

Stream Monitoring Report

Gualala Assessment Area

214,386 Total Acres
28,977 GRI Acres

Station	Year	Temperature	Large Wood (>7" Bank Full)		Substrate	Streambed		Riparian Zone		Fish per Mile		Macroinvertebrates				
		Seasonal MWAT Maximum	CuFt/ 1000'	Pieces/ 1000'	< 0.85 mm	D50	Slope	VI A/D	Canopy % WLPZ	Basal Tree Cr. Area	Tree Ht.	Coho (YOY+)	SH (1+)	Richness Simpson	Hilsenhoff% Abundance	Dominant

Hydrologic Unit: NF Gualala

Planning Watershed: Doty Creek 1113.810003

Stream		Doty Creek															
256	Dot2	1993														16.2%	
256	Dot2	1994	14.1	12.9												11.4%	
256	Dot2	1995														16.9%	
256	Dot2	1996														16.9%	
256	Dot2	1997														17.0%	
281		1998	14.8	13.7													
Avg			14.4	13.3												15.7%	

Stream		Little North Fork Gualala															
201	LNF5	1992														10.9%	
201	LNF5	1993														21.0%	
201	LNF5	1994	15.8	14.7												20.4%	
201	LNF5	1995	16.7	15.1												20.8%	
201	LNF5	1996	15.9	14.6												15.4%	
201	LNF5	1997	16.7	15.4												16.0%	
201	LNF5	1998	16.3	15.0													
201	LNF5	2001															
202	LNF2	1993														11.5%	
202	LNF2	1994	16.4	14.6												14.6%	
202	LNF2	1995														18.8%	
202	LNF2	1996														17.2%	
202	LNF2	1997														21.6%	18
202	LNF2	1998															32
203	LNF1	1993														17.1%	
203	LNF1	1994	15.1	13.6												20.4%	
203	LNF1	1995	15.8	14.2												11.6%	
203	LNF1	1996	15.3	13.7												19.6%	
203	LNF1	1997	15.8	14.5												18.8%	35
203	LNF1	1998	15.2	13.9	2,783	51		34	1.54%	23							0

Station	Year	Temperature	Large Wood (>7" Bank Full)		Substrate	Streambed			Riparian Zone				Fish per Mile		Macroinvertebrates								
			Seasonal Maximum	MWAT		CuFt/ 1000'	Pieces/ 1000'	< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Basal Cr.	Tree Area	Ht.	Coho (YOY+)	SH (1+)	Richness Simpson	Hilsenhoff	% Dominant Abundance		
203	LNF1	1999	15.1	13.8	2,635	54	46	1.52%	21	-0.2	87%	89%	298	92	0	285							
203	LNF1	2000	15.3	13.9	3,520	49	43	1.49%	21	-0.09					0	143	31	0.85	4.5	5,340	30		
203	LNF1	2001			3,843	77	42	1.49%	20	-0.1					0	148							
255	LNF6	1993																					
255	LNF6	1994	15.9	14.3																			
255	LNF6	1995																					
255	LNF6	1996																					
255	LNF6	1997																					
274		1995	16.4	14.6																			
274		1996	16.1	14.1																			
404	LNF3	1997					26																
404	LNF3	1998													16								
404	LNF3	2001			5,099	50	34	0.57%	47		97%	96%	163	75									
Avg			15.9	14.4	3,576	56	17.8%		1.32%	26	-0.1	92%	92%	230	84	8	192	31	0.85	4.5	5,340	30	
Doty Creek			Avg	15.7	14.3	3,576	56	17.6%	35	1.32%	26	-0.1	92%	92%	230	84	8	192	31	0.85	4.5	5,340	30
			Min	14.1	12.9	2,635	49	4.5%	18	0.57%	20	-0.2	87%	89%	163	75	0	143	31	0.85	4.5	5,340	30
			Max	16.7	15.4	5,099	77	36.1%	46	1.54%	47	0.09	97%	96%	298	92	32	285	31	0.85	4.5	5,340	30

