STEELHEAD SPAWNING SURVEYS, WHEATFIELD FORK, GUALALA RIVER, CALIFORNIA, 2003

Richard W. DeHaven
Fish and Wildlife Biologist
December 2003

L/R: Debris dam (non-barrier), Haupt Creek; Summer dam (low-flow barrier), House Creek; Coniferous forest/oak woodland conversions to vineyards; watershed erosion impacts, typically from roads, vineyards, grazing and logging.

STEELHEAD SPAWNING SURVEYS, WHEATFIELD FORK, GUALALA RIVER, CALIFORNIA, 2003

Richard W. DeHaven[1]

December 2003

(Edited/Repaginated 01/2006)

SUMMARY: *Steelhead spawning surveys (counts of adults and redds) initiated in 2001 were continued in 2003, focusing on an 18.3-mile reach of the Wheatfield Fork, from House Creek downstream to the South Fork. This navigable reach, which has been selected as a long-term population indexing reach, was surveyed four times (73.2 miles total) from small, river-dory-style boats during February and early March 2003. Additional surveys could not be conducted due to the failure of optimal survey conditions to coincide with the principal investigator's dates of availability. A total of 211 live adult steelhead and 9 steelhead redds were recorded. Due to the relative dearth of information, little could be concluded about total spawning escapement for the 2003 season. However, the 2003 survey results will be coalesced with the long-term study results for later analysis. The four index-reach surveys are described in individual survey reports which are appended.*

INTRODUCTION AND BACKGROUND

The purpose and background for this study are more fully described in my 2002 report (DeHaven 2002). Basically, the study is necessitated by a relative dearth of current information about the population status of steelhead in the Gualala River. Population data are needed to monitor the species' status as a federally-listed species and to assess the success of various recovery actions, mostly with public funding, which are underway in the watershed. I thus initiated surveys of spawning steelhead on the river during 2001 (DeHaven 2001) and continued them in 2002 (DeHaven 2002) and 2003. Additional surveys are planned for ensuing years.

METHODS

Survey methods are described in detail in my 2002 report (DeHaven 2002). Basically, the goal is to index the spawning population through annual counts of spawning redds and live adults. Searches for redds and observations of the live adults are done from small river-dory-style boats**.** An 18.3-mile population-indexing reach has been selected along the Wheatfield Fork of the river

---

[1]**Present Title and Address:** Senior Fish and Wildlife Biologist; U. S. Fish and Wildlife Service; 2800 Cottage Way, Suite W2605; Sacramento, California 95825. **Recommended Report Citation:** DeHaven, R.W. 2003. Steelhead spawning surveys, Wheatfield Fork, Gualala River, California, 2003. Prepared by the author (Richard_DeHaven@fws.gov or drdehave@hotmail.com), December 2003, for use by agencies, groups and individuals involved in steelhead recovery efforts. 14 pp. **Disclaimer:** These surveys and this report were self-funded and conducted during non-work hours, and not while in any official capacity as a biologist for the U. S. Fish and Wildlife Service.

between House Creek and the confluence with the South Fork. The index reach is broken into upper and lower sub-reaches of 8.9 and 9.4 miles, respectively; these two sub-reaches are bounded by the Annapolis Road bridge.

Relating the index-reach survey results to spawning-season rainfall and river hydrograph are considered important, but remain problematic. There are currently no real-time USGS or DWR stream gages in operation along the Gualala River system. Similarly, there is a lack of reliable, long-term rainfall gage data for the watershed that is readily accessible on the internet. Therefore, just as in 2002 (DeHaven 2002), I elected to index the watershed's relative rainfall pattern and river hydrograph from nearby, but off-site, real-time gages. For an index to spawning-season rainfall patterns and amounts, I examined the Fort Ross, California rainfall gage data; Fort Ross, is located along the coast just west of the center of the South Fork, Gualala River drainage. For simulation of the Gualala River's hdyrograph, I examined the hydrograph for the Navarro River at the USGS stream gage located at Navarro; the Navarro River is the first river north of the Gualala River of comparable size to the Gualala River.

