

Stream Monitoring Report

NF Gualala Assessment Area

30,654 Total Acres

Station	Year	Temperature	LWD Bank Full	Substrate	Streambed	Riparian Zone	Fish per Mile	Macroinvertebrates										
		Seasonal Daily Max	MWAT	CuFt/ 1000'	Pieces/ 1000'	< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Basal Area	Tree Ht.	Coho	SH (1+)	Richness Simpson	Hilsenhoff Russian R Index	% Dominant

Hydrologic Unit: NF Gualala
 Planning Watershed: Billings Creek 1113.810004

Stream		Bear Creek	
693	2009	17.1	15.1
Avg		17.1	15.1

Stream		Billings Cr	
698	Bil 2004	25.2	21.6
698	Bil 2009	26.0	20.8
Avg		25.6	21.2

Stream		Robinson Cr East										
692	Rbn2 2004	20.6	17.9									
692	Rbn2 2009	21.0	18.2	153	8	44	1.64%	65	73%	77%		
697	Rbn1 2004			622	7	26	0.59%	23				
697	Rbn1 2009	23.0	18.7	690	11	33	0.61%	35	-0.4			
Avg		21.5	18.3	488	9		0.95%	41	-0.4	73%	77%	
Billings Creek		Avg	22.1	18.7	488	9	34	0.95%	41	-0.4	73%	77%
		Min	17.1	15.1	153	7	26	0.59%	23	-0.4	73%	77%
		Max	26.0	21.6	690	11	44	1.64%	65	-0.4	73%	77%

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	Dot1 1998	14.8	13.7	

Station	Year	Temperature		LWD Bank Full		Substrate		Streambed			Riparian Zone			Fish per Mile		Macroinvertebrates			
		Seasonal Daily Max	MWAT	CuFt/ 1000'	Pieces/ 1000'	< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Basal Area Cr.	Tree Ht.	Coho	SH (1+)	Richness Simpson	Hilsenhoff Russian R Index	% Dominant	
281	Dot1	2008	14.5	13.4															
		Avg	14.5	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	16.5	14.8															
201	LNF5	2003	16.1	15.0															
201	LNF5	2004	16.9	15.7															
201	LNF5	2005	15.6	14.5															
201	LNF5	2008	16.4	15.2															
201	LNF5	2009	15.8	14.8															
201	LNF5	2010	15.0	13.7															
201	LNF5	2011	15.1	14.0															
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%	
202	LNF2	1998																	
202	LNF2	2003																32	
202	LNF2	2004																0	
202	LNF2	2004																0	
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%	
203	LNF1	1998	15.2	13.9	3,010	65		25	1.54%	23								0	
203	LNF1	1999	15.1	13.8	3,632	73		43	1.52%	21	-0.2	87%	89%	298	100			0	
203	LNF1	2000	15.3	13.9	3,766	71		46	1.49%	21	-0.08							0	
203	LNF1	2001	15.2	13.5	4,798	119		42	1.49%	20	-0.1							0	

