CALIFORNIA DEPARTMENT OF FISH AND GAME
STREAM INVENTORY REPORT
Gird Creek
Report revised April 14, 2006
Report Completed 2005
Assessment Completed 2001

INTRODUCTION

A stream inventory was conducted July 2, 2001 on Gird Creek. The survey began at the confluence with the Russian River and extended upstream 15,318 feet.

The Gird Creek inventory was conducted in two parts: habitat inventory and biological inventory. The objective of the habitat inventory was to document the habitat available to anadromous salmonids in Gird Creek. The objective of the biological inventory was to document the presence and distribution of juvenile salmonid species.

The objective of this report is to document the current habitat conditions and recommend options for the potential enhancement of habitat for Chinook salmon, coho salmon, and steelhead trout. Recommendations for habitat improvement activities are based upon target habitat values suitable for salmonids in California's north coast streams.

WATERSHED OVERVIEW

Gird Creek is a tributary to the Russian River, a tributary to the Pacific Ocean, located in Sonoma County, California (Map 1). Gird Creek's legal description at the confluence with the Russian River is T10N R9W S27. Its location is 38.6800235359133° north latitude and 122.847307361676° west longitude. Gird Creek is a second order stream and has approximately 3.46 miles of solid blue line stream according to the USGS Jim Town 7.5 minute quadrangle. Gird Creek drains a watershed of approximately 3.31 square miles. Elevations range from about 164 feet at the mouth of the creek to 1,811 feet in the headwater areas. Hardwood forest, agriculture and herbaceous vegetation dominate the watershed. The watershed is entirely privately owned. Steelhead trout (*Oncorhynchus mykiss*) are a threatened salmonid species present in the Gird Creek watershed. Vehicle access exists via Highway 101 at Lytton Springs Road, north of Healdsburg approximately 3 miles. Follow Lytton Springs Road east to Healdsburg Avenue, and Healdsburg Avenue 0.7 miles to Alexander Valley Road. Follow Alexander Valley Road 3.3 miles to Highway 128, and Highway 128 north 1.7 miles to a bridge crossing Gird Creek. By foot, walk 2,250 feet to confluence with Russian River.

METHODS

The habitat inventory conducted in Gird Creek follows the methodology presented in the *California Salmonid Stream Habitat Restoration Manual* (Flosi et al., 1998). The California Department of Fish and Game field crew that conducted the inventory were trained in standardized habitat inventory methods by the California Department of Fish and Game (DFG). This inventory was conducted by a two-person team.

SAMPLING STRATEGY

The inventory uses a method that samples approximately 10% of the habitat units within the survey reach. All habitat units included in the survey are classified according to habitat type and

their lengths are measured. All pool units are measured for maximum depth, depth of pool tail crest (measured in the thalweg), dominant substrate composing the pool tail crest, and embeddedness. Habitat unit types encountered for the first time are measured for all the parameters and characteristics on the field form. Additionally, from the ten habitat units on each field form page, one is randomly selected for complete measurement.

HABITAT INVENTORY COMPONENTS

A standardized habitat inventory form has been developed for use in California stream surveys and can be found in the *California Salmonid Stream Habitat Restoration Manual*. This form was used in Gird Creek to record measurements and observations. There are nine components to the inventory form.

1. Flow:

Flow is measured in cubic feet per second (cfs) at the bottom of the stream survey reach using a Marsh-McBirney Model 2000 flow meter.

2. Channel Type:

Channel typing is conducted according to the classification system developed and revised by David Rosgen (1985 rev. 1994). This methodology is described in the *California Salmonid Stream Habitat Restoration Manual*. Channel typing is conducted simultaneously with habitat typing and follows a standard form to record measurements and observations. There are five measured parameters used to determine channel type: 1) water slope gradient, 2) entrenchment, 3) width/depth ratio, 4) substrate composition, and 5) sinuosity. Channel characteristics are measured using a clinometer, hand level, hip chain, tape measure, and a stadia rod.

3. Temperatures:

Both water and air temperatures are measured and recorded at every tenth habitat unit. The time of the measurement is also recorded. Both temperatures are taken in degrees Fahrenheit at the middle of the habitat unit and within one foot of the water surface. Temperatures are also recorded using remote temperature recorders which log temperature at set intervals, 24 hours/day.

4. Habitat Type:

Habitat typing uses the 24 habitat classification types defined by McCain and others (1988). Habitat units are numbered sequentially and assigned a type identification number selected from a standard list of 24 habitat types. Dewatered units are labeled "dry". Gird Creek habitat typing used standard basin level measurement criteria. These parameters require that the minimum length of a described habitat unit must be equal to or greater than the stream's mean wetted width. All measurements are in feet to the nearest tenth. Habitat characteristics are measured using a clinometer, hip chain, and stadia rod.

5. Embeddedness:

The depth of embeddedness of the cobbles in pool tail-out areas is measured by the percent of the cobble that is surrounded or buried by fine sediment. In Gird Creek, embeddedness was

visually estimated. The values were recorded using the following ranges: 0 - 25% (value 1), 26 - 50% (value 2), 51 - 75% (value 3) and 76 - 100% (value 4). Additionally, a value of 5 was assigned to tail-outs deemed unsuited for spawning due to inappropriate substrate particle size, bedrock, or other considerations.

6. Shelter Rating:

Instream shelter is composed of those elements within a stream channel that provide salmonids protection from predation, reduce water velocities so fish can rest and conserve energy, and allow separation of territorial units to reduce density related competition. The shelter rating is calculated for each fully-described habitat unit by multiplying shelter value and percent cover. Using an overhead view, a quantitative estimate of the percentage of the habitat unit covered is made. All cover is then classified according to a list of nine cover types. In Gird Creek, a standard qualitative shelter value of 0 (none), 1 (low), 2 (medium), or 3 (high) was assigned according to the complexity of the cover. Thus, shelter ratings can range from 0-300 and are expressed as mean values by habitat types within a stream.

7. Substrate Composition:

Substrate composition ranges from silt/clay sized particles to boulders and bedrock elements. In all fully-described habitat units, dominant and sub-dominant substrate elements were visually estimated using a list of seven size classes and recorded as a one and two, respectively. In addition, the dominant substrate composing the pool tail-outs is recorded for each pool.