RESULTS AND DISCUSSION

Four complete surveys of the index reach were conducted during February and early March 2003 (Table 1; Appendix A). Two of these were completed in 1 day and the other two were completed in 2 consecutive days (i.e., the upper reach was surveyed on day one and the lower reach on the following day). A total of 211 adult steelhead were counted, including 83 and 128, respectively, along the upper and lower sub-reaches. A total of nine redds were found–six along the upper sub-reach and three along the lower sub-reach. Most (five) of the nine total redds were found during the fourth and final survey on March 7-8, 2003.

Table 1. Survey results, Wheatfield Fork index reach, Gualala River, 2003 spawning season. (Additional detail is provided in the individual survey reports, Appendix A)

Date	Survey Conditions	Personnel	Number Adults Seen		Number Redds Found	
			Upper Reach	Lower Reach	Upper Reach	Lower Reach
2/7	Clear, High Flow	RD/CA/EB	6	29	0	0
2/22	Clear, High Flow	RD/CA/EB	6	18	2	0
2/28;3/1	Clear, Mod. Flow	RD	37	15	0	2
3/7;3/8	Clear, Low Flow	RD	34	66	4	1
Totals	–	–	83	128	6	3

The discernability of individual redds during subsequent surveys was consistent with 2002 results (DeHaven 2002). In particular, the first two redds found, which were along the upper sub-reach during the February 22 survey, were readily discernable 1 week later but marginally

discernable 1 week after that. Two redds found along the lower sub-reach on the third survey (February 28-March 1) were still readily discernable 1 week later.

Due to the small number of surveys (four) conducted over a relatively brief (4-week) period of the spawning season, little can be concluded about total 2003 spawning escapement. However, the 211 total adults seen represents a relatively significant number of fish. Also, the high individual count of 100 adults recorded during the March 7-8 survey is a figure that was exceeded during only two (107; 148) of the eight surveys conducted during 2002 (DeHaven 2002).

The paucity of surveys in 2003 was due mainly to the failure of good survey conditions to coincide with my dates of availability (i.e., of off-duty time) to conduct surveys. Poor survey conditions (i.e., high and/or turbid flows) often prevailed for relatively long periods during the 2003 spawning season; surveys were not attempted under such conditions.

November through April rainfall at the nearby Fort Ross gage totaled about 32 inches, compared to an annual average of about 33 inches during the preceding 12-year period (Figure 1). However, December (10.9 inches) and April (6.4 inches) were well above, and February (1.3 inches) was well below, the 12-year average. The high rainfall during December was also evidenced by the Venado real-time rain gage, which is on a high ridge just east of the upper Wheatfield Fork watershed. A total of 30.7 inches or rain was recorded here during one 18-day span in December 2002. Also, on December 12, 2002 alone, Venado received 6.0 inches of rain. The first rain of the season at Venado was recorded on November 6, 2002.

The 2002-2003 patterns and amounts of rainfall resulted in a river hydrograph (Figure 2) that was generally significantly elevated, compared to 52-year average conditions, during much of the steelhead spawning season. Flows were particularly high during December 2002 through early February 2003 and April through July 2003; flows were, however, somewhat below average for relatively brief periods during late February and early March 2003.

Because of the unusual late-season precipitation, some relatively high river discharges were recorded relatively late in the spawning season. For example, a peak storm-event flow of about 9,200 cfs (cubic feet/second) occurred on March 15, 2003, and a discharge of nearly 8,000 cfs occurred was recorded on April 29-30, 2003.

CONCLUSIONS

The 2002-2003 steelhead spawning season was characterized by prolonged high flows which made for poor survey conditions. However, the extension of the above-average hydrograph well into summer and fall likely resulted in excellent juvenile rearing conditions.