Station	Year	Temperature		LWD Bank Full		Substrate	Streambed			Riparian Zone				Fish per Mile		Macroinvertebrates					
		Seasonal Daily Max	MWAT	CuFt/ 1000'	Pieces/ 1000'		< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Cr.	Basal Area	Tree Ht.	Coho	SH (1+)	Richness Simpson	Hilsenhoff Russian R Index	% Dominant	
203	LNF1	2002	14.5	13.0	4,964	138	65	1.41%	28	-0.3					0	169					
203	LNF1	2003	15.2	14.0	4,946	140	60	1.42%	30	-0.4					0	235					
203	LNF1	2004	15.6	14.2	4,907	139	42	1.54%	32	-0.7					0	666					
203	LNF1	2005	14.9	13.6	5,073	137	40	1.35%	31	-0.9							30	4.6		41	
203	LNF1	2006			5,383	134	36	1.46%	28	-1.1											
203	LNF1	2007			5,391	132	31	1.49%	31	-0.4											
203	LNF1	2008	15.3	13.9	5,851	148	23	1.43%	34	-0.7	86%	88%	391	83		58					
203	LNF1	2009	15.1	13.7	5,957	149	48	1.45%	34	-0.7	89%	91%			0	803					
203	LNF1	2010	14.5	13.1	5,943	146	42	1.45%	33	-0.6											
203	LNF1	2011	14.6	13.4	5,871	148	43	1.44%	41	-0.5	77%	89%			0	433					
255	LNF6	1993									19.4%										
255	LNF6	1994	15.9	14.3							17.2%										
255	LNF6	1995									11.9%										
255	LNF6	1996									24.4%										
255	LNF6	1997									27.8%										
274	LNF8	1995	16.4	14.6																	
274	LNF8	1996	16.1	14.1																	
404	LNF3	1997																			
404	LNF3	1998													16						
404	LNF3	2001			5,250	83	34	0.57%	33		97%	96%	163	75							
404	LNF3	2003													0	589					
404	LNF3	2004			5,098	68	33	0.79%	57	-0.6					0	70					
408	LNF7	2005	14.9	13.7																	
		Avg	15.6	14.2	4,990	118		1.37%	31	-0.5	87%	91%	284	86	3	332	30	0.85	4.5	19	35
Doty Creek		Avg	15.5	14.2	4,990	118	41	1.37%	31	-0.5	87%	91%	284	86	3	332	30	0.85	4.5	19	35
		Min	14.1	12.9	3,010	65	23	0.57%	20	-1.1	77%	88%	163	75	0	58	30	0.85	4.5	5,340	30
		Max	16.9	15.7	5,957	149	65	1.54%	57	-0.08	97%	96%	391	100	32	803	31	0.85	4.6	19	41

Planning Watershed Robinson Creek 1113.810002

Stream Abieta Springs

752	2009	17.9	16.6
	Avg	17.9	16.6

Stream Dry Creek

Station	Year	Temperature		LWD Bank Full		Substrate	Streambed			Riparian Zone				Fish per Mile		Macroinvertebrates					
		Seasonal Daily Max	MWAT	CuFt/ 1000'	Pieces/ 1000'		< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Cr.	Basal Area	Tree Ht.	Coho	SH (1+)	Richness Simpson	Hilsenhoff Russian R Index	% Dominant	
211	Dry3	1995	17.7	15.7																	
211	Dry3	1996	17.7	15.9																	
211	Dry3	1997	16.9	15.2																	
211	Dry3	1998			3,148	57	48	0.76%	22					16							
211	Dry3	1999			2,815	53	58	0.72%	20	-0.1	86%	87%	210	89	0	148					
211	Dry3	2000	16.5	14.8	2,834	49	60	0.74%	21	-0.07	84%	77%			0	48	32	0.79	4.4	16	40
211	Dry3	2001	16.4	14.1	5,375	85	56	0.69%	19	-0.1					0	127					
211	Dry3	2002	15.6	14.0	6,311	95	62	0.70%	17	-0.4					11	143					
211	Dry3	2003	16.1	14.9	7,238	93	43	0.74%	22	-0.3					0	174					
211	Dry3	2004	14.8	13.7	7,142	98	38	0.77%	29	-0.3					23	175					
211	Dry3	2005	16.4	15.0	7,109	97	36	0.75%	29	-0.2											
211	Dry3	2006			7,066	91	29	0.80%	21	0.52											
211	Dry3	2007			6,993	97	26	0.78%	20	0.54											
211	Dry3	2008	14.9	13.8	7,230	111	21	0.84%	21	0.42	93%	82%									
211	Dry3	2009	15.2	13.7	7,253	114	31	0.86%	23	0.42	88%	79%			0	407					
211	Dry3	2010	15.4	14.1	7,334	114	30	0.86%	21	0.56											
211	Dry3	2011	15.0	13.8	7,305	115	30	0.90%	21	0.39	89%	80%			0	63					
212	Dry2	1995	20.9	17.9																	
212	Dry2	1996	20.7	17.8																	
212	Dry2	1997	20.5	17.9																	
212	Dry2	1998	20.6	17.6																	
212	Dry2	2000			2,477	37		1.82%	13		76%	56%	81	60			41	0.92	4.5	22	19
212	Dry2	2004													0	500					
212	Dry2	2005	17.9	16.1																	
212	Dry2	2008	16.8	15.9	2,185	28	36	1.89%	14	-0.4	87%	85%									
212	Dry2	2009	16.8	15.7																	
212	Dry2	2011	16.7	15.3																	
753		2009	16.5	15.7																	
		Avg	17.1	15.4	5,613	83	14.2%	0.91%	21	0.07	86%	78%	146	75	5	198	37	0.86	4.5	19	30

