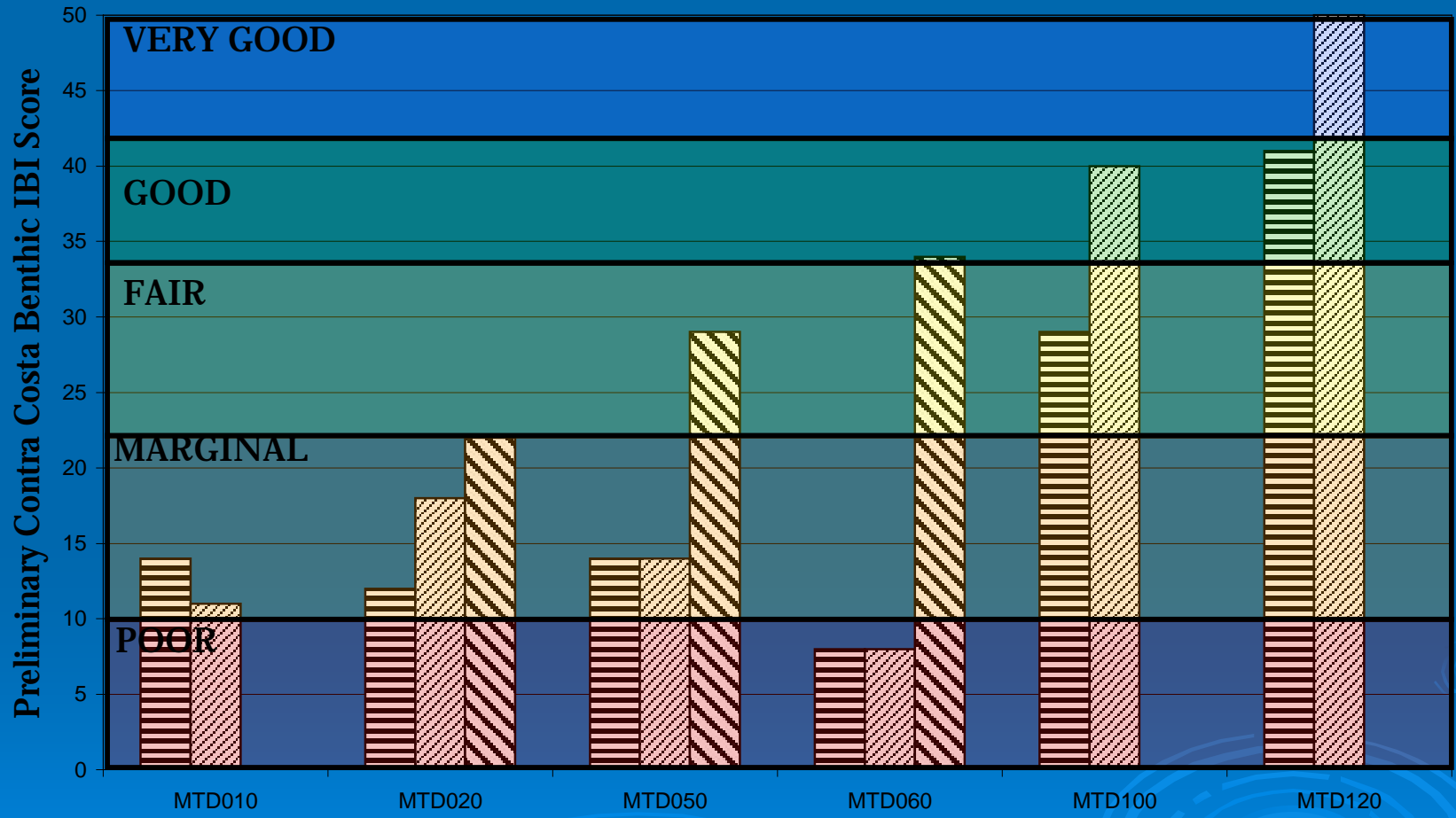
Upstream



# Marsh Creek Watershed



# Mt Diablo Creek

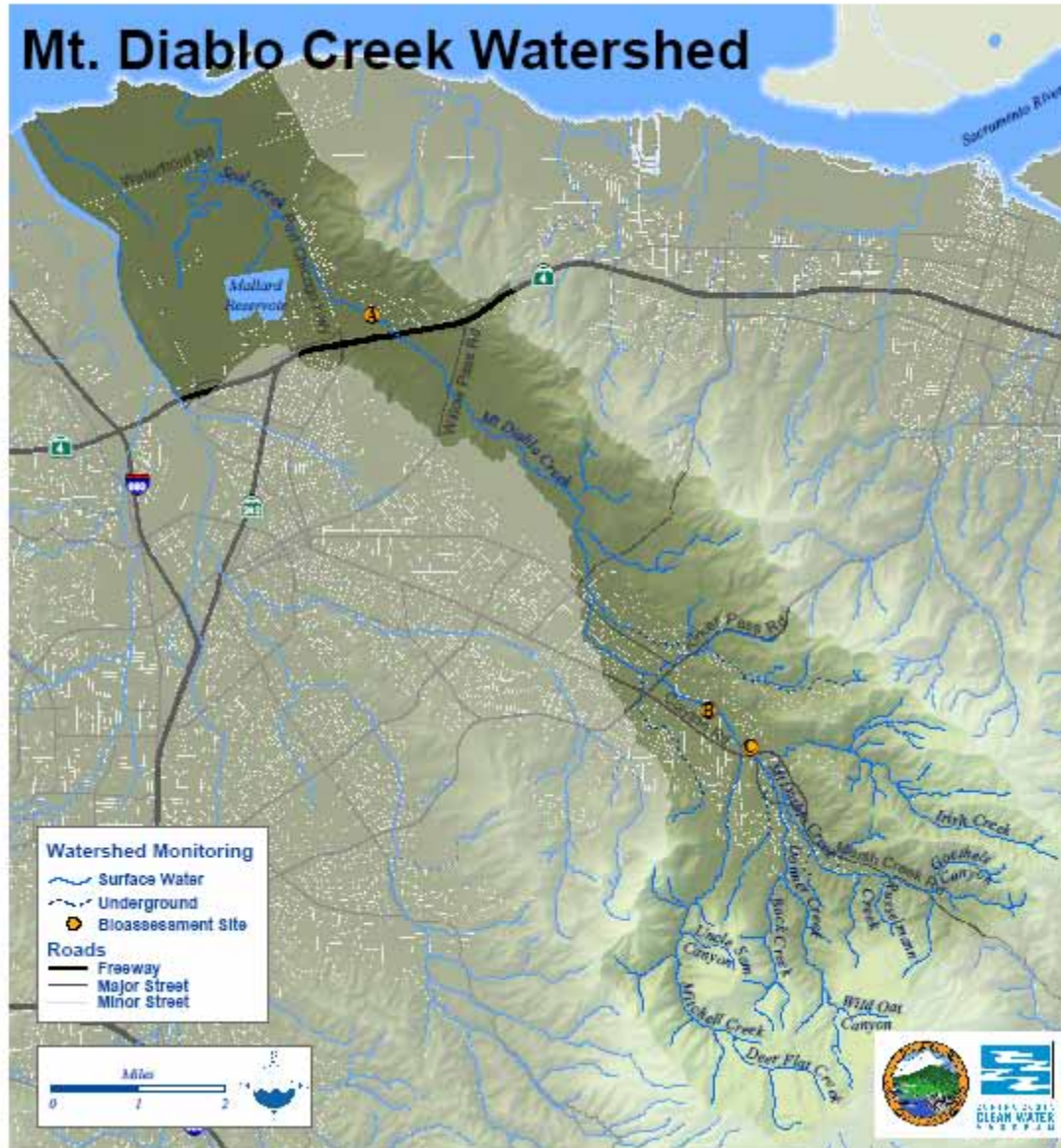


Downstream

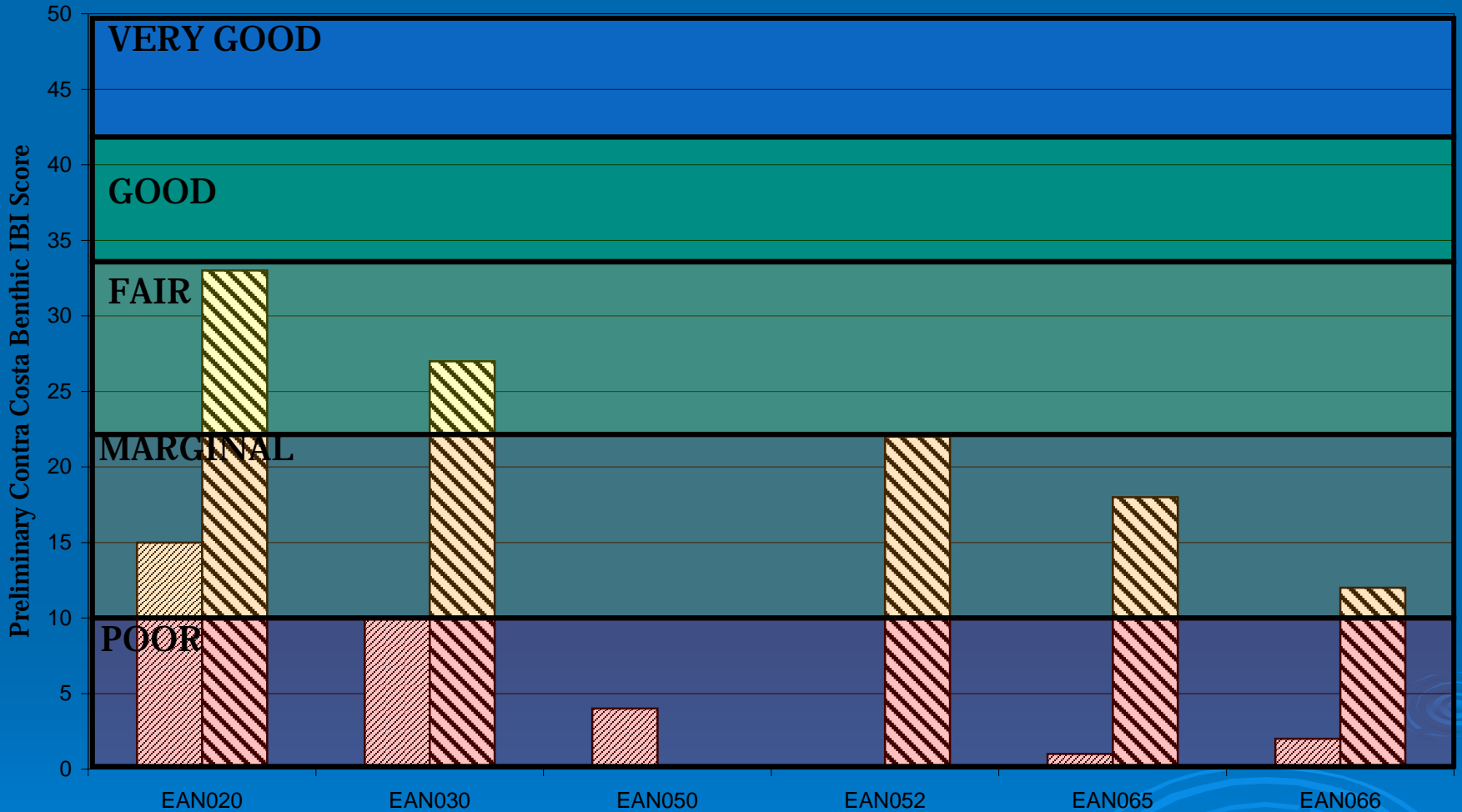


Upstream

# Mt. Diablo Creek Watershed



# East Antioch Creek



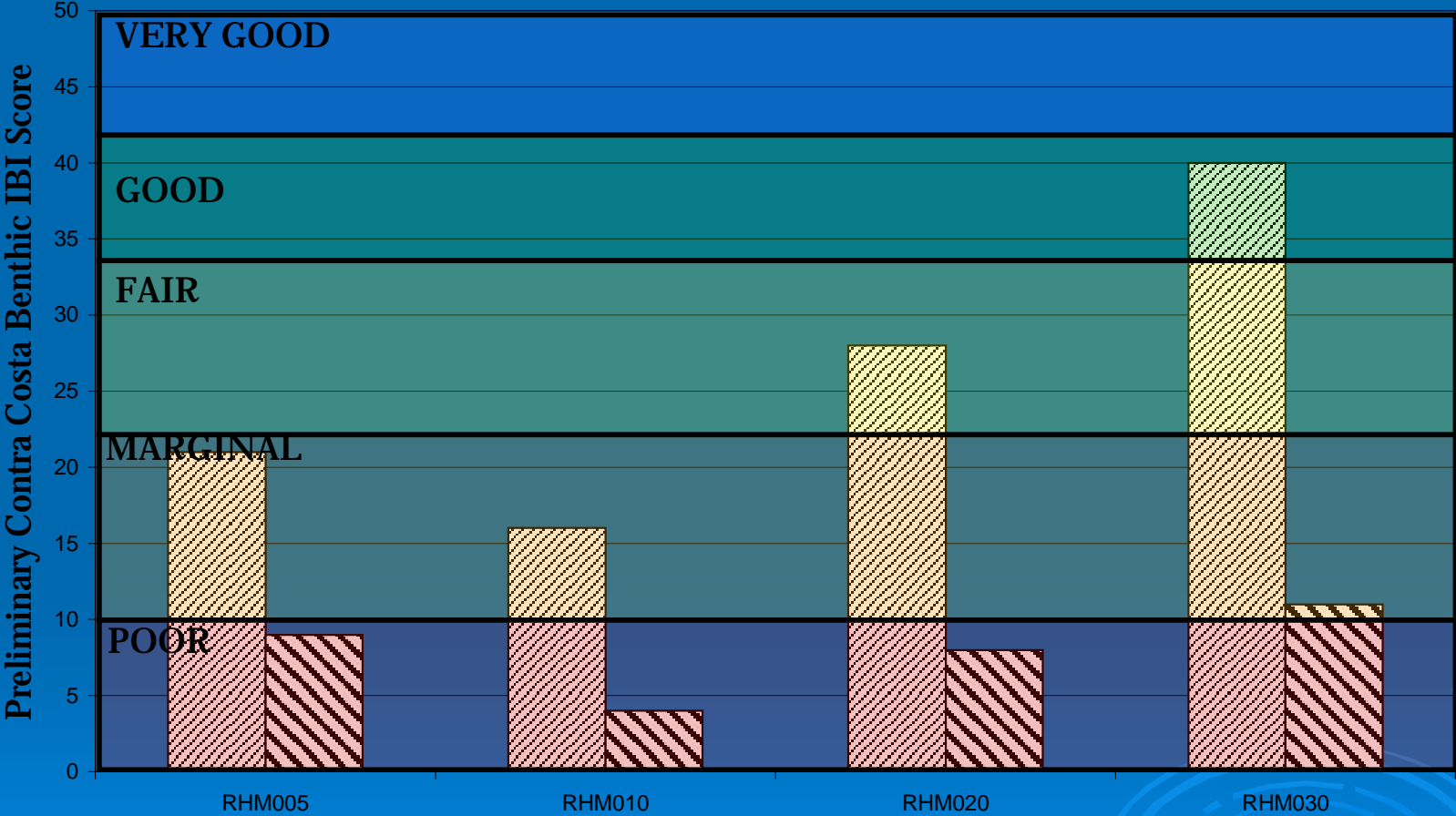
2006 2007

Downstream



Upstream

# Rheem Creek



2006 2007

Downstream → Upstream



# Common Sites: 2006 vs. 2007 IBIs

Waterbody Name	Site Code	Total IBI 2006	Total IBI 2007
Alhambra Creek	ALH020	12	25
Alhambra Creek	ALH050	13	28