8. Canopy:

Stream canopy density was estimated using modified handheld spherical densiometers as described in the *California Salmonid Stream Habitat Restoration Manual*. Canopy density relates to the amount of stream shaded from the sun. In Gird Creek, an estimate of the percentage of the habitat unit covered by canopy was made from the center of approximately every third unit in addition to every fully-described unit, giving an approximate 30% sub-sample. In addition, the area of canopy was estimated visually into percentages of evergreen or deciduous trees.

9. Bank Composition and Vegetation:

Bank composition elements range from bedrock to bare soil. However, the stream banks are usually covered with grass, brush, or trees. These factors influence the ability of stream banks to withstand winter flows. In Gird Creek, the dominant composition type and the dominant vegetation type of both the right and left banks for each fully-described unit were selected from the habitat inventory form. Additionally, the percent of each bank covered by vegetation (including downed trees, logs, and rootwads) was estimated and recorded.

BIOLOGICAL INVENTORY

Biological sampling during the stream inventory is used to determine fish species and their distribution in the stream. Fish presence was observed from the stream banks in Gird Creek. In addition, one site was electrofished using a Smith-Root Model 12 electrofisher. These sampling techniques are discussed in the *California Salmonid Stream Habitat Restoration Manual*.

DATA ANALYSIS

Data from the habitat inventory form are entered into Habitat 8.4, a dBASE 4.2 data entry program developed by Tim Curtis, Inland Fisheries Division, California Department of Fish and Game. This program processes and summarizes the data, and produces the following tables:

- Summary of riffle, flatwater, and pool habitat types
- Summary of habitat types and measured parameters
- Summary of pool types
- Summary of maximum pool depths by pool habitat types
- Summary of mean % cover by habitat type
- Summary of dominant substrates by habitat type
- Summary of fish habitat elements by stream reach

Graphics are produced from the tables using Microsoft Excel. Graphics developed for Gird Creek include:

- Level II habitat types by % occurrence
- Level II habitat types by % total length
- Level IV habitat types by % occurrence
- Level I pool habitat types by % occurrence
- Maximum depth in pools
- Percent embeddedness estimated in pool tail-outs
- Mean percent cover types in pools
- Substrate composition in pool tail-outs
- Mean percent canopy
- Dominant bank composition in survey reach
- Dominant bank vegetation in survey reach

HABITAT INVENTORY RESULTS

* ALL TABLES AND GRAPHS ARE LOCATED AT THE END OF THE REPORT *

The habitat inventory of July 2, 2001, was conducted by Justin Smith and Corey Sangiacomo (DFG). The total length of the stream surveyed was 15,318 feet with an additional 136 feet of side channel.

Stream flow was not measured on Gird Creek.

Gird Creek is an F5 channel type for the entire 15,318 feet of stream surveyed. F5 channels are entrenched, meandering, riffle/pool channels on low gradients with high width/depth ratios and sand-dominant substrates.

Water temperatures taken during the survey period ranged from 67 to 71 degrees Fahrenheit. Air temperatures ranged from 84 to 90 degrees Fahrenheit. Summer temperatures were also measured using a remote temperature recorder placed in a pool (see Temperature Summary graph at end of report). The recorder logged temperatures every two hours from July 3 – August 29, 2001. The highest temperature recorded was 70.4°F in July and the lowest was 58.7°F in August.

Table 1 summarizes the Level II riffle, flatwater, and pool habitat types. Based on frequency of *occurrence* there were 46% riffle units, 21% flatwater units, 17% pool units and 17% dry units (Graph 1). Based on total *length* of Level II habitat types there were 21% riffle units, 4% flatwater units, 1% pool units, and 74% dry units (Graph 2).

Five Level IV habitat types were identified (Table 2). The most frequent habitat types by percent *occurrence* were low gradient riffles, 29%; runs, 21%; and high-gradient riffles, mid-channel pools and dry, 17% (Graph 3). Based on percent total *length*, dry units made up 74%, low gradient riffles 12%, and high gradient riffles 9%.

A total of four pools were identified (Table 3). Main channel pools were the most frequently encountered, at 100%, and comprised 100% of the total length of all pools (Graph 4).

Table 4 is a summary of maximum pool depths by pool habitat types. Pool quality for salmonids increases with depth. Three of the four measured pools (75%) had a depth of two feet or greater (Graph 5).

The depth of cobble embeddedness was estimated at pool tail-outs. Of the four pool tail-outs measured, two had a value of 1 (50%); two had a value of 2 (50%); zero had a value of 3; zero had a value of 4; and zero had a value of 5 (Graph 6). On this scale, a value of 1 indicates the highest quality of spawning substrate. Additionally, a value of 5 was assigned to tail-outs deemed unsuited for spawning due to inappropriate substrate like bedrock, log sills, boulders.

A shelter rating was calculated for each habitat unit and expressed as a mean value for each habitat type within the survey using a scale of 0-300. Riffle habitat types had a mean shelter rating of 3, flatwater habitat types had a mean shelter rating of 0, and pool habitats had a mean shelter rating of 23(Table 1). Main channel pools had a mean shelter rating of 23 (Table 3).

Table 5 summarizes mean percent cover by habitat type. Whitewater was the dominant cover type in Gird Creek. Graph 7 describes the pool cover in Gird Creek. Boulders are the dominant pool cover type followed by whitewater.

Table 6 summarizes the dominant substrate by habitat type. Graph 8 depicts the dominant substrate observed in pool tail-outs. Small cobble was the dominant substrate observed in 75% of pool tail-outs while sand was the next most frequently observed substrate type, at 25%.

The mean percent canopy density for the surveyed length of Gird Creek was 90%. The mean percentages of evergreen and deciduous trees were 39% and 51%, respectively. 10% of the canopy was open. Graph 9 describes the mean percent canopy in Gird Creek.

For the stream reach surveyed, the mean percent right bank vegetated was 68%. The mean percent left bank vegetated was 60%. The dominant elements composing the structure of the stream banks consisted of 10% bedrock, 40% boulder, 40% cobble/gravel, and 10% sand/silt/clay (Graph 10). Deciduous trees were the dominant vegetation type observed in 50% of the units surveyed. Additionally, 30% had evergreen trees as the dominant vegetation type, and 20% had brush as the dominant vegetation (Graph 11).

