

Steelhead Spawning Sites, Gualala River

Index Reach, 2001-2007

May 2007

Annual surveys of steelhead spawning are being conducted along the Wheatfield Fork of the Gualala River, between its confluence with House Creek downstream to the Wheatfield Fork bridge (i.e., about 200 yards upstream of confluence with the South Fork). This reach, called the “Index Reach,” is 18.7 miles in length. Midway downstream, the Annapolis Road bridge bisects the Index Reach, dividing it into nearly equal upper (9.3-mile) and lower (9.4-mile) sections, each of which is generally surveyed in 1 day.

Since 2001, 4 to 10 surveys annually, in which both adult steelhead and steelhead redds (spawning nests containing eggs) are counted, have been conducted by a biologist navigating the Index Reach in a small (8-ft-long), dory-style aluminum row-boat. As of the end of April 2007, 41 complete surveys and 4 partial surveys of the Index Reach have been completed, for a total of 795 stream survey miles.

The counts have yielded a total of 349 (0-145 per season) steelhead redds. However, based on reexamination of original field data, many of the redds found during the 2001 and 2002 spawning seasons are questionable. The biologist was still developing experience and refining survey procedures, and thus some sites identified as steelhead redds may have actually been either steelhead “test” diggings (i.e., not containing eggs) or large lamprey redds. In addition, some of the redds recorded during each of the first four seasons of study, had relatively low ($\geq \pm 100$ ft) GPS-coordinate accuracy (due to use of a low-quality GPS lacking an external antenna).

With the questionable and low (location)-accuracy redds from 2001-2004 removed, 133 steelhead redds from 55 sites remain in the 2001-2007 data-set. These redds are tabulated (Table 1) and mapped (Figures 1 and 2A-2D) below.

Individual sites are shown as having either 1 or >1 redd; >1 means that from 2 to 4 redds were recorded at the site. Most sites had GPS-coordinate accuracy of $<\pm 50$ ft, thus multiple redds were generally within 50 feet of each other. Moreover, for about one-third of the 36 sites with 2-4 redds, at least 2 redds were in the *exact same location*. This means that adult steelhead frequently spawned not only along the same run or within the same pool tail-out area, but in the *exact same location* at such areas. “Same-location (i.e., superimposed)” spawning was recorded both between and within years; within-year redd superimpositions occurred both with and without high-flow events “erasing” the previous redd. These observations show the high degree of fidelity to certain “favored” spawning locations that adult steelhead often exhibited.

Nevertheless, Index-Reach spawning is highly regulated by stream flow. Only when flow (based on the Wheatfield Fork USGS gage) drops below about 100 cfs does significant spawning begin. Otherwise, spawning generally occurs farther upstream, above the Index Reach. Exceptions occur when the flow is dropping very rapidly and when the spawning season is nearing its end.

Table 1. Locations of steelhead redds along the 18.7-mile Index Reach of the Wheatfield Fork, Gualala River 2001-2007 (all years combined).