Stream McGann Gulch

209	MGG2	1995	16.7	15.9																	
209	MGG2	1996	16.4	15.6																	
209	MGG2	1997	15.5	14.4																	
209	MGG2	2003													0	104					
210	MGG1	1995	20.4	16.4																	

Station	Year	Temperature		LWD Bank Full		Substrate	Streambed			Riparian Zone			Fish per Mile		Macroinvertebrates			
		Seasonal Daily Max	MWAT	CuFt/ 1000'	Pieces/ 1000'		< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Basal Area	Tree Ht.	Coho	SH (1+)	Richness Simpson	Hilsenhoff Russian R Index
210	MGG1	2002	14.2	13.9														
210	MGG1	2003	14.8	14.6														
210	MGG1	2004	14.9	14.5														
210	MGG1	2008	14.1	13.5														
210	MGG1	2011	13.9	13.8														
Avg			15.6	14.7										0	104			

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																		
204	NFG3	1998	20.2	17.7															0			
204	NFG3	1999			2,326	46		19	0.37%	23		64%	46%	140	73				0	109		
204	NFG3	2000	19.9	17.0																0	698	
204	NFG3	2001	18.6	16.7	2,922	97		24	0.38%	26	-0.4									0	84	
204	NFG3	2002																			0	317
204	NFG3	2003																			0	255
204	NFG3	2007			3,174	57		15														
204	NFG3	2008	16.8	15.5	2,981	60		28	0.33%	31	-1	80%	69%									79
204	NFG3	2009	17.7	15.9																	0	1,484
204	NFG3	2010	17.4	15.9																		
204	NFG3	2011	17.1	15.6																		
205	NFG	1995	21.4	17.7																		
205	NFG	1996	20.4	17.8																		
205	NFG	1997	21.1	18.1																		
205	NFG	2001	19.3	17.0																		
251	NFG	1996	19.0	16.6																		
251	NFG	1997	19.3	17.5																		
251	NFG	2000	19.0	16.4																		
258	NFG	1994	24.5	19.3																		
258	NFG	2011	18.7	16.3																		
406	NFG2	1997																				
406	NFG2	1998	21.4	18.6																		
406	NFG2	2004																			0	303
473	NFG4	2001	19.3	16.6	2,518	64		26	0.26%	28		93%	84%	148	72							
473	NFG4	2003																			0	291

Station	Year	Temperature		LWD Bank Full		Substrate	Streambed			Riparian Zone			Fish per Mile		Macroinvertebrates				
		Seasonal Daily Max	MWAT	CuFt/ 1000'	Pieces/ 1000'		< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Basal Area Cr.	Tree Ht.	Coho	SH (1+)	Richness Simpson	Hilsenhoff Russian R Index	% Dominant
473	NFG4	2009	17.9	15.7															
474	NFG	2001	22.4	18.4															
474	NFG	2002	20.9	18.7															
474	NFG	2003	22.1	19.3															
474	NFG	2004	20.5	18.8															
474	NFG	2008	21.7	18.4															
474	NFG	2010	20.3	17.6															
474	NFG	2011	20.8	17.9															
Avg			19.9	17.4	2,784	65		0.34%	27	-0.7	79%	66%	144	72	0	402			