Planning Watershed Robinson Creek 1113.810002

Stream

474	2001
Avg	

Stream Dry Creek

211	Dry3	1995	17.7	15.7			16.8%															
211	Dry3	1996	17.7	15.9			14.7%															
211	Dry3	1997	16.9	15.2			11.6%	31														
211	Dry3	1998			3,014	45	45	0.76%	63					16								
211	Dry3	1999			2,767	47	62	0.72%	58	-0.1	86%	87%	210	89	0	148						
211	Dry3	2000	16.5	14.8	2,753	44	60	0.74%	59	-0.07	84%	77%			0	48	32	0.79	4.4	1,857	40	
211	Dry3	2001			5,168	69	54	0.69%	56	-0.1					0	127						
212	Dry2	1995	20.9	17.9																		
212	Dry2	1996	20.7	17.8																		
212	Dry2	1997	20.5	17.9			89															
212	Dry2	1998	20.6	17.6																		
212	Dry2	2000			2,470	27		1.82%	44		76%	56%	81	61			41	0.92	4.5	1,528	19	

Station	Year	Temperature	Large Wood (>7" Bank Full)			Substrate			Streambed			Riparian Zone			Fish per Mile		Macroinvertebrates				
			Seasonal Maximum	MWAT	CuFt/ 1000'	Pieces/ 1000'	< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Basal Cr. Area	Tree Ht.	Coho (YOY+)	SH (1+)	Richness Simpson	Hilsenhoff%	Dominant Abundance		
213	1995	17.0	16.0																		
213	1996	17.3	16.1																		
213	1997	17.8	16.4																		
269	1994	16.2	15.7																		
269	1998	17.5	16.0																		
405	Dry1 1997						65														
Avg		18.3	16.4	3,234	46	14.2%		0.95%	56	0.09	82%	73%	146	75	4	107	37	0.86	4.5	1,692	30

Stream McGann Gulch

209	MGG2	1995	16.7	15.9			19.2%													
209	MGG2	1996	16.4	15.6			26.8%													
209	MGG2	1997	15.5	14.4			19.9%													
210	MGG1	1995	20.4	16.4																
210	MGG1	2001																		
Avg		17.2	15.6				22.0%													

Stream North Fork Gualala

204	NFG3	1995	20.6	17.5																
204	NFG3	1996	20.1	18.7																
204	NFG3	1997	19.4	18.2			14													
204	NFG3	1998	20.2	17.7										0						
204	NFG3	1999			2,038	25	20	0.37%	44		64%	46%	140	75	0	109				
204	NFG3	2000	19.9	17.0											0	698				
204	NFG3	2001			1,958	35	24	0.38%	50	-0.4					0	84				
205		1995	21.4	17.7																
205		1996	20.4	17.8																
205		1997	21.1	18.1																
205		2001																		
251		1996	19.0	16.6																
251		1997	19.3	17.5																
258		1994	24.5	19.3																
406	NFG2	1997					18													
406	NFG2	1998	21.4	18.6																
473	NFG4	2001			1,567	33	28	0.26%	37		93%	84%	148	71						
Avg		20.6	17.9		1,854	31		0.34%	43	-0.4	79%	65%	144	73	0	297				

Stream Robinson Creek

Station	Year	Temperature		Large Wood (>7" Bank Full)		Substrate		Streambed			Riparian Zone			Fish per Mile		Macroinvertebrates					
		Seasonal Maximum	MWAT	CuFt/ 1000'	Pieces/ 1000'	< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Basal Cr.	Tree Area	Ht.	Coho (YOY+)	SH (1+)	Richness Simpson	Hilsenhoff	% Dominant Abundance		
206	1995	20.4	14.2																		
206	1996	16.9	14.2																		
206	1997	16.4	13.8																		
206	1998	16.5	14.4																		
206	2000	18.0	14.0																		
207	Rob2	1995	19.6	15.8		15.2%															
207	Rob2	1996	19.6	15.7		18.1%															
207	Rob2	1997	20.2	16.2		17.9%	38														
207	Rob2	1998	18.5	15.4										12							
207	Rob2	1999			1,592	39	36	1.39%	18	66%	74%	246	102	0	113						
207	Rob2	2000	17.2	14.7										0	422						
207	Rob2	2001												0	13						
208	Rob1	1995	16.6	14.9																	
208	Rob1	1996	16.4	15.0																	
208	Rob1	1997	16.7	14.9			29														
208	Rob1	1998	16.2	14.9																	
260		1994	14.6	13.8																	
263		1994	17.7	15.5																	
Avg		17.6	14.8	1,592	39	17.1%		1.39%	18	66%	74%	246	102	3	183						
Robinson Creek	Avg	18.6	16.2	2,592	40	17.8%	41	0.79%	47	-0.2	78%	70%	165	80	2	196	37	0.86	4.5	1,692	30
	Min	14.6	13.8	1,567	25	8.0%	14	0.26%	18	-0.4	64%	46%	81	61	0	13	32	0.79	4.4	1,528	19
	Max	24.5	19.3	5,168	69	48.3%	89	1.82%	63	0.07	93%	87%	246	102	16	698	41	0.92	4.5	1,857	40