BIOLOGICAL INVENTORY RESULTS

On 10/22/01 a biological inventory was conducted at one site on Gird Creek to document fish species composition and distribution. The site, Lat. N 38:42'05.3", Long. W 122:49'44.1", was triple pass seine netted. Fish from the site were counted by species, and returned to the stream. The air temperature ranged from 73-74ºF and the water temperature was 59ºF.

The inventory began at 11:45 hours in Reach 1 and ended at 13:10 hours 758' upstream. Habitat types surveyed were lateral scour pool - bedrock formed, mid-channel pools, runs and glides. The following table displays the information yielded from this site.

Species Observed	**Numbers Recorded at Site 1**
Steelhead YOY	9
Steelhead Y+	1
Steelhead 2+	2
Steelhead 3+	1
Yellow-legged Frog	14
Unknown YOY	3

There is no record of hatchery stocking or fish rescue/transfer operations in Gird Creek.

DISCUSSION

Gird Creek is an F5 channel type for the entire 15,318 feet of stream surveyed. The suitability of F5 channel types for fish habitat improvement structures is as follows: F5 channel types are good for bank-placed boulders, fair for plunge weirs, single and opposing wing-deflectors, channel constrictors and log cover, and poor for boulder clusters.

The water temperatures recorded on the survey day July 2, 2001, were above the suitable range for salmonids. To make any further conclusions, temperatures would need to be monitored throughout the warm summer months, and more extensive biological sampling would need to be conducted.

Riffle habitat types comprised 21% of the total length of this survey, flatwater 4%, and pools 1%. The pools are relatively deep, with three of the four (75%) measured pools having a maximum depth greater than two feet. In general, pool enhancement projects are considered when primary pools comprise less than 40% of the length of total stream habitat. In first and second order streams, a primary pool is defined to have a maximum depth of at least two feet, occupy at least half the width of the low flow channel, and be as long as the low flow channel width. Installing structures that will increase or deepen pool habitat is recommended for locations where their installation will not be threatened by high stream energy, or where their installation will not conflict with the modification of the numerous log debris accumulations (LDA's) in the stream.

Four of the four pool tail-outs measured had embeddedness ratings of 1 or 2. None of the pool tail-outs had embeddedness ratings of 3 or 4. None of the pool tail-outs had a rating of 5, which

is considered unsuitable for spawning. Cobble embeddedness measured to be 25% or less, a rating of 1, is considered to indicate good quality spawning substrate for salmon and steelhead. Sediment sources in Gird Creek should be mapped and rated according to their potential sediment yields, and control measures should be taken.

Three of the four pool tail-outs measured had gravel or small cobble as the dominant substrate. This is generally considered good for spawning salmonids.

The mean shelter for flatwater was 0. The mean shelter rating for pools was 23. A pool shelter rating of approximately 100 is desirable. The amount of cover that now exists is being provided primarily by whitewater in all habitat types. Additionally, boulders contribute a small amount. Log and root wad cover structures in the pool and flatwater habitats would enhance both summer and winter salmonid habitat. Log cover structure provides rearing fry with protection from predation, rest from water velocity, and also divides territorial units to reduce density related competition.

The mean percent canopy density for the stream was 90%. In general, revegetation projects are considered when canopy density is less than 80%.

The percentage of right and left bank covered with vegetation was moderate at 68% and 60%, respectively. In areas of stream bank erosion or where bank vegetation is not at acceptable levels, planting endemic trees species, in conjunction with bank stabilization, is recommended.

GENERAL MANAGEMENT RECOMMENDATIONS

Gird Creek should be managed as an anadromous, natural production stream.

Winter storms often bring down large trees and other woody debris into the stream, which increases the number and quality of pools. This woody debris, if left undisturbed, will provide fish shelter and rearing habitat, and offset channel incision. Landowners should be sensitive about the natural and positive role woody debris plays in the system, and encouraged not to remove woody debris from the stream, except under extreme buildup and only under guidance by a fishery professional.

RECOMMENDATIONS

1) There are sections where the stream is being impacted from cattle trampling the riparian zone. Alternatives should be explored with the grazier and developed if possible.

2) Where feasible, design and engineer pool enhancement structures to increase the number of pools. This must be done where the banks are stable or in conjunction with stream bank armor to prevent erosion.

3) Increase woody cover in the pools and flatwater habitat units. Most of the existing cover is from whitewater. Adding high quality complexity with log and root wad cover is desirable.

4) Inventory and map sources of stream bank erosion and prioritize them according to present and potential sediment yield. Identified sites should then be treated to reduce the amount of fine sediments entering the stream.

5) Active and potential sediment sources, related to roads, need to be identified, mapped, and treated according to their potential for sediment yield to the stream and its tributaries.

6) The limited water temperature data available suggest that maximum temperatures are above the acceptable range for juvenile salmonids. To establish more complete and meaningful temperature regime information, 24-hour monitoring during the July and August temperature extreme period should be performed.