WP #	Color (Map)	Index Reach	Distance ds of Start (mi)	# of Redds	Latitude/Longitude	Map/Sub-Map
01	Red	Upper	0.01	>1	N38 39.794 W123 14.005	Figs. 1, 2A
02	Red	Upper	0.03	>1	N38 39.853 W123 13.972	Figs. 1, 2A
03	Blue	Upper	0.80	1	N38 40.409 W123 14.008	Figs. 1, 2A
04	Blue	Upper	1.18	1	N38 40.561 W123 14.342	Figs. 1, 2A
05	Red	Upper	2.59	>1	N38 40.709 W123 15.632	Figs. 1, 2A
06	Red	Upper	2.66	>1	N38 40.724 W123 15.703	Figs. 1, 2A
07	Blue	Upper	3.33	1	N38 40.310 W123 16.001	Figs. 1, 2A
08	Blue	Upper	3.72	1	N38 40.561 W123 16.149	Figs. 1, 2A
09	Blue	Upper	4.26	1	N38 40.716 W123 16.370	Figs. 1, 2B
10	Red	Upper	4.96	>1	N38 40.824 W123 17.060	Figs. 1, 2B
11	Red	Upper	5.17	>1	N38 40.746 W123 17.147	Figs. 1, 2B
12	Red	Upper	5.43	>1	N38 40.544 W123 17.120	Figs. 1, 2B
13	Red	Upper	5.96	>1	N38 40.283 W123 17.516	Figs. 1, 2B
14	Red	Upper	6.43	>1	N38 40.513 W123 17.586	Figs. 1, 2B
15	Red	Upper	6.81	>1	N38 40.828 W123 17.686	Figs. 1, 2B
16	Red	Upper	7.00	>1	N38 40.800 W123 17.798	Figs. 1, 2B
17	Red	Upper	7.17	>1	N38 40.724 W123 17.843	Figs. 1, 2B
18	Blue	Upper	7.52	1	N38 40.524 W123 18.058	Figs. 1, 2B
19	Blue	Upper	7.59	1	N38 40.464 W123 18.046	Figs. 1, 2B
20	Red	Upper	7.88	>1	N38 40.296 W123 17.862	Figs. 1, 2B
21	Blue	Upper	8.24	1	N38 40.085 W123 17.866	Figs. 1, 2B
22	Blue	Upper	8.49	1	N38 40.021 W123 18.103	Figs. 1, 2B
23	Red	Upper	9.12	>1	N38 40.056 W123 18.711	Figs. 1, 2B
24	Red	Upper	9.21	>1	N38 39.985 W123 18.730	Figs. 1, 2B
25	Red	Upper	9.29	>1	N38 39.942 W123 18.770	Figs. 1, 2B
26	Red	Lower	9.45	>1	N38 39.918 W123 18.891	Figs. 1, 2B

WP #	Color (Map)	Index Reach	Distance ds of Start (mi)	# of Redds	Latitude/Longitude	Map/Sub-Map
27	Red	Lower	9.46	>1	N38 39.904 W123 18.931	Figs. 1, 2B
28	Red	Lower	9.52	>1	N38 39.880 W123 18.981	Figs. 1, 2B
29	Red	Lower	10.38	>1	N38 39.939 W123 19.647	Figs. 1, 2B
30	Red	Lower	10.55	>1	N38 40.060 W123 19.711	Figs. 1, 2B
31	Blue	Lower	10.78	1	N38 40.159 W123 19.857	Figs. 1, 2C
32	Red	Lower	10.90	>1	N38 40.145 W123 19.979	Figs. 1, 2C
33	Red	Lower	11.12	>1	N38 40.236 W123 20.169	Figs. 1, 2C
34	Blue	Lower	11.23	1	N38 40.328 W123 20.215	Figs. 1, 2C
35	Blue	Lower	11.52	1	N38 40.496 W123 20.417	Figs. 1, 2C
36	Red	Lower	11.59	>1	N38 40.537 W123 20.479	Figs. 1, 2C
37	Blue	Lower	11.70	1	N38 40.578 W123 20.581	Figs. 1, 2C
38	Red	Lower	12.10	>1	N38 40.842 W123 20.593	Figs. 1, 2C
39	Red	Lower	12.40	>1	N38 41.053 W123 20.703	Figs. 1, 2C
40	Red	Lower	12.90	>1	N38 41.120 W123 21.149	Figs. 1, 2C
41	Red	Lower	12.99	>1	N38 41.200 W123 21.181	Figs. 1, 2C
42	Red	Lower	13.94	>1	N38 41.607 W123 21.496	Figs. 1, 2C
43	Red	Lower	14.00	>1	N38 41.650 W123 21.517	Figs. 1, 2C
44	Red	Lower	14.28	>1	N38 41.720 W123 21.783	Figs. 1, 2C
45	Red	Lower	14.54	>1	N38 41.777 W123 22.043	Figs. 1, 2C
46	Blue	Lower	15.25	1	N38 42.081 W123 22.549	Figs. 1, 2C
47	Blue	Lower	15.49	1	N38 42.057 W123 22.869	Figs. 1, 2C
48	Red	Lower	16.30	>1	N38 42.283 W123 23.411	Figs. 1, 2C
49	Red	Lower	16.54	>1	N38 42.474 W123 23.338	Figs. 1, 2D
50	Blue	Lower	16.64	1	N38 42.553 W123 23.326	Figs. 1, 2D
51	Red	Lower	16.81	>1	N38 42.701 W123 23.306	Figs. 1, 2D
52	Red	Lower	17.27	>1	N38 42.577 W123 23.613	Figs. 1, 2D
53	Blue	Lower	17.39	1	N38 42.577 W123 23.772	Figs. 1, 2D
54	Blue	Lower	17.63	1	N38 42.701 W123 23.939	Figs. 1, 2D
55	Blue	Lower	18.39	1	N38 42.364 W123 24.452	Figs. 1, 2D