Planning Watershed Stewart Gualala 1113.810001

Stream Lost Creek

215	1995	16.4	15.3		
215	1996	15.8	15.1		
215	1998	17.0	15.9		
Avg		16.4	15.4		

Stream North Fork Gualala

214	1995	23.9	21.0		
214	1996	23.7	21.1		
214	1997	24.0	21.2		
214	1998	24.3	21.4		
216	NFG1	1995	25.9	21.5	

Station	Year	Temperature	Large Wood (>7" Bank Full)		Substrate	Streambed			Riparian Zone			Fish per Mile		Macroinvertebrates					
			Seasonal Maximum	MWAT		CuFt/ 1000'	Pieces/ 1000'	< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Basal Tree Cr. Area	Tree Ht.	Coho (YOY+)	SH (1+)	Richness Simpson	Hilsenhoff% Abundance
216	NFG1	1996	26.4	21.8															
216	NFG1	1997	26.9	22.0		41													
272		1994	24.5	21.4															
272		2001																	
Avg			24.9	21.4															
Stewart Gualala	Avg		22.6	19.8		41													
	Min		15.8	15.1		41													
	Max		26.9	22.0		41													

Hydrologic Unit Rockpile

Planning Watershed Lower Rockpile 1113.820003

Stream Rockpile Creek

221	Roc3	1995	23.1	19.6															
221	Roc3	1996	22.4	19.3															
221	Roc3	1997	22.4	19.7			27												
221	Roc3	1998	23.2	19.8	555	7	25	0.27%	19					0	677				
221	Roc3	1999			2,412	23	32	0.31%	12	-0.2	90%	37%	272	91	0	11			
221	Roc3	2000	22.1	18.4										0	169				
221	Roc3	2001												0	53				
222		1994	21.9	19.4															
222		1995	23.5	19.7															
222		1996	22.1	19.4															
222		1997	22.4	19.8															
275	Roc2	1997	20.1	19.5			26												
275	Roc2	1998	23.9	20.2										0	508				
276		1997	15.2	14.1															
276		1998	15.0	13.9															
276		2000																	
401	Roc1	1997					28												
401	Roc1	1998	23.7	20.8															
Avg			21.5	18.8	1,484	15		0.29%	15	-0.2	90%	37%	272	91	0	284			
Lower Rockpile	Avg		21.5	18.8	1,484	15	27	0.29%	15	-0.2	90%	37%	272	91	0	284			
	Min		15.0	13.9	555	7	25	0.27%	12	-0.2	90%	37%	272	91	0	11			
	Max		23.9	20.8	2,412	23	32	0.31%	19	-0.2	90%	37%	272	91	0	677			

Hydrologic Unit Buckeye

Station	Year	Temperature	Large Wood (>7" Bank Full)		Substrate	Streambed			Riparian Zone			Fish per Mile		Macroinvertebrates		
			Seasonal Maximum	MWAT		CuFt/ 1000'	Pieces/ 1000'	< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Basal Tree Cr. Area	Tree Ht.	Coho (YOY+)