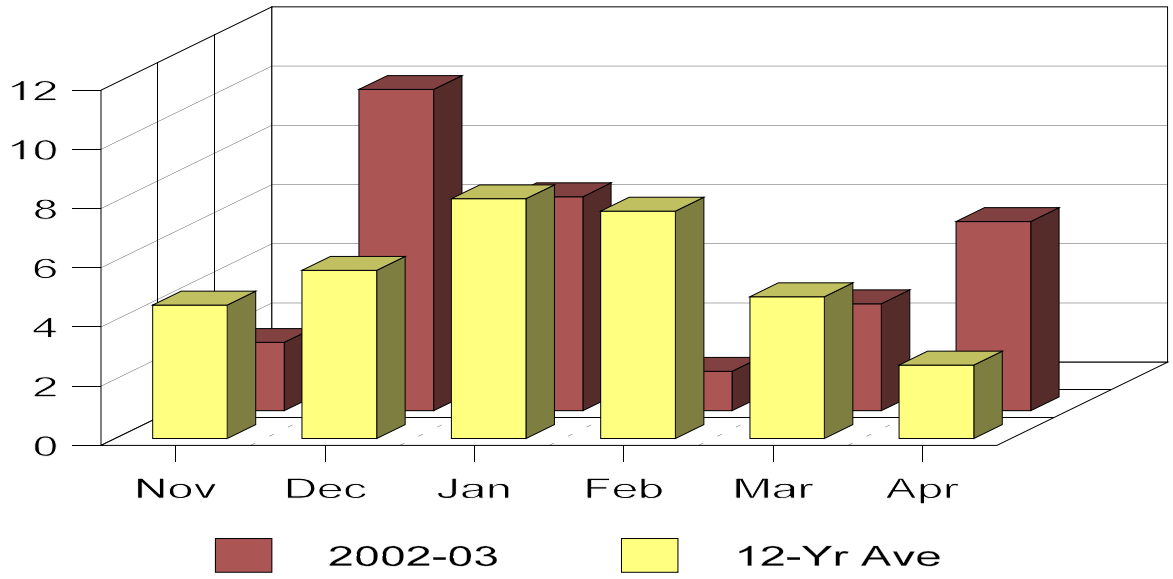


Figure 2. Gualala River steelhead spawning season rainfall pattern, in inches, 2002-2003 season, compared to average rainfall for the previous 12-year period, as indexed from the gage at Fort Ross, California for the same period. (Months of Nov-Apr are shown; 2002-2003 Precip=Rust and 12-yr Average=Yellow)