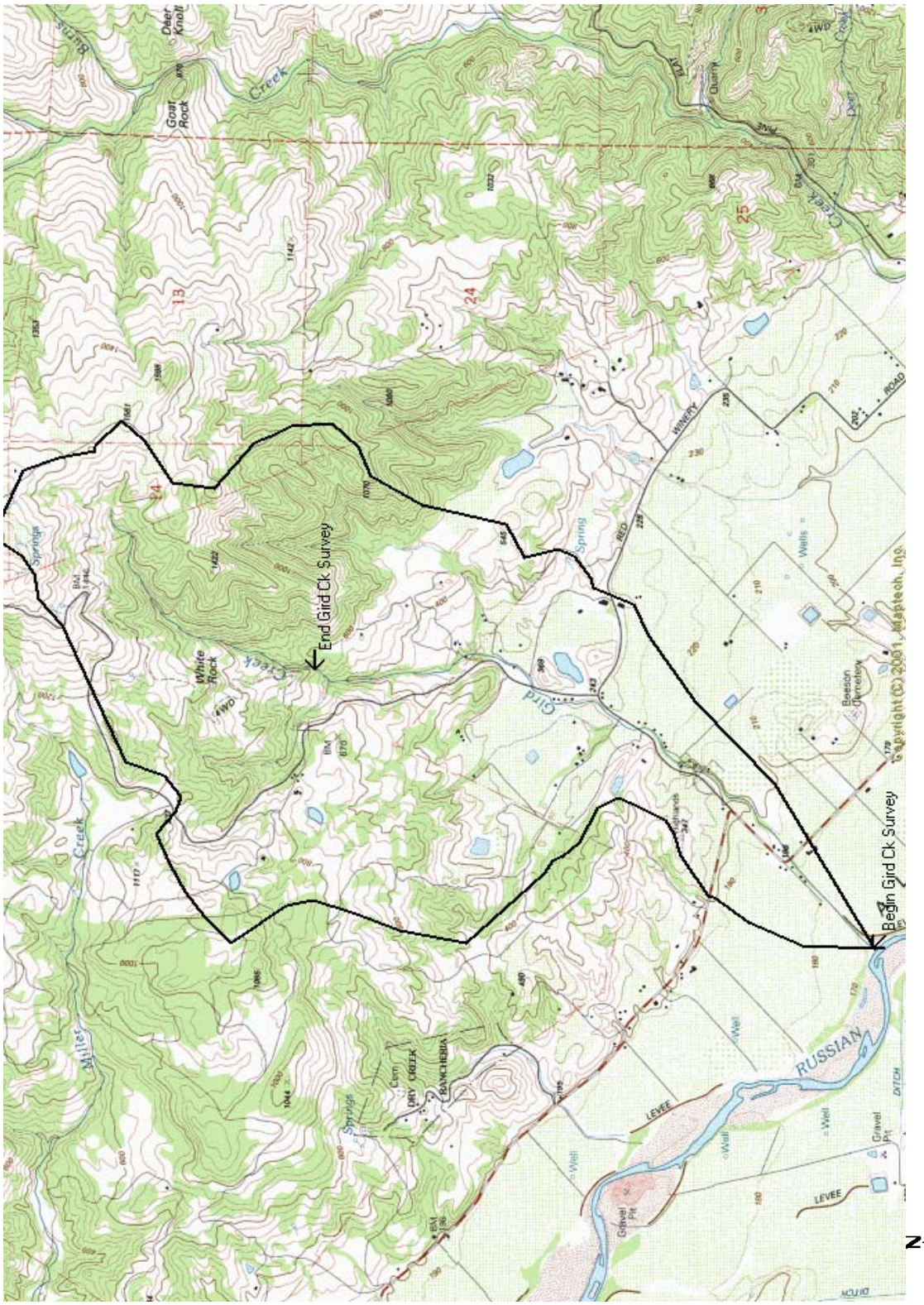
COMMENTS AND LANDMARKS

The following landmarks and possible problem sites were noted. All distances are approximate and taken from the beginning of the survey.

0’	Begin survey at confluence with Russian River.
11426'	5 DEAD fish in HU. 2" roach
11715'	1' culvert on RB 10’ above water
12018'	BRIDGE Size: 15.5' H 18.5’ W 23’L, Downcutting: 0.7' H; Height from water to sill: 0.4', there is a small amount of downcutting from a summer dam that is not in place this year.
12424'	BRIDGE Size: 8.1' H 36’ W 13’ L; Height from water to sill: 0’, spans channel with no effects on HU. Cattle in stream.
13424'	Dry trib. 200' into HU.
14025'	75 YOY
14166'	10, 2-3’’ fish (No ID)
14853'	End of Survey- Wet trib RB 113' in HU. One 6-8’’ steelhead.

REFERENCES

Flosi, G., Downie, S., Hopelain, J., Bird, M., Coey, R., and Collins, B. 1998. *California Salmonid Stream Habitat Restoration Manual*, 3rd edition. California Department of Fish and Game, Sacramento, California.



Map 1. Gird Creek Watershed

Gird Creek — Drainage: RUSSIAN RIVER

Table 1 - SUMMARY OF RIFFLE, FLATWATER, AND POOL HABITAT TYPES — Survey Dates: 07/02/01

Confluence Location: QUAD: JIM TOWN LEGAL DESCRIPTION: T11NR9W — LATITUDE:38°40'48" LONGITUDE:122°50'50"

HABITAT UNITS	UNITS FULLY MEASURED	HABITAT TYPE	HABITAT PERCENT OCCURRENCE	MEAN LENGTH (ft.)	TOTAL LENGTH (ft.)	PERCENT TOTAL LENGTH	MEAN WIDTH (ft.)	MEAN DEPTH (ft.)	MEAN AREA (sq.ft.)	ESTIMATED TOTAL AREA (sq.ft.)	MEAN VOLUME (cu.ft.)	ESTIMATED TOTAL VOLUME (cu.ft.)	MEAN RESIDUAL POOL VOL (cu.ft.)	MEAN SHELTER RATING
11	3	RIFFLE	46	298	3276	21	5.5	0.4	1046	11501	371	4085	0	3
5	1	FLATWATER	21	117	584	4	4.5	0.2	910	4552	182	911	0	0
4	4	POOL	17	22	86	1	8.4	1.5	156	625	218	872	196	23
4	0	DRY	17	2877	11508	74	0.0	0.0	0	0	0	0	0	0

TOTAL UNITS	TOTAL UNITS	TOTAL LENGTH (ft.)	TOTAL AREA (sq. ft.)	TOTAL VOL. (cu. ft.)
24	8	15454	16678	5868

Gird Creek — Drainage: RUSSIAN RIVER

Table 2 - SUMMARY OF HABITAT TYPES AND MEASURED PARAMETERS — Survey Dates: 07/02/01

Confluence Location: QUAD: JIM TOWN LEGAL DESCRIPTION: T11NR9W — LATITUDE:38°40'48" LONGITUDE:122°50'50"

HABITAT UNITS	UNITS FULLY MEASURED	HABITAT TYPE	HABITAT OCCURRENCE	MEAN LENGTH	TOTAL LENGTH	TOTAL LENGTH	MEAN WIDTH	MEAN DEPTH	MAXIMUM DEPTH	MEAN AREA	TOTAL AREA EST.	MEAN VOLUME	TOTAL VOLUME EST.	MEAN RESIDUAL POOL VOL	MEAN SHELTER RATING	MEAN CANOPY
#			%	ft.	ft.	%	ft.	ft.	ft.	sq.ft.	sq.ft.	cu.ft.	cu.ft.	cu.ft.		%
7	2	LGR	29	259	1816	12	6	0.3	1.0	1302	9114	371	2595	0	0	90
4	1	HGR	17	365	1460	9	5	0.7	1.2	533	2130	373	1491	0	10	95
5	1	RUN	21	117	584	4	5	0.2	0.4	910	4552	182	911	0	0	70
4	4	MCP	17	22	86	1	8	1.5	2.4	156	625	218	872	196	23	95
4	0	DRY	17	2877	11508	74	0	0.0	0.0	0	0	0	0	0	0	0