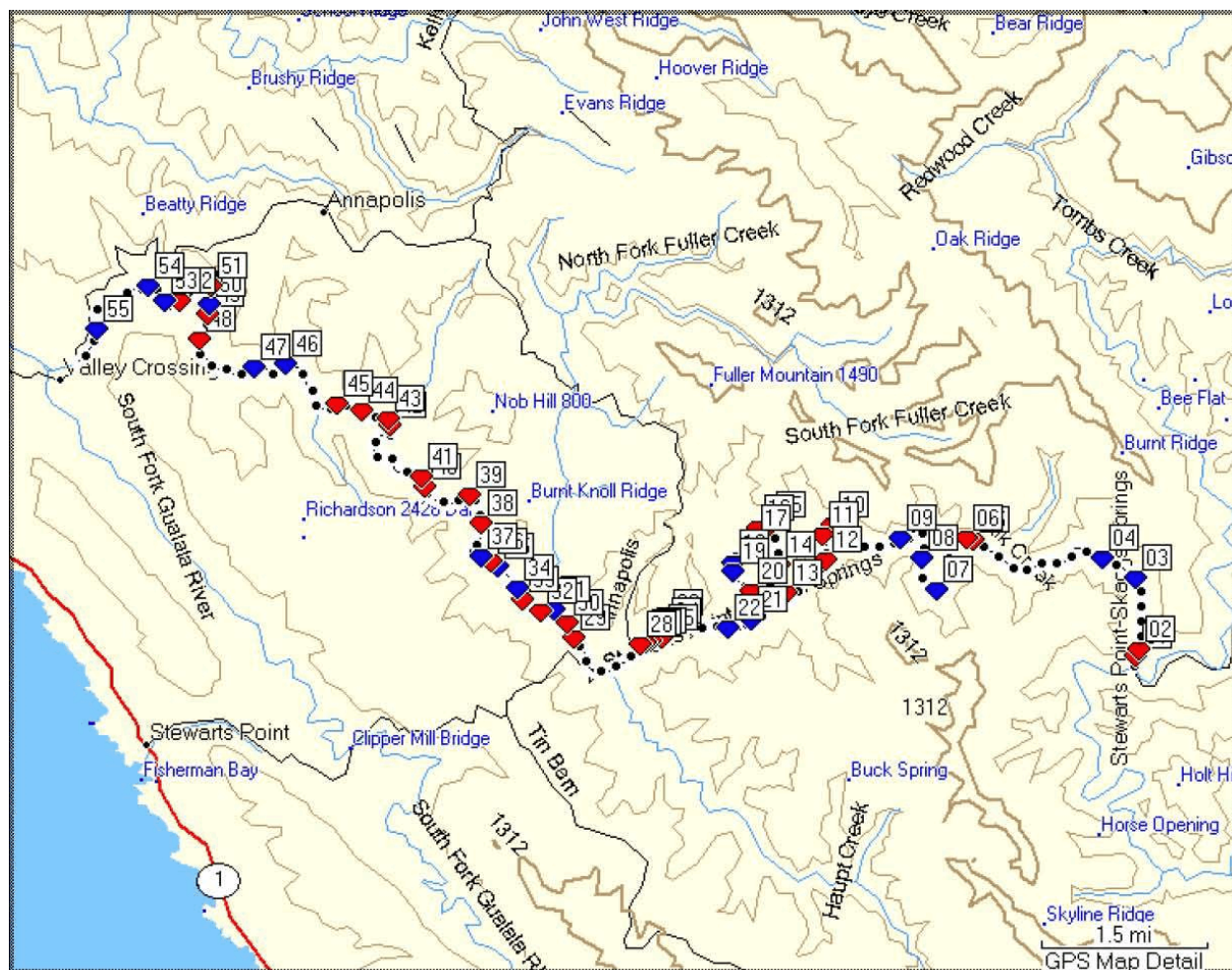


Figure 1. Locations of 133 steelhead redds (Blue=1 redd; Red=2-4 redds) at 55 sites along the Index Reach of the Gualala River, 2001-2007. Downstream is right (WP01) to left (WP55). “Zoomed-in” views of one-quarter lengths of the Index Reach follow below in Figures 2A-2D. For GPS waypoints and other data, refer also to Table 1.