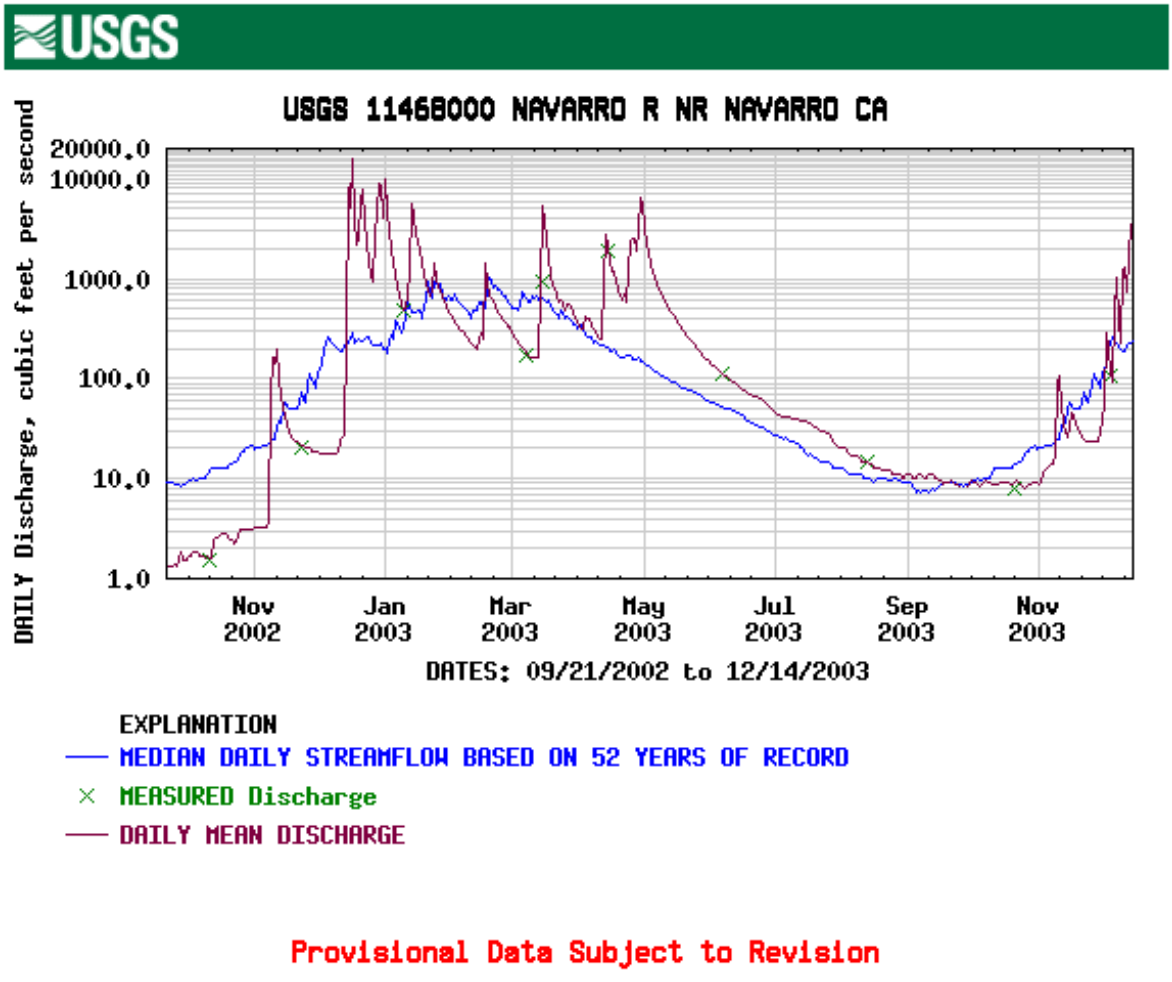
A relatively large number of adult steelhead (211) were seen and a few (9) steelhead redds were located. However, the high-flow conditions which predominated during much of the spawning season, resulted in only four spawning surveys being conducted. Due to the high flows, most of the steelhead spawning probably occurred in areas upstream of the 18.3-mile index reach of the Wheatfield Fork. No conclusions can be drawn about overall 2002-2003 spawning escapement and more numerous surveys will be necessary in future seasons to adequately address the goals and objectives of this study.

LITERATURE CITED

DeHaven, R. W. 2001. Reconnaissance-level spawning and habitat surveys of steelhead trout, Gualala River, California, 2001. Prepared by the author (Richard_DeHaven@fws.gov), April 2001, for use by agencies, groups and individuals involved in steelhead recovery efforts. 23pp.

DeHaven, R. W. 2002. Steelhead spawning surveys, Wheatfield Fork and other selected reaches, Gualala River, California, 2002. Prepared by the author (Richard_DeHaven@fws.gov or drdehave@hotmail.com), September 2002, for use by agencies, groups and individuals involved in steelhead recovery efforts. 42 pp.

Figure 2. Gualala River 2002-2003 estimated flow patterns, as indexed from the Navarro River conditions during the same period.



Appendix A. Four Individual Survey Reports:

MEMORANDUM TO THE FILE–#023

File: Gualala River Steelhead Study **From:** Richard W. DeHaven

Subject: Spawning survey, Wheatfield Fork, from House Creek Confluence Downstream 18.3 Miles to South Fork Confluence, February 7, 2003, *my first complete survey of the index reach for the 2003 season.*

Personnel

I conducted this initial survey of the season with two fellow biologists from my office–Craig Aubrey and Ed Ballard. Aubrey has fishery experience (MS Thesis on sharks in Florida), but not experience with salmonids; he is interested in my Gualala work and is thus being trained by Ballard and myself. Ballard has extensive FWS work experience with California salmonids, including steelhead experience at several areas in the State.