Planning Watershed Buckeye 1113.830004

Stream																			
286	1998	15.1	14.3																
Avg		15.1	14.3																

Stream Buckeye Creek																				
223	Buc3	1995	23.0	19.0																
223	Buc3	1996	21.4	18.8																
223	Buc3	1997	22.4	19.5	25															
223	Buc3	1998	22.7	19.7									0	459						
223	Buc3	1999	21.1	18.0									0	0						
223	Buc3	2000			2,946	49	36	0.32%	46	81%	56%	143	106	0	194	32	0.88	4.0	5,713	26
223	Buc3	2001												0	67					
224	Buc2	1995	23.9	19.9																
224	Buc2	1996	22.1	19.3																
224	Buc2	1997	22.7	19.8	26															
224	Buc2	1998																		
224	Buc2	2000	20.9	18.1																
231	Buc1	1994	21.7	19.7																
231	Buc1	1995	24.4	20.9																
231	Buc1	1996	23.7	20.8																
231	Buc1	1997	23.7	21.1	24															
231	Buc1	1998	24.0	21.0	228	7	24	0.36%	53											
231	Buc1	1999																		
231	Buc1	2000																		
231	Buc1	2001																		
235		1994	21.1	18.3																
Avg		22.6	19.6	1,587	28		0.34%	50	81%	56%	143	106	0	180	32	0.88	4.0	5,713	26	
Buckeye		Avg	22.1	19.3	1,587	28	27	0.34%	50	81%	56%	143	106	0	180	32	0.88	4.0	5,713	26
		Min	15.1	14.3	228	7	24	0.32%	46	81%	56%	143	106	0	0	32	0.88	4.0	5,713	26
		Max	24.4	21.1	2,946	49	36	0.36%	53	81%	56%	143	106	0	459	32	0.88	4.0	5,713	26

Hydrologic Unit Wheatfield

Station	Year	Temperature	Large Wood (>7" Bank Full)		Substrate	Streambed			Riparian Zone			Fish per Mile		Macroinvertebrates			
			Seasonal Maximum	MWAT		CuFt/ 1000'	Pieces/ 1000'	< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Basal Cr.	Tree Area	Ht.	Coho (YOY+)

Planning Watershed Wheatfield 1113.840303

Stream		Wheatfield Fork Gualala River																	
226	Wfg3	1995	25.5	20.9															
226	Wfg3	1996	23.8	20.3															
226	Wfg3	1997	23.1	21.9				45											
226	Wfg3	1998	24.7	21.7									0	981					
226	Wfg3	2000			1,531	15	28		86%	40%	156	99			32	0.85	4.3	7,312	32
227	Wfg2	1996	24.0	21.2															
227	Wfg2	1997	25.3	22.2			34												
227	Wfg2	1998	24.3	21.5															
227	Wfg2	2000	25.3	21.2															
228		1995	14.5	13.9															
228		1996	14.0	13.4															
228		1997	14.8	14.2															
228		1998	14.1	13.6															
273		1995	26.4	22.0															
273		2000																	
403	WFG1	1997					24												
403	WFG1	1998	26.4	22.9															
403	WFG1	2000																	
		Avg	21.9	19.4	1,531	15			86%	40%	156	99	0	981	32	0.85	4.3	7,312	32
Wheatfield		Avg	21.9	19.4	1,531	15	33		86%	40%	156	99	0	981	32	0.85	4.3	7,312	32
		Min	14.0	13.4	1,531	15	24		86%	40%	156	99	0	981	32	0.85	4.3	7,312	32
		Max	26.4	22.9	1,531	15	45		86%	40%	156	99	0	981	32	0.85	4.3	7,312	32

Hydrologic Unit SF Gualala

Planning Watershed Big Pepperwood Creek 1113.850201

Stream		Big Pepperwood																	
218	Ppw3	1994	15.9	14.4															
218	Ppw3	1995	16.5	15.0															
218	Ppw3	1996	16.2	14.3															
218	Ppw3	1997	17.3	15.6			31												
218	Ppw3	1998	17.2	15.2	2,275	61	40	1.37%	20				0	153					