TOTAL UNITS	TOTAL UNITS	LENGTH (ft.)	AREA (sq.ft)	TOTAL VOL. (cu.ft)
24	8	15454	16421	5869

Gird Creek — Drainage: RUSSIAN RIVER

Table 3 - SUMMARY OF POOL TYPES — Survey Dates: 07/02/01

Confluence Location: QUAD: JIM TOWN LEGAL DESCRIPTION: T11NR9W — LATITUDE:38°40'48" LONGITUDE:122°50'50"

HABITAT UNITS	UNITS FULLY MEASURED	HABITAT TYPE	HABITAT PERCENT OCCURRENCE	MEAN LENGTH (ft.)	TOTAL LENGTH (ft.)	PERCENT TOTAL LENGTH	MEAN WIDTH (ft.)	MEAN DEPTH (ft.)	MEAN AREA (sq.ft.)	TOTAL AREA EST. (sq.ft.)	MEAN VOLUME (cu.ft.)	TOTAL VOLUME EST. (cu.ft.)	MEAN RESIDUAL POOL VOL. (cu.ft.)	MEAN SHELTER RATING
4	4	MAIN	100	22	86	100	8.4	1.5	156	625	218	872	196	23

TOTAL UNITS	TOTAL UNITS	TOTAL LENGTH (ft.)	TOTAL AREA (sq.ft.)	TOTAL VOL. (cu.ft.)
4	4	86	625	872

Gird Creek — Drainage: RUSSIAN RIVER

Table 4 - SUMMARY OF MAXIMUM POOL DEPTHS BY POOL HABITAT TYPES — Survey Dates: 07/02/01

Confluence Location: QUAD: JIM TOWN LEGAL DESCRIPTION: T11NR9W — LATITUDE:38°40'48" LONGITUDE:122°50'50"

UNITS MEASURED	HABITAT TYPE	HABITAT PERCENT OCCURRENCE	<1 FOOT MAXIMUM DEPTH	<1 FOOT PERCENT OCCURRENCE	1-<2 FT. MAXIMUM DEPTH	1-<2 FOOT PERCENT OCCURRENCE	2-<3 FT. MAXIMUM DEPTH	2-<3 FOOT PERCENT OCCURRENCE	3-<4 FT. MAXIMUM DEPTH	3-<4 FOOT PERCENT OCCURRENCE	>=4 FEET MAXIMUM DEPTH	>=4 FEET PERCENT OCCURRENCE
4	MCP	100	0	0	1	25	3	75	0	0	0	0

TOTAL UNITS
4

Gird Creek — Drainage: RUSSIAN RIVER

Table 5 - SUMMARY OF MEAN PERCENT COVER BY HABITAT TYPE — Survey Dates: 07/02/01

Confluence Location: QUAD: JIM TOWN LEGAL DESCRIPTION: T11NR9W — LATITUDE:38°40'48" LONGITUDE:122°50'50"

UNITS MEASURED	UNITS FULLY MEASURED	HABITAT TYPE	MEAN % UNDERCUT BANKS	MEAN % SWD	MEAN % LWD	MEAN % ROOT MASS	MEAN % TERR. VEGETATION	MEAN % AQUATIC VEGETATION	MEAN % WHITE WATER	MEAN % BOULDERS	MEAN % BEDROCK LEDGES
7	0	LGR	0	0	0	0	0	0	0	0	0
4	1	HGR	0	0	0	0	0	0	50	50	0
5	0	RUN	0	0	0	0	0	0	0	0	0
4	4	MCP	13	0	0	25	0	0	34	29	0
4	0	DRY	0	0	0	0	0	0	0	0	0

Gird Creek — Drainage: RUSSIAN RIVER

Table 6 - SUMMARY OF DOMINANT SUBSTRATES BY HABITAT TYPE — Survey Dates: 07/02/01

Confluence Location: QUAD: JIM TOWN LEGAL DESCRIPTION: T11NR9W — LATITUDE:38°40'48" LONGITUDE:122°50'50"

TOTAL HABITAT UNITS	UNITS FULLY MEASURED	HABITAT TYPE	% TOTAL SILT/CLAY DOMINANT	% TOTAL SAND DOMINANT	% TOTAL GRAVEL DOMINANT	% TOTAL SM COBBLE DOMINANT	% TOTAL LG COBBLE DOMINANT	% TOTAL BOULDER DOMINANT	% TOTAL BEDROCK DOMINANT
7	2	LGR	0	0	100	0	0	0	0
4	1	HGR	0	0	0	0	0	100	0
5	1	RUN	0	0	100	0	0	0	0
4	1	MCP	0	100	0	0	0	0	0
4	0	DRY	0	0	0	0	0	0	0

TABLE 8. FISH HABITAT INVENTORY DATA SUMMARY

STREAM NAME: Gird Creek
SAMPLE DATES:
STREAM LENGTH: 15318 ft.
LOCATION OF STREAM MOUTH:
USGS Quad Map: JIM TOWN — Latitude: 38°40'48"
Legal Description: T11NR9W — Longitude: 122°50'50"

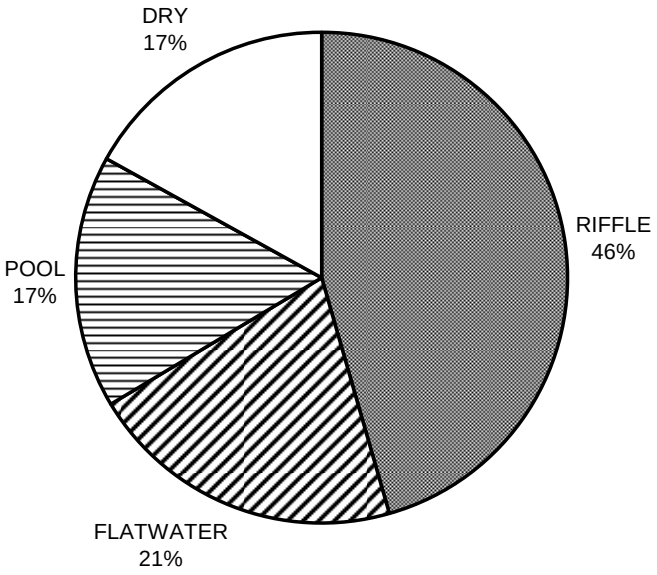
SUMMARY OF FISH HABITAT ELEMENTS BY STREAM REACH