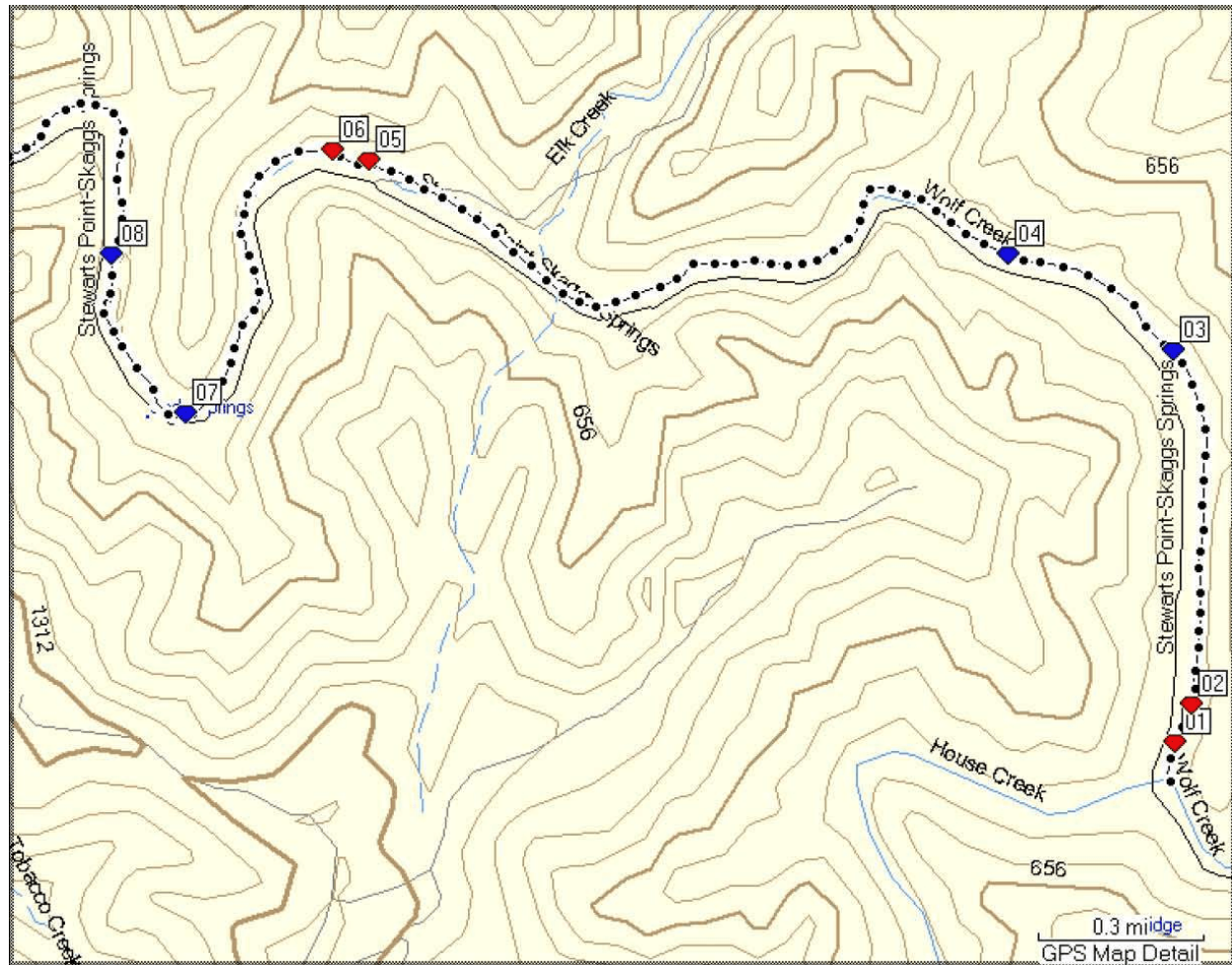


Figure 2A. Magnified view of redd locations (Blue=1 redd; Red=2-4 redds) along the upstream portion of the Index Reach of the Gualala River, 2001-2007. Downstream is right (WP01) to left (WP08). For GPS waypoints and other data, refer also to Table 1.