Franklin Creek	ALH080	23	32
Arroyo del Hambre	ALH140	24	34
Arroyo del Hambre	ALH160	31	46
Alhambra Creek	ALH170	26	39
Baxter Creek	BAX030	10	28
Baxter Creek	BAX045	22	18
Cerrito Creek	CER010	7	10
E Antioch Creek	EAN020	15	33
E Antioch Creek	EAN030	10	27
E Antioch Creek	EAN065	1	18
E Antioch Creek	EAN066	2	12
Kirker Creek	KIR040	7	19
Kirker Creek	KIR085	10	16
Kirker Creek	KIR110	12	18
Kirker Creek	KIR115	16	31
Lower Marsh Creek	MSH010	11	28
Upper Marsh Creek	MSH090	32	36
Upper Marsh Creek	MSH130	35	43
Upper Marsh Creek	MSH140	37	48
Mt. Diablo Creek	MTD020	18	24
Mt. Diablo Creek	MTD050	14	31
Mt. Diablo Creek	MTD060	8	34
Pinole Creek	PNL010	19	35
Pinole Creek	PNL040	28	27
Pinole Creek	PNL070	20	37
Periera Creek	PNL100	27	32
Pinole Creek	PNL110	21	35
Rheem Creek	RHM005	21	15
Rheem Creek	RHM010	16	8
Rheem Creek	RHM020	28	14
Rheem Creek	RHM030	40	17
San Pablo Creek	SPA020	27	11
San Pablo Creek	SPA070	39	13
Wilkie Creek	SPA110	13	35
San Pablo Creek	SPA124	18	27
Castro Creek	SPA130	15	35
San Pablo Creek	SPA134	29	32
San Pablo Creek	SPA240	10	30