STREAM REACH 1

Channel Type: F5	Canopy Density: 90%
Channel Length: 15318 ft.	Coniferous Component: 43%
Riffle/flatwater Mean Width: 5 ft.	Deciduous Component: 57%
Total Pool Mean Depth: 1.5 ft.	Pools by Stream Length: 1%
Base Flow: 0.0 cfs	Pools >=3 ft.deep: 0%
Water: 67 - 71 °F Air: 84 -90 °F	Mean Pool Shelter Rtn: 23
Dom. Bank Veg.: Deciduous Trees	Dom. Shelter: Whitewater
Vegetative Cover: 64%	Occurrence of LOD: 0%
Dom. Bank Substrate: Boulder	Dry Channel: 11483 ft.

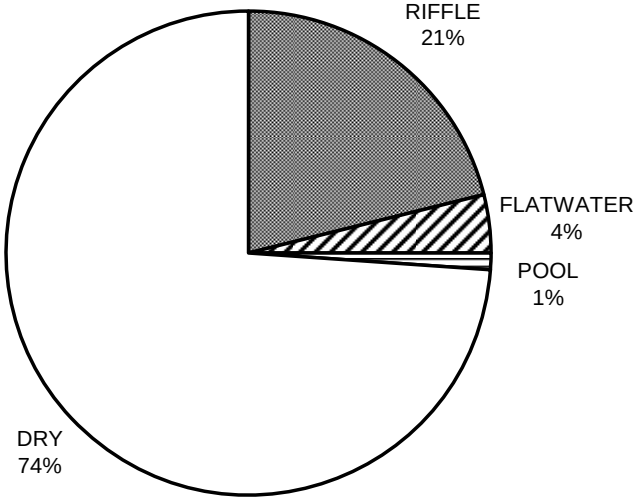
Embeddness Value: 1. 50% 2.50% 3. 0% 4. 0% 5. 0%