Station	Year	Temperature		Large Wood (>7" Bank Full)		Substrate		Streambed			Riparian Zone			Fish per Mile		Macroinvertebrates					
		Seasonal Maximum	MWAT	CuFt/ 1000'	Pieces/ 1000'	< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	% Cr.	Basal Area	Tree Ht.	Coho (YOY+)	SH (1+)	Richness Simpson	Hilsenhoff	% Dominant		
218	Ppw3	1999	15.9	14.4	2,150	53	31	1.46%	17	0.25	90%	88%	348	88	0	132					
218	Ppw3	2000	16.2	14.5											0	21	32	0.79	4.7	4,961	39
218	Ppw3	2001													0	48					
219	Ppw2	1995	17.0	14.9																	
219	Ppw2	1996	16.7	14.7																	
219	Ppw2	1997	17.8	15.0			39														
219	Ppw2	1998	17.3	14.9																	
219	Ppw2	2000																			
248		1994	17.2	14.6																	
Avg			16.8	14.8	2,212	57		1.42%	19	0.2	90%	88%	348	88	0	88	32	0.79	4.7	4,961	39

Stream		Groshong Gulch																			
250		1996	14.1	13.1																	
277	GrG2	1998	13.9	13.4																	
277	GrG2	2000	17.8	14.5																	
Avg			15.2	13.7																	

Stream		Gualala River																			
217	Gua1	1994	22.7	19.2																	
217	Gua1	1995	25.3	20.6																	
217	Gua1	1996	24.4	20.1																	
217	Gua1	1997	24.6	22.4																	
217	Gua1	1998			809	12	25	0.11%	39		93%	16%									
217	Gua1	1999												0	32						
217	Gua1	2000			484	9	24	0.03%	36	-0.1	96%	17%	239	78	0	21	28	0.87	4.4	7,112	28
217	Gua1	2001			1,207	23	19	0.07%	34	0.19				0	11						
Avg			24.3	20.6	833	14		0.07%	36	0.05	95%	17%	239	78	0	21	28	0.87	4.4	7,112	28

Stream		Little Pepperwood																			
220		1994	15.8	14.3																	
220		1995	19.4	16.0																	
220		1996	17.8	15.0																	
220		1997	16.7	16.0																	
220		1998	17.8	15.6																	
Avg			17.5	15.4																	

Station	Year	Temperature	Large Wood (>7" Bank Full)		Substrate	Streambed				Riparian Zone				Fish per Mile		Macroinvertebrates				
			Seasonal Maximum	MWAT		CuFt/ 1000'	Pieces/ 1000'	< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	% Cr.	Basal Area	Tree Ht.	Coho (YOY+)	SH (1+)	Richness Simpson	Hilsenhoff
Big Pepperwood Cr	Avg	18.0	15.7	1,385	31	30	0.61%	29	0.1	93%	40%	294	83	0	60	30	0.83	4.6	6,036	33
	Min	13.9	13.1	484	9	19	0.03%	17	-0.1	90%	16%	239	78	0	11	28	0.79	4.4	4,961	28
	Max	25.3	22.4	2,275	61	40	1.46%	39	0.2	96%	88%	348	88	0	153	32	0.87	4.7	7,112	39

Planning Watershed Mouth of the Gualala River 1113.850202

Stream Gualala River			
225	1995	24.8	20.8
225	1997	22.1	20.6
Avg		23.4	20.7

Stream South Fork Gualala River			
229	1995	23.4	19.9
229	1996	22.1	19.0
229	1997	25.6	20.5
230	1995	22.9	18.9
230	1996	21.8	18.4
230	1997	24.4	22.3
230	1998	22.6	19.5
402	SFG 1997		13
402	SFG 1998	22.1	19.7
402	SFG 1999		1,390 23
402	SFG 2000	22.4	18.9
402	SFG 2001		
Avg		23.0	19.7 1,390 23
Mouth of the Gualal Avg		23.1	19.9 1,390 23
Min		21.8	18.4 1,390 23
Max		25.6	22.3 1,390 23

Hydrologic Unit Coastal Gualala

Planning Watershed Black Point 1113.850304

Stream Salal Creek			
470	Sal1 2000	15.3	13.5 2,048 96
470	Sal1 2001		
Avg		15.3	13.5 2,048 96