Stream Peaches Creek

213	Pea2	1995	17.0	16.0															
213	Pea2	1996	17.3	16.1															
213	Pea2	1997	17.8	16.4															
269	Pea3	1994	16.2	15.7															
269	Pea3	1998	17.5	16.0															
269	Pea3	2008	16.8	15.5															
269	Pea3	2009	16.2	15.2															
Avg			17.0	15.9															

Stream Robinson Cr West

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%
207	Rob2	1998	18.5	15.4																12
207	Rob2	1999			1,643	49	36	1.39%	13		66%	74%	246	95	0	113				
207	Rob2	2000	17.2	14.7											0	422				
207	Rob2	2001													0	13				
207	Rob2	2003													0	100				
207	Rob2	2004														361				
207	Rob2	2005	14.8	14.1																
207	Rob2	2008	15.8	14.6																21
207	Rob2	2009	15.6	14.5																
207	Rob2	2010	14.7	13.6																
207	Rob2	2011	15.1	14.0	1,713	48	22	1.31%	25	-0.3	88%	72%								

Station	Year	Temperature		LWD Bank Full			Substrate	Streambed			Riparian Zone			Fish per Mile		Macroinvertebrates			
		Seasonal Daily Max	MWAT	CuFt/ 1000'	Pieces/ 1000'	< 0.85 mm		D50	Slope	VI	A/D	Canopy % WLPZ	Basal Area	Tree Ht.	Coho	SH (1+)	Richness Simpson	Hilsenhoff Russian R Index	% Dominant
208	Rob1	1995	16.6	14.9															
208	Rob1	1996	16.4	15.0															
208	Rob1	1997	16.7	14.9															
208	Rob1	1998	16.2	14.9															
208	Rob1	2003												0	76				
260	Rob	1994	14.6	13.8															
263	Rob	1994	17.7	15.5															
263	Rob	2003												0	101				
263	Rob	2004												0	317				
263	Rob	2011	14.9	14.0															
409	Rob	2005	16.0	14.6															
		Avg	16.7	14.8	1,678	49	17.1%		1.35%	19	-0.3	77%	73%	246	95	1	169		

Stream Sosueme Cr

206	Sosu	1995	20.4	14.2															
206	Sosu	1996	16.9	14.2															
206	Sosu	1997	16.4	13.8															
206	Sosu	1998	16.5	14.4															
206	Sosu	2000	18.0	14.0															
		Avg	17.6	14.1															

Robinson Creek	Avg	17.8	15.8	4,656	76	17.8%	35	0.85%	22	-0.05	83%	74%	165	78	2	251	37	0.86	4.5	19	30
	Min	13.9	13.5	1,643	28	8.0%	15	0.26%	13	-1	64%	46%	81	60	0	13	32	0.79	4.4	1,528	19
	Max	24.5	19.3	7,334	115	48.3%	62	1.89%	31	0.56	93%	87%	246	95	23	1,484	41	0.92	4.5	22	40