Aubrey, Bill Pelle (also a FWS biologist) and I actually attempted the first survey of the season on January 10, 2003. We had planned a 2-day float with the three of us working together (so I could train both of them) in my three small boats. However, despite a favorable weather forecast, we were rained out. The river rose and became too turbid for surveying about half-way down the upper reach survey section. This survey was thus abandoned. Between January 10, 2003 and the survey reported here, there were few, if any survey opportunities (appropriate flow and turbidity)coinciding with the weekends during which I am available. Thus, the survey reported here was essentially the first survey I was able to complete during the 2003 season.

Survey Methods

This was a long (leave Davis 0500 hrs; return 2200 hrs) 1-day effort, covering the same continuous 18.3-mile survey reach of the Wheatfield Fork established last year as the potential index survey reach. Today, and I surveyed the downstream one-half of the route and Craig and Ed worked together and surveyed the upstream one-half. We were in my three small, river-dory-style boats, including the new 8-foot aluminum drift boat I purchased in Crescent City last fall.

The upper half (8.9 miles) of the Wheatfield Fork was surveyed from 0830-1430 hrs for an average survey rate of 1.5 mph. The lower half (9.4 miles) of the Wheatfield Fork was surveyed from 0900-1315 hrs for an average survey rate of 2.2 mph. The upper-reach rate was relatively slow due to the observers' inexperience with the route and terrain; the lower-reach rate was relatively rapid, because I found no redds to record and the river was still relatively high, which minimized the number and length of portages.

Procedures followed for the survey of both sections were those established last season.

Weather and Stream Conditions

Water clarity was excellent, but the flow was still relatively high, in fact higher than during most surveys last season. This was rather remarkable, since there has been no significant rain for several weeks. Obviously, the exceptionally high rainfall during December 2002, with well over 30 inches in the upper watershed between December 9 and December 31, had significantly charged the watershed, resulting in the relatively high flows and very slowly declining hydrograph. As an index to flow conditions, the flow at the DWR realtime gage on the Garcia River near Point Arena showed a mid-day stage of about 2.8 feet on February 10 (several tenths higher than during most of the 2002 surveys). The Navarro River gage indicated a flow of about 250 to 265 cfs (about 4.6 feet) during the survey.

The weather on the survey day was clear and sunny, with near-normal maximum/minimum daytime temperatures and little or no wind (despite a forecast calling for strong northerly winds). Due to the minimal winds, very little of the usual surface turbulence was encountered which hampers fish and redd detection, especially over the lowermost 2 miles of the 18.3-mile route.

Results

Upper–No steelhead redds were found, but 6 adult steelhead were seen. The best guess is that these fish were all fresh, however I am suspect that they may well have been spent, due to the sighting occurring in ones and twos. Time from start of survey to the fish sightings were: 28 min=1; 90 min=2; 255 min=1; and 275 min=2. No lampreys or lamprey redds were observed.

Lower 9.4–No steelhead redds were found, but 29 adults were counted. Roughly 25 of the adults were in groups and appeared to be fresh; the remaining 4 were either spent or recorded as unknown status. Times from start of survey to adult steelhead sightings were: 75 min=6; 107 min=8; 172 min=2; 182 min=8; 215 min=1; 233 min=1; and 246 min=3. No lampreys or lamprey redds were observed.

In my opinion, unlike last year at this time of the season, the index reach has been (for at least 2 months) and is still too high to attract significant steelhead spawning. I believe that in such higher-flow conditions, with the fish generally unimpeded by many shallow riffles and other instream obstacles, they move relatively quickly through the index reach and end up spawning farther upstream in the mainstem wheatfield fork or any of several smaller tributaries. I anticipate not seeing much spawning evidence along the index reach until flows drop significantly lower than at present.

Prepared: February 17, 2003; RWD

MEMORANDUM TO THE FILE–#024

File: Gualala River Steelhead Study **From:** Richard W. DeHaven

Subject: Spawning survey, Wheatfield Fork, from House Creek Confluence Downstream 18.3 Miles to South Fork Confluence, February 22, 2003*, my second complete survey of the index reach for the 2003 season.*

Personnel

As with the season's first survey, I conducted this second survey of the season with two fellow biologists from my office–Craig Aubrey and Ed Ballard.