Station	Year	Temperature	Large Wood (>7" Bank Full)	Substrate	Streambed	Riparian Zone	Fish per Mile	Macroinvertebrates											
		Seasonal Maximum	MWAT	CuFt/ 1000'	Pieces/ 1000'	< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Basal Tree Cr. Area	Ht.	Coho (YOY+)	SH (1+)	Richness Simpson	Hilsenhoff % Abundance	Dominant	
472	Sch	2000		765	44		0	5.86%	54		97%	97%	473	93					
			Avg	765	44			5.86%	54		97%	97%	473	93					
Black Point			Avg	15.3	13.5	1,407	70	10	5.28%	32	92%	93%	316	92		33	0.86	2.9	29
			Min	15.3	13.5	765	44	0	4.69%	11	87%	89%	158	90		33	0.86	2.9	29
			Max	15.3	13.5	2,048	96	19	5.86%	54	97%	97%	473	93		33	0.86	2.9	29

Summary for Assessment Area Gualala

(537 detail records)

	Avg	19.7	17.2	2,193	39	17.6%	32	1.08%	35	0.09	85%	61%	217	89	2	232	32	0.85	4.2	4,832	30
	Min	13.9	12.9	228	7	4.5%	0	0.03%	11	-0.4	64%	16%	81	61	0	0	28	0.79	2.9	1,528	19
	Max	26.9	22.9	5,168	96	48.3%	89	5.86%	63	0.2	97%	97%	473	106	32	981	41	0.92	4.7	7,312	40
Old Growth Watersheds (HRSP)		18.5	16.6			21.6%	62										26.2	0.89			
Poor-Normal-Good										>20							26-35	.8-.89	4.6-3.1		39-15
NCWQCB Target		18.3	16.8			<14%															

<p>Temperature</p> <p>?? Seasonal Maximum – The highest water temperature recorded during the summer.</p> <p>?? Maximum weekly average temperature (MWAT) - The highest average temperature for any seven day rolling average</p>	<p>Large Woody Debris (LWD)</p> <p>?? LWD must be at least 6 inches on the small end and longer than 4 feet.</p> <p>?? Cubic Feet per 1,000 feet – The cubic volume of LWD located between the bankfull lines.</p> <p>?? Pieces per 1,000' – The number of LWD pieces per 1000'</p>	<p>Stream Substrate</p> <p>?? <0.85mm – The percent fines less than 0.85 millimeters in a McNeal sample.</p> <p>?? D50- The pebble size of the median pebble of a 100 pebble sample. Three sample sites on each reach are averaged.</p>	<p>Fish Surveys</p> <p>?? Presence/absence snorkel surveys were conducted. Rough estimates were made of fish numbers per mile.</p> <p>?? Coho YOY – Coho salmon young of the year.</p> <p>?? SH (1+) – Steelhead one year old or older.</p>
<p>Streambed (Thalweg) Survey</p> <p>?? Slope – the slope of the channel</p> <p>?? VI – The variation index is the [(SD of residual depth/bank full depth) *100]. This is a way of quantifying roughness and hence suitability for fish. Greater than 20 is a good indication of recovery.</p> <p>?? A/D – The change in elevation of the channel (aggradation or degradation) relative to the first year of measurement.</p>	<p>Riparian Condition</p> <p>?? Canopy Cover percent as measured with a spherical densiometer. Every 200', canopy percent is measured in the center of the channel. And at bank full and 50' into the riparian zone from bankfull on both sides of the channel. Four measurements are averaged at each point.</p> <p>?? WLPZ (Watercourse and Lake Protection Zone) – The average of all the measurements taken on either side of the channel 50' into the riparian zone.</p> <p>?? Cr. – The average of all the measurements taken in the center of the channel.</p> <p>?? Riparian inventory plots were locate both sides of the channel every 200'</p> <p>?? Basal Area – Is the average basal area in square feet of all the riparian plots</p> <p>?? Tree Ht. – Is the average height of the 100 tallest trees per acre.</p>	<p>Macroinvertebrates</p> <p>?? Richness – Total number of Genuses represented.</p> <p>?? Simpson Diversity Index – Measures the evenness of species diversity</p> <p>?? Hilsenhoff – This is a locally modified Hilsenhoff index. It indicates levels of organic pollution</p> <p>?? Abundance – A rough estimate of the total number of insects per sample.</p> <p>?? Percent Dominant Taxon – this is a species distribution index</p>	