W Antioch Creek	WAN060	18	13
W Antioch Creek	WAN080	15	14
Wildcat Creek	WIL030	16	18
Wildcat Creek	WIL050	22	27
Wildcat Creek	WIL060	18	40
Wildcat Creek	WIL070	40	42
Wildcat Creek	WIL130	25	32

# Comparison of Average Statistics

<b>Metric</b>	<b>2006</b>	<b>2007</b>	<b>P</b>
<b>IBI</b>	19.6	27.0	0.000
<b>EPT Taxa</b>	2.9	2.2	0.097
<b>Diptera Taxa</b>	3.5	6.7	0.000
<b>Predator Taxa</b>	2.9	5.1	0.000
<b>% Collectors</b>	0.91	0.76	0.000
<b>% Non-Insecta Taxa</b>	0.37	0.42	0.145

# Comparison of Incident Rainfall, 2005-06 vs. 2006-07

Month	2005-06	2006-07
July	0	0
Aug	0	0
Sept	0	0
Oct	0.09	0.1
Nov	1.2	1.45
Dec	11.79	2.39
Jan	2.2	0.43
Feb	1.8	3.58
mar	6.18	0.15
Apr	3.81	0.76
may	0.65	0.3
June	0	0
<b>Year:</b>	<b>27.72</b>	<b>9.16</b>
<b>Spring:</b>	<b>10.64</b>	<b>1.21</b>

# Questions/Comments

Armand Ruby

[armand@armandrubyconsulting.com](mailto:armand@armandrubyconsulting.com)

Capitola, CA

831-477-1214

[www.armandrubyconsulting.com](http://www.armandrubyconsulting.com)



Contra Costa County:

[www.cocowaterweb.org](http://www.cocowaterweb.org)