GIRD CREEK
LEVEL II HABITAT TYPES BY PERCENT OCCURRENCE



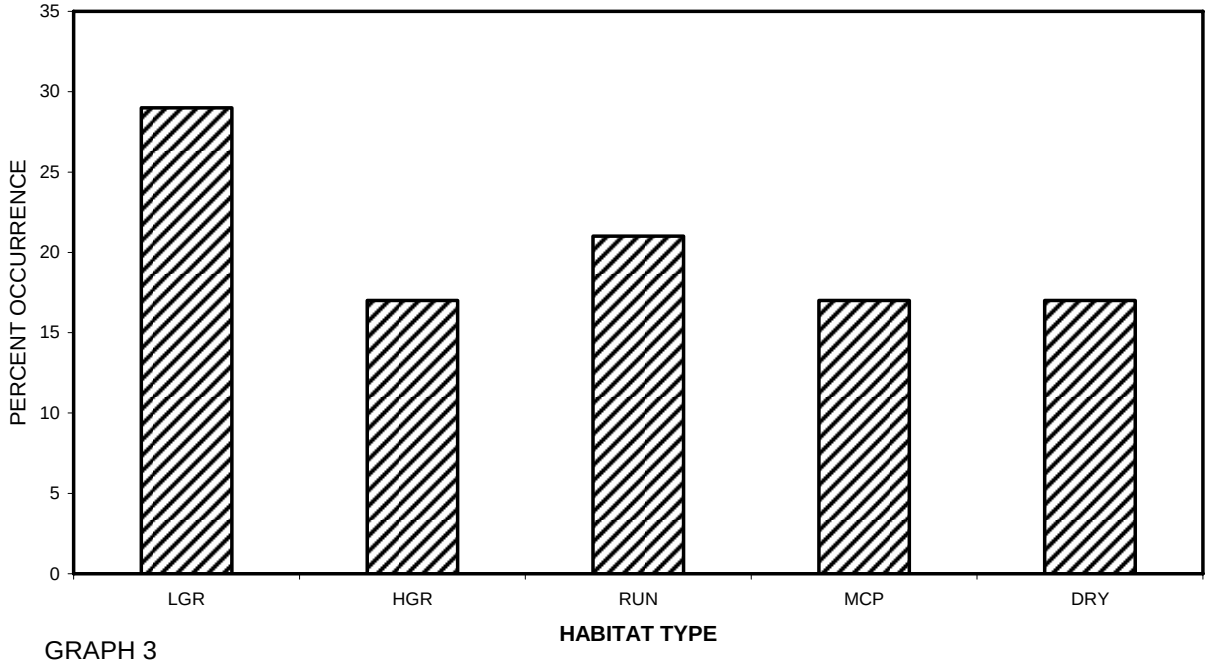
GRAPH 1

GIRD CREEK
LEVEL II HABITAT TYPES BY PERCENT TOTAL LENGTH



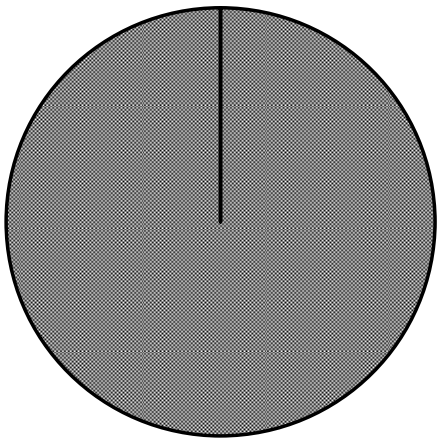
GRAPH 2

GIRD CREEK
LEVEL IV HABITAT TYPES BY PERCENT OCCURRENCE



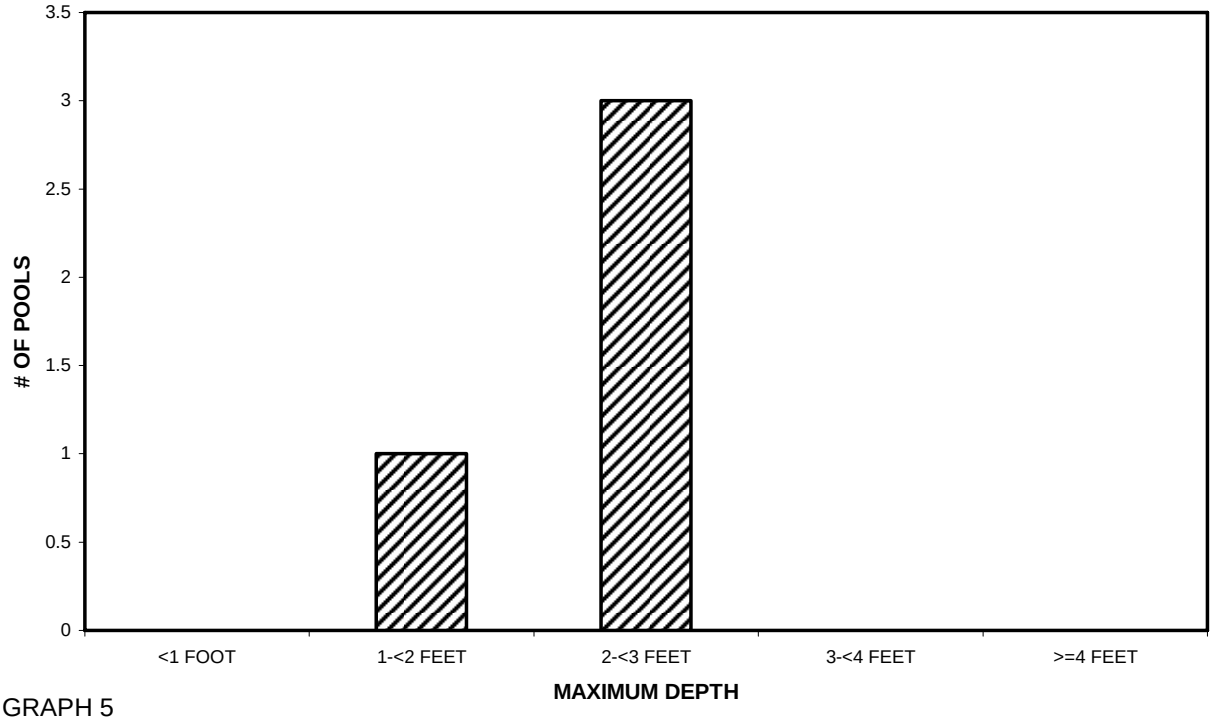
GRAPH 3

GIRD CREEK
LEVEL I POOL HABITAT TYPES BY PERCENT OCCURRENCE



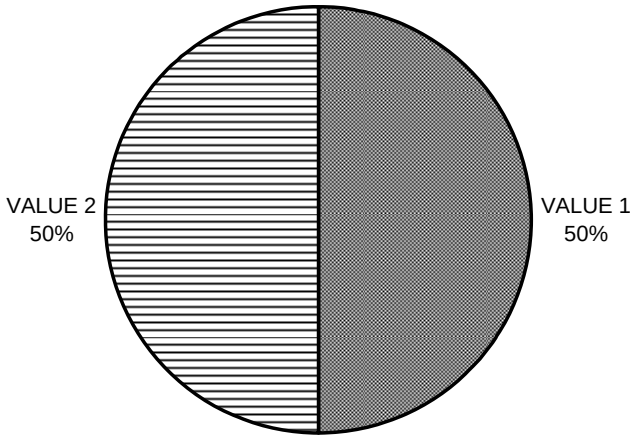
GRAPH 4

GIRD CREEK
MAXIMUM DEPTH IN POOLS



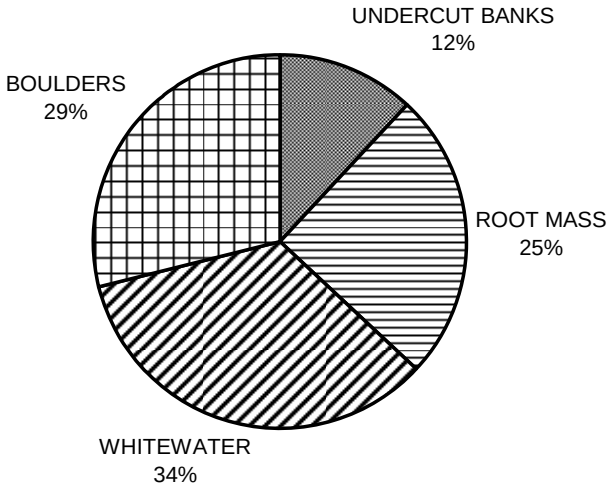
GRAPH 5

GIRD CREEK
PERCENT EMBEDDEDNESS



GRAPH 6

GIRD CREEK
MEAN PERCENT COVER TYPES IN POOLS

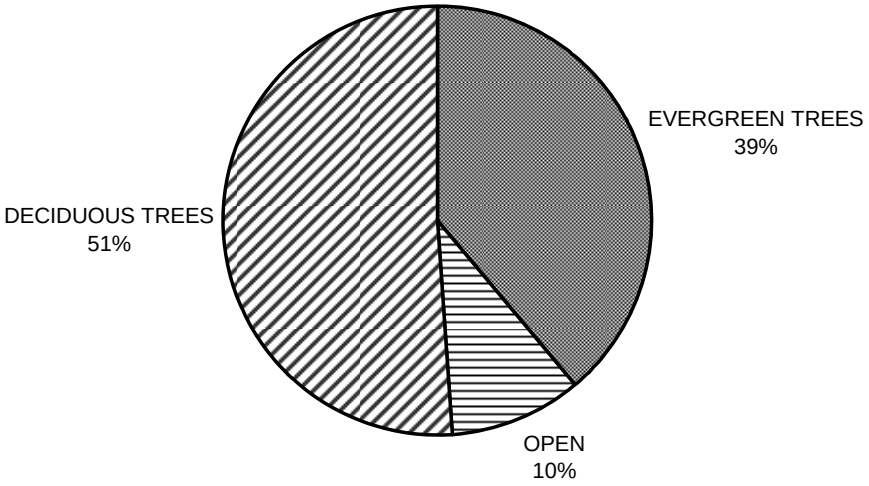


GRAPH 7

GIRD CREEK
SUBSTRATE COMPOSITION IN POOL TAIL-OUTS

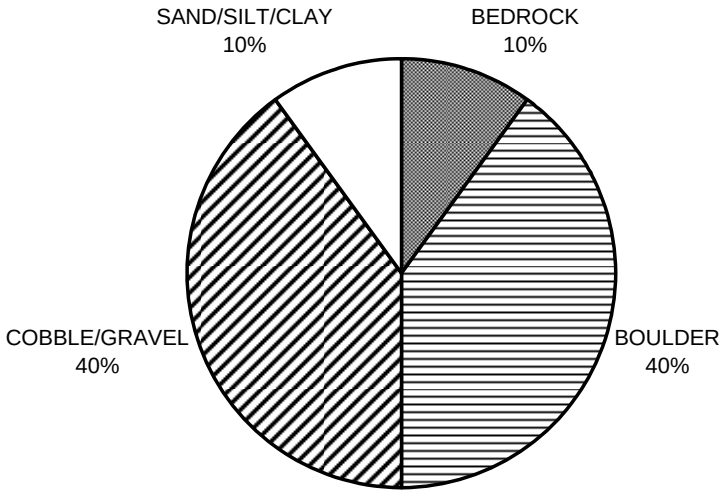
GRAPH 8

GIRD CREEK
MEAN PERCENT CANOPY



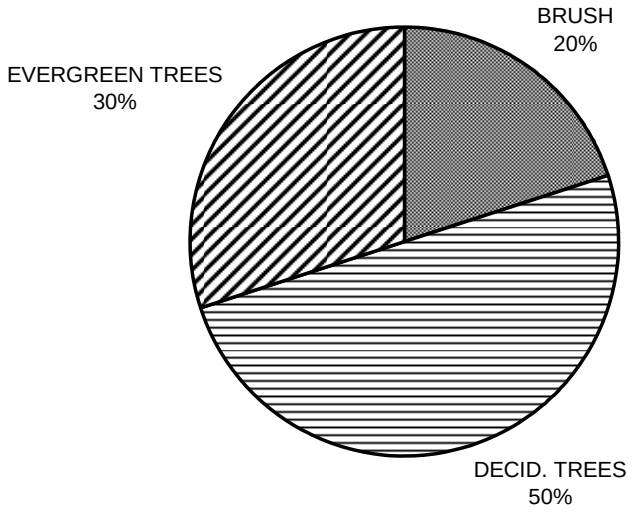
GRAPH 9

GIRD CREEK