Planning Watershed Stewart Creek 1113.810001

Stream Lost Creek

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

Stream North Fork Gualala

214	NFG	1995	23.9	21.0															
214	NFG	1996	23.7	21.1															

Station	Year	Temperature		LWD Bank Full		Substrate	Streambed			Riparian Zone			Fish per Mile		Macroinvertebrates			
		Seasonal Daily Max	MWAT	CuFt/ 1000'	Pieces/ 1000'		< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Basal Area	Tree Ht.	Coho	SH (1+)	Richness Simpson	Hilsenhoff Russian R Index
214	NFG	1997	24.0	21.2														
214	NFG	1998	24.3	21.4														
214	NFG	2004											0	1,081				
216	NFG1	1995	25.9	21.5														
216	NFG1	1996	26.4	21.8														
216	NFG1	1997	26.9	22.0														
216	NFG1	2003											0	236				
272	NFG	1994	24.5	21.4														
272	NFG	2001	24.1	21.0														
272	NFG	2009	22.9	19.2														
691	NFG5	2004	24.4	21.0														
691	NFG5	2009	23.2	19.5	227	4	20	0.32%	43	50%	43%							
		Avg	24.5	21.0	227	4		0.32%	43	50%	43%		0	659				
Stewart Creek		Avg	22.9	19.9	227	4	20	0.32%	43	50%	43%		0	659				
		Min	15.8	15.1	227	4	20	0.32%	43	50%	43%		0	236				
		Max	26.9	22.0	227	4	20	0.32%	43	50%	43%		0	1,081				

Station	Year	Temperature		LWD Bank Full		Substrate		Streambed			Riparian Zone			Fish per Mile		Macroinvertebrates		
		Seasonal Daily Max	MWAT	CuFt/ 1000'	Pieces/ 1000'	< 0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Basal Area	Tree Ht.	Coho	SH (1+)	Richness Simpson	Hilsenhoff Russian R Index	% Dominant

Summary for Assessment Are NF Gualala

(528 detail records)

Avg	17.9	15.9	4,387	85	17.6%	37	1.04%	27	-0.3	82%	77%	210	81	2	294	33	0.85	4.5	19	33
Min	13.9	12.9	153	4	4.5%	15	0.26%	13	-1.1	50%	43%	81	60	0	13	30	0.79	4.4	16	19
Max	26.9	22.0	7,334	149	48.3%	65	1.89%	65	0.56	97%	96%	391	100	32	1,484	41	0.92	4.6	22	41
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	12-17	39-15
NCWQCB Target	18.3	16.8			<14%															

<p>Temperature</p> <ul style="list-style-type: none"> Seasonal Maximum – The highest water temperature recorded during the summer. Maximum weekly average temperature (MWAT) - The highest average temperature for any seven day rolling average 	<p>Large Woody Debris (LWD)</p> <ul style="list-style-type: none"> LWD must be at least 8 inches on the small end and longer than 4 feet. Cubic Feet per 1,000 feet – The cubic volume of LWD located between the bankfull lines. Pieces per 1,000' – The number of LWD pieces per 1000' 	<p>Stream Substrate</p> <ul style="list-style-type: none"> <0.85mm – The percent fines less than 0.85 millimeters in a McNeal sample. D50- The pebble size of the median pebble of a 100 pebble sample. Three sample sites on each reach are averaged. 	<p>Fish Surveys</p> <ul style="list-style-type: none"> Presence/absence snorkel surveys were conducted. Rough estimates were made of fish numbers per mile. Coho – Coho salmon any age. SH (1+) – Steelhead one year old or older.
<p>Streambed (Thalweg) Survey</p> <ul style="list-style-type: none"> Slope – the slope of the channel 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. A/D – The change in elevation of the channel (aggradation or degradation) relative to the first year of measurement. 	<p>Riparian Condition</p> <ul style="list-style-type: none"> 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. WLPZ (Watercourse and Lake Protection Zone) – The average of all the measurements taken on either side of the channel 50' into the riparian zone. Cr. – The average of all the measurements taken in the center of the channel. Riparian inventory plots were locate both sides of the channel every 200' Basal Area – Is the average basal area in square feet of all the riparian plots Tree Ht. – Is the average height of the 100 tallest trees per acre. 		<p>Macroinvertebrates</p> <ul style="list-style-type: none"> Richness – Total number of Genuses represented. Simpson Diversity Index – Measures the evenness of species diversity Hilsenhoff – This is a locally modified Hilsenhoff index. It indicates levels of organic pollution Russian River Index – A localized index that combines several standard metrics. Percent Dominant Taxon – this is a species distribution index
<ul style="list-style-type: none"> The information presented in this report is the result of data collected by variety of organizations. Release of the underlying data is by permission of the organization that collected it. 			