Survey Methods

This was another marathon long day. We departed Davis at 0600 hrs and returned at about 2230 hrs, covering the same continuous 18.3-mile survey reach of the Wheatfield Fork established last year as the potential index survey reach. Today, I surveyed the upstream one-half of the route, while Craig and Ed worked together and surveyed the downstream one-half. We used my three small, river-dory-style boats.

The upper half (8.9 miles) of the Wheatfield Fork was surveyed from 0930-1347 hrs, for an average survey rate of 2.1 mph. The lower half (9.4 miles) of the Wheatfield Fork was surveyed from 1000-1630 hrs, for an average survey rate of 1.5 mph. The upper-reach rate was relatively rapid, due to my experience with the route and terrain, while the lower-reach rate was relatively slow, due to Ed's and Craig's inexperience (their first time) on this float.

Procedures followed for the survey of both sections were those established last season.

Weather and Stream Conditions

Water clarity was excellent, but the flow was still relatively high, in fact, still higher than during most of the surveys conducted last season. This greatly hampered the ability to observe adult steelhead, due to the added surface turbulence with the relatively high flows. The high flows were also somewhat remarkable, since there has been no heavy rainfall for several weeks (although it has rained significantly since the first survey on February 7th. Obviously, the exceptionally high rainfall during December 2002, with well over 30 inches in the upper watershed between December 9 and December 31, had significantly "charged" the watershed, resulting in the relatively high flows and a very slowly declining hydrograph. As an index to flow conditions, the stage at the DWR realtime gage on the Garcia River near Point Arena showed a mid-day reading of about 3.00 feet today (several tenths higher than during most of the 2002 surveys), while the Navarro River gage at Navarro measured about 450 cfs at noon.

The weather during the survey was clear and sunny, with near-normal maximum/minimum daytime temperatures and little or no wind.

Results

Upper 8.9–Two new (the first two for this reach) steelhead redds were found and 6 adult steelhead were counted. My best guess is that 3 of these fish were fresh, 2 were spent, and 1 was unknown. Times from start of survey to the fish sightings were: 59 min=2; 125 min=2; 175 min=1; and 235 min=1. All of the adults were seen in pools.

The two new redds were found at 15 and 80 min, respectively, into the float.

There were no lampreys or lamprey redds observed today.

(For the first time during all the surveys I have conducted during the past 2 years, today I dumped my boat. I also got soaked and ruined both a cell phone and 35mm camera. This event occurred at 1300 hrs. I was navigating a high-gradient run through some tightly spaced grassy islands. I passed safely through the islands (an area that usually has to be portaged), but one of the nearby low-hanging willows yanked an oar out of its oarlock. In reaching for the floating oar, I failed to maneuver around an upcoming large rock. When I hit this rock, while leaning out and reaching for the oar, that promptly dumped me and the gear into the drink. It took 30 min to dry everything (may waders were filled with water also) out on a nearby sunny rock. In the future, greater vigilance will be the word!)

Lower 9.4–No steelhead redds were found, but 18 adults were counted. Ed and Craig thought that these fish were all fresh, but I have my doubts. They saw most as singles, and this usually tends to indicate downstreamers. Times from start of survey to adult steelhead sightings were: 1 min=1; 35 min=1; 55 min=1; 60 min=1; 75 min=1; 91 min=1; 95 min=1; (+30 min lunch) 225 min=1; 240 min=1; 281=1; 321=6; 334=1; and 335=1. About 12 of the fish were seen in pools and 4 were seen in runs or glides. There were no lampreys or lamprey redds observed on this float.

_____

In my opinion, and unlike last year at this time of the season, both the upper and lower survey reaches are still too high to attract significant steelhead spawning. I believe that in such higher-flow conditions, with the fish generally unimpeded by many shallow riffles and other instream obstacles, they move relatively quickly through the index reach and end up spawning farther upstream in the mainstem wheatfield fork or any of several smaller tributaries. I anticipate not seeing much spawning evidence along the index reach until flows drop significantly lower than the flows we surveyed at today.