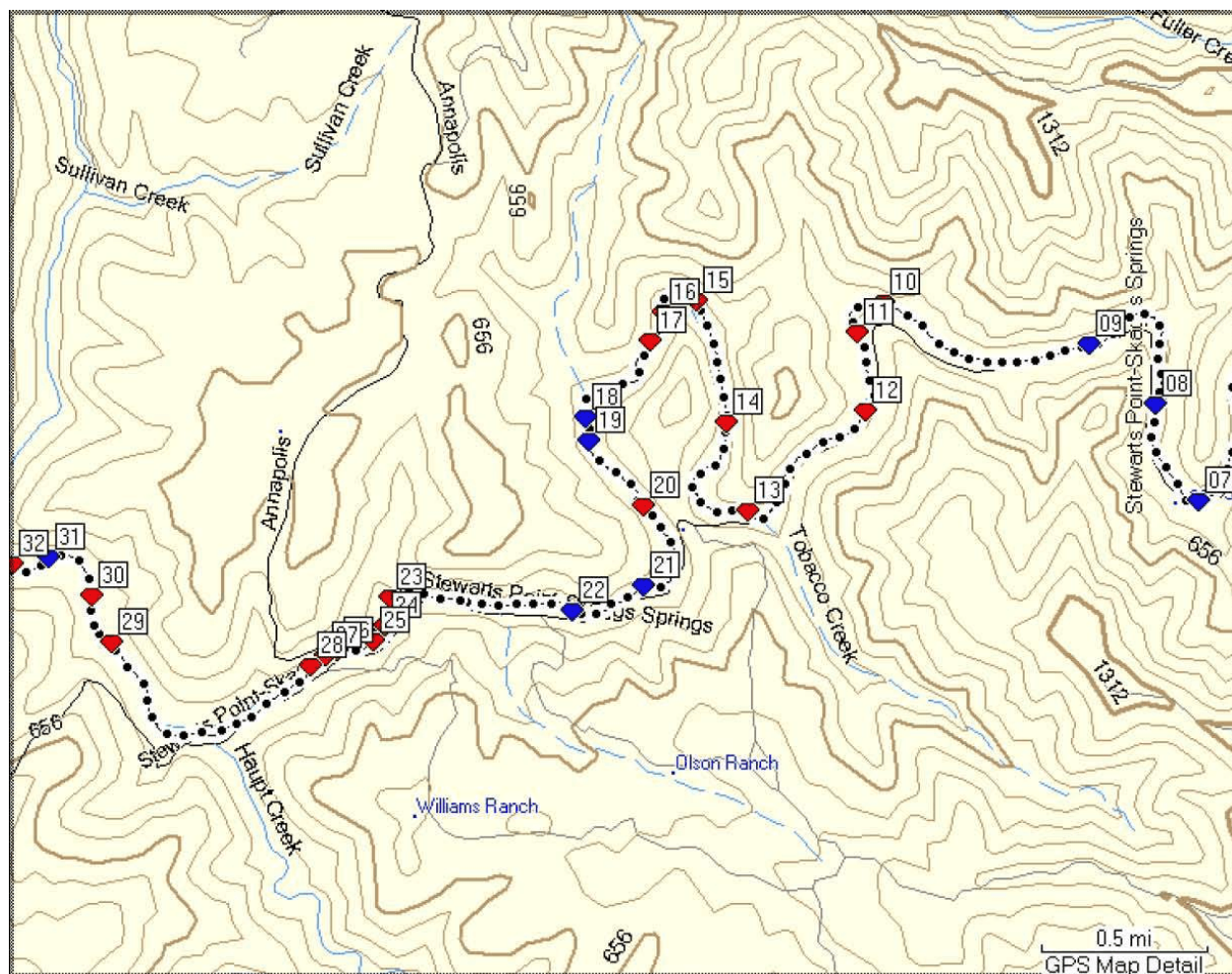


Figure 2B. Magnified view of redd locations (Blue=1 redd; Red=2-4 redds) along the upper middle portion of the Index Reach of the Gualala River, 2001-2007. Downstream is right (WP07) to left (WP32). For GPS waypoints and other data, refer also to Table 1.