DOMINANT BANK COMPOSITION IN SURVEY REACH



GRAPH 10

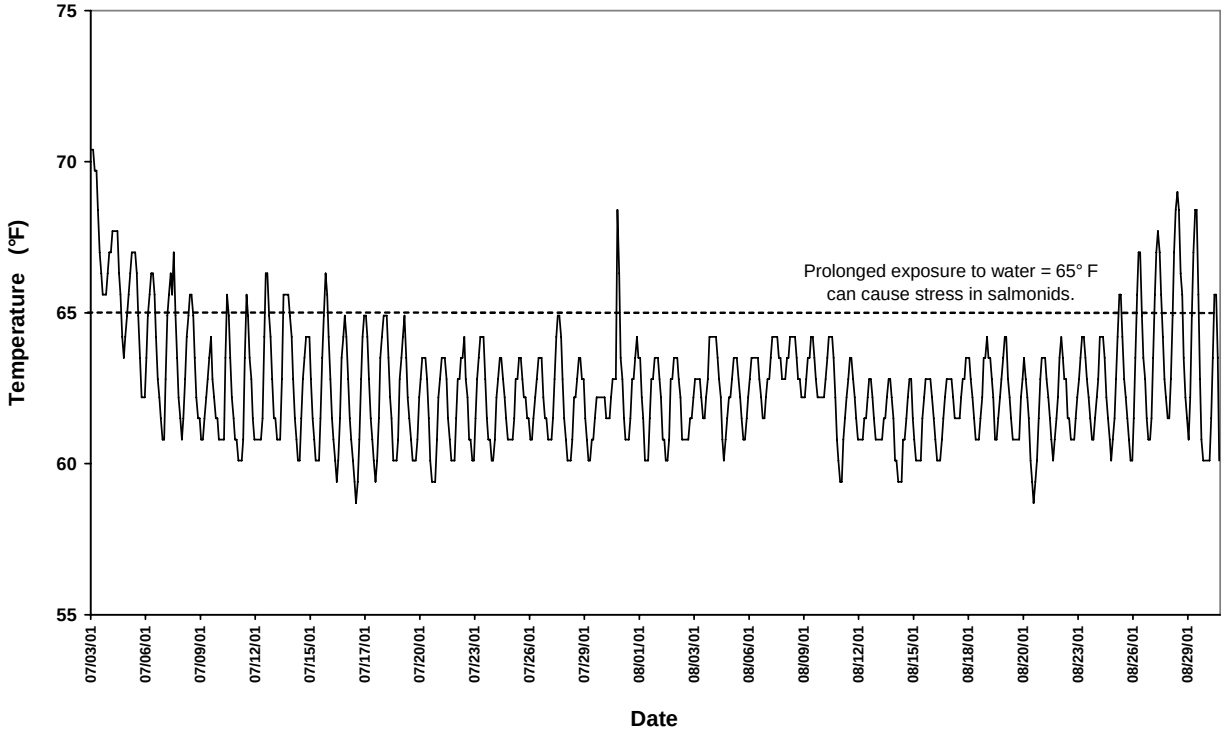
GIRD CREEK
DOMINANT BANK VEGETATION IN SURVEY REACH



GRAPH 11

APPENDIX E

Gird Creek Water Temperatures



Watershed Hydroid **422** Gird Creek

Hydrologic Sub-Areas covered by the watershed:

Name:	**LLId: (1:24k)**	**County:**
Gird Creek	1228473386799	Sonoma

Tributary to Russian River
Tributary to
Tributary to

Location: **T:** 10N **R:** 09W **S:** 27 **Latitude:** 38.6800235359133 **Longitude** 122.847307361676

Hydrologic Boundary Delineation: Watershed boundaries were delineated using the Watershed Point tool in ArcHydro, running under ArcMap 8.3 (ArcInfo version). A 1:24k stream network was "burned" into the underlying DEM to enforce hydrologic routing.

Aerial Photos (Source): For Mendocino County watersheds, 1993 USGS DOQQs are available in the Teale Albers, NAD27 projection