Prepared: March 4, 2003; RWD

MEMORANDUM TO THE FILE–#025

File: Gualala River Steelhead Study **From:** Richard W. DeHaven

Subject: Spawning survey, Wheatfield Fork, from House Creek Confluence Downstream 18.3 Miles to South Fork Confluence, February 28 and March 1, 2003*, my third complete survey of the index reach for the 2003 season.*

Personnel

This was a 2-day survey trip, alone. My colleagues from the last two surveys were not available. I arrived at the House Creek starting point (for the upper reach) at 0900 hrs, following a 0530 hrs departure from Davis.

Survey Methods

This report covers both days of the survey of the 18.3-mile index reach. Both surveys were conducted from one of my small, river-dory-style boats–the glass over wood model.

The upper half (8.9 miles) of the Wheatfield Fork was surveyed from 0930-1342 hrs on February 28, for an average survey rate of 2.10 mph. The lower half (9.4 miles) of the Wheatfield Fork was surveyed from 0900-1253 hrs on March 1, for an average survey rate of 2.35 mph. Both of these rates were relatively rapid, due to my familiarity with the reaches and relative lack of redds compared to last year at this time.

Procedures followed for the survey of both sections were those established last season.

Weather and Stream Conditions

Water clarity was excellent along both survey reaches. The flows were also way down compared to last week, making for excellent overall survey conditions. As an index to flow conditions, on February 28 the stage at the DWR realtime gage at the Garcia River near Point Arena showed a mid-day reading of about 2.79 feet (which is similar to the level during many of the 2002 surveys), while the Navarro River gage near Navarro indicated about 280 cfs at mid-day. On March 1, these sites indicated 2.75 feet (Garcia River) and about 260 cfs (Navarro River) at mid-day.

The weather during both days of the survey was clear and sunny, with near-normal maximum/minimum daytime temperatures. There was little or no wind both days. (So far, there has been far less wind hampering the surveys this year than last year.)

Results

Upper 8.9–No new redds were found. The two previous redds found during last week's survey were still visible, but quickly getting more difficult to detect. A total of 37 adult steelhead were counted, of which 18 were in runs of various depths and 19 were in various pools. I estimated that of the 37 fish, 29 were fresh, 2 were downstreamers, and 6 were of unknown status. Compared to last year at this time, a surprising number of the 37 adults were relatively smallish.

I'm unsure if this may mean that the bluebacks are already arriving; further observations next time may shed light on this question. Times from start of survey to the adult sightings were: 4 min=2; 27 min=11; 41 min=2; 57 min=2; 77 min=4; 88 min=1; 115 min=1; 123 min=1; 179 min=1; 197 min=3; and 246 min=9.

There were no lampreys or lamprey redds observed today.

Lower 9.4–The first two redds for this reach for this season were found today; these were just a few hundred feet downstream of the bridge–both at 1 min into the float. A total of 15 adults were counted in two pools (10), a run (4), and a shallow riffle (1). I estimated that 14 of these fish were fresh and 1 was unknown status. Times from start of survey to adult steelhead sightings were: 10 min=1; 92 min=6; 154 min=4; and 156 min=4.

The first two lamprey pits of the season were found today. This is a significant observation, since it is much earlier that the first pits last year.

About two-thirds of the way down this float, I encountered a new piece of large woody debris that has just entered the stream from the left bank. This is a whole, large, red alder which is completely blocking the float at this time. I did make it through the branches of this LWD with the boat, however.

Prepared: March 5, 2003; RWD

MEMORANDUM TO THE FILE–#026

File: Gualala River Steelhead Study **From:** Richard W. DeHaven

Subject: Spawning survey, Wheatfield Fork, from House Creek Confluence Downstream 18.3 Miles to South Fork Confluence, March 7-8, 2003*, my fourth complete survey of the index reach for the 2003 season.*

Personnel

This was another 2-day survey trip, alone. My colleagues from the first two surveys of this season were unavailable. I arrived at the House Creek starting point (for the upper reach) at 0900 hrs, following a 0600 hrs departure from Davis. However, a local resident (DS) did accompany me (in my small aluminum boat) down the river during the upper-reach survey of March 7th.