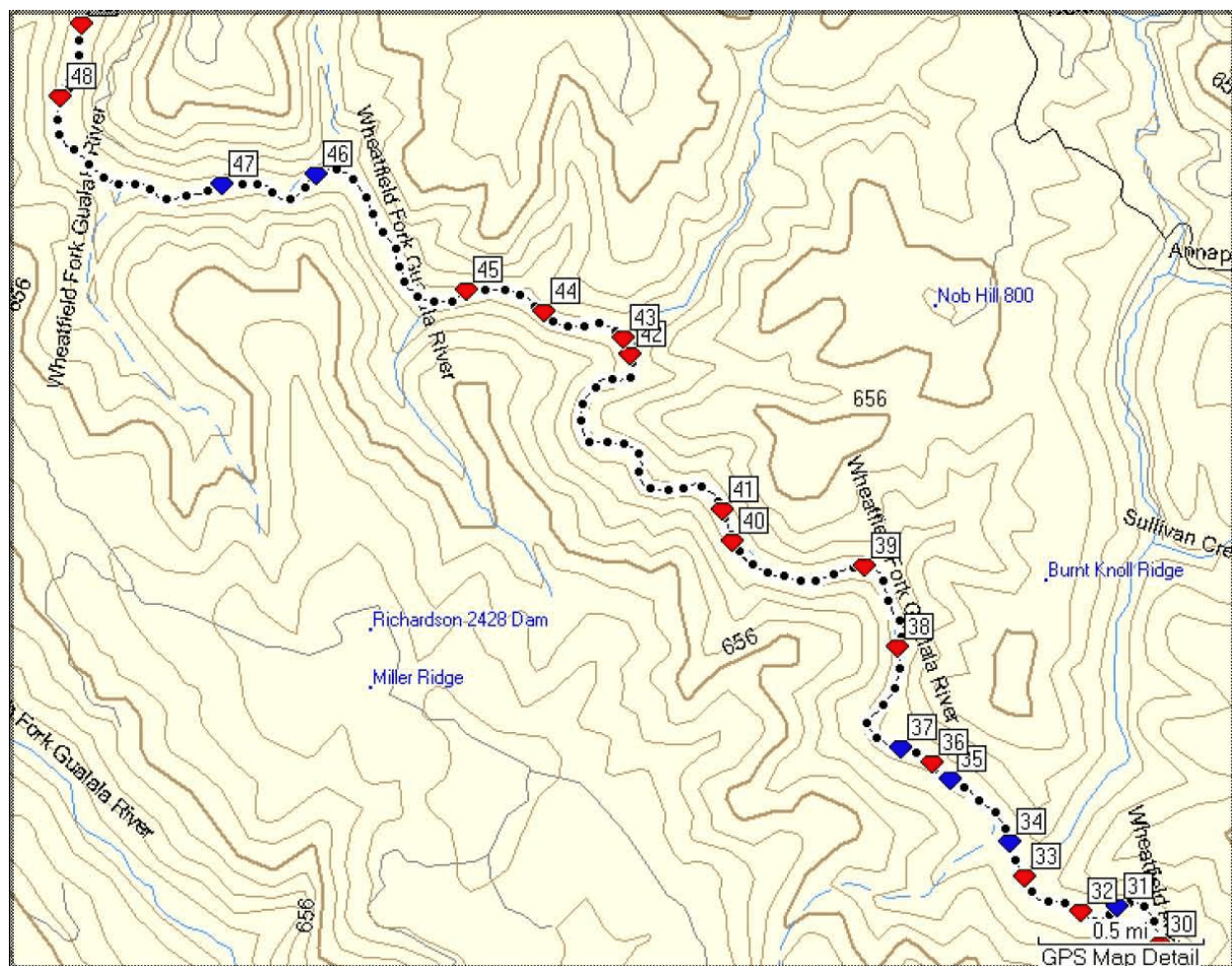


Figure 2C. Magnified view of redd locations (Blue=1 redd; Red=2-4 redds) along the lower middle portion of the Index Reach of the Gualala River, 2001-2007. Downstream is lower right (WP30) to upper left (WP48). For GPS waypoints and other data, refer also to Table 1.