Survey Methods

This report covers both days of the survey of the 18.3-mile index reach. Both surveys were conducted from one of my small, river-dory-style boats, in particular the glass-over-wood model.

The upper half (8.9 miles) of the Wheatfield Fork was surveyed from 0950-1452 hrs on March 7, for an average survey rate of 1.78 mph, a slower rate than last week, due to DS accompanying me in the much slower aluminum boat and the substantially lower (and thus slower) flows. The lower half (9.4 miles) of the Wheatfield Fork was surveyed from 0645-1048 hrs on March 8, for an average survey rate of 2.35 mph. This rate was relatively rapid and the same pace as last week, despite the much lower and slower flow. However, I was purposefully putting the wood to the water to get off the river early and get home in time to watch a Kings basketball game on TV.

Procedures followed for the survey of both sections were those established last season.

Weather and Stream Conditions

Due to the very low flows, substantially lower than last week, water clarity was excellent along both survey reaches. As an index to flow conditions, on March 7 the stage at the DWR realtime gage at the Garcia River near Point Arena had a mid-day reading of about 2.64 feet (which is similar to the level during many of the 2002 surveys), while the Navarro River gage near Navarro indicated about 185 cfs at mid-day (about 100 cfs lower than last week). On March 8, the Garcia River gage had dropped to 2.62 feet at mid-day, while the Navarro gage indicated about 175 cfs at mid-day.

The weather during both days of the survey was clear and sunny, with near-normal maximum/minimum daytime temperatures. An upstream wind was a serious problem (causing surface turbulence that hampered seeing redds and adult steelhead) during the March 7 float, but conditions were absolutely calm (with some fog) during the earlier (in the day) float on March 8.

Results

Upper 8.9 miles–Four new redds were found. The two previous redds being tracked were still visible, but getting more difficult (one was borderline) to detect. A total of 34 adult steelhead were counted, of which 26 were in runs of various depths, including 17 in the deep run just upstream of the take-out bridge at Annapolis Road; 1 was in a pool; 1 was in a glide; and 6 were in pool tail-out areas (including 1 seen near a new redd). I estimated that of the 34 fish, 17 were fresh, 14 were spent, and 3 were unknown status. The four new redds were found at the following minutes into the float: #3=160 min; #4=177 min; #5=185 min; and #6=297 min. Times from start of survey to the adult sightings were: 2=25 min; 8=34 min; 1=87 min; 1=98 min; 1=106 min; 2=146 min; 1=160 min; 1=181 min; and 17=295 min.

There was one new lamprey pit found today, but no lampreys were seen.

Lower 9.4 miles–One new redd was located near the mouth of Fuller Creek. The two previous redds being tracked were still easily distinguishable. A total of 66 adults were counted in six pools (56 fish), two runs (5 fish), and two shallow riffles (5 fish). I estimated that 58 of these fish were fresh, 5 were spawned-out, and 3 were of unknown status. This was a relatively large number of fish and I believe that I *should* have recorded at least a few more. However, at about mile 7.0 down the float, I encountered three anglers. After this encounter (in an area closed to all angling), I did not observe any more adults. Since the anglers reported seeing several adult steelhead during their hike upstream from twin bridges (my take-out), I can only surmise that there angling activities had frightened these fish into hiding. I informed this group (three naive college students from Santa Cruz) of the river being closed, and they promptly headed back downstream towards their car parked near the South Fork bridge. (Later that day, while loading my boat, I encountered and met the new local DFG warden who was searching for the trio, following a trespassing compliant filed by phone by someone who had seen their parked car.)

The one new redd was found at 46 minutes into the survey, at the mouth of Fuller Creek. Times from start of survey to adult steelhead sightings were: 6 min=1; 17 min=4; 65 min=2; 68 min=2; 73 min=1; 79 min=2; 90 min=1; 106 min=13; 119 min=6; 147 min=4; 153=3; and 179=27.

I found three new lamprey pits, but saw no lampreys.

Prepared: March 11, 2003; RWD