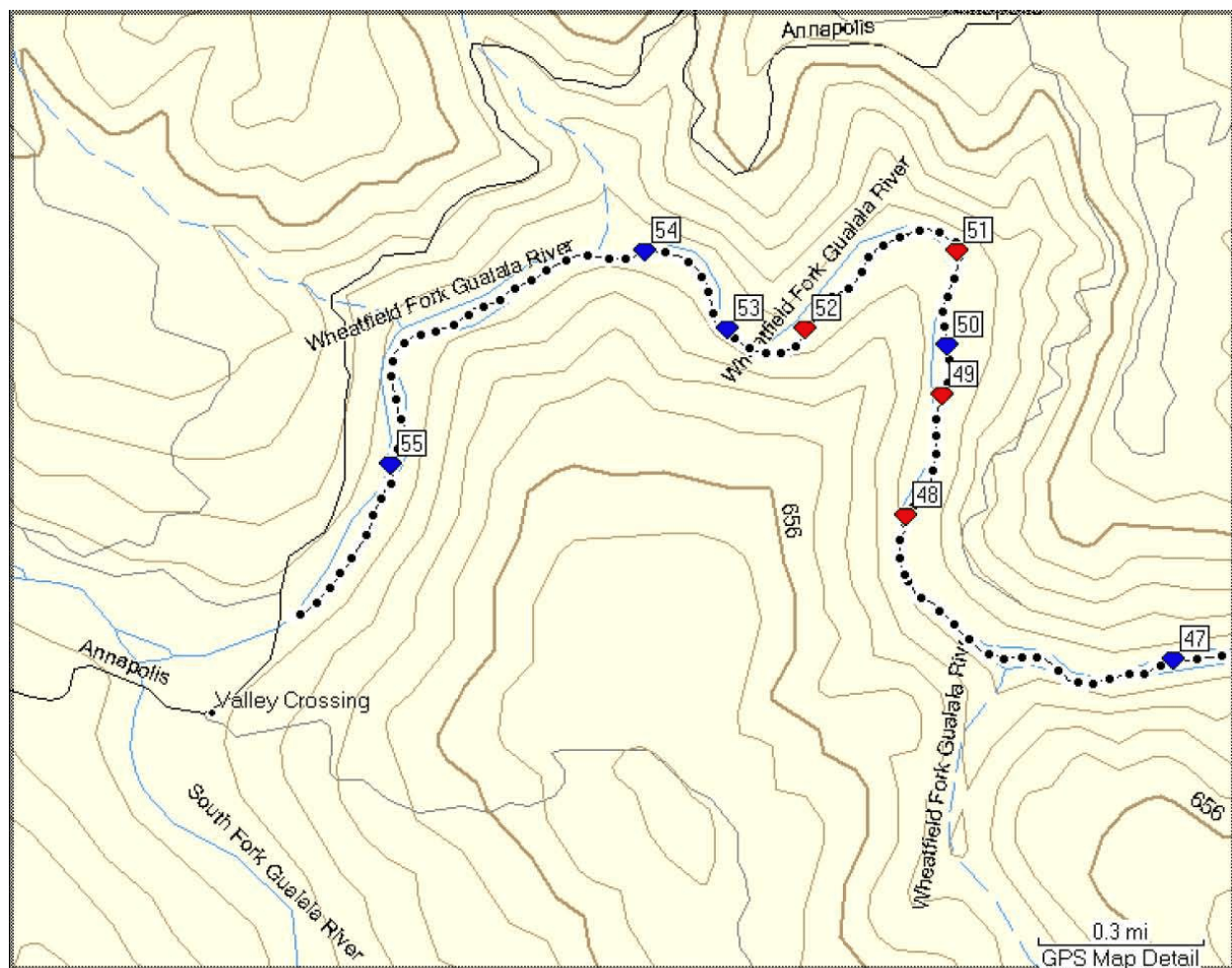


Figure 2D. Magnified view of redd locations (Blue=1 redd; Red=2-4 redds) along the downstream portion of the Index Reach of the Gualala River, 2001-2007. Downstream is right (WP47) to left (WP55). For GPS waypoints and other data, refer also to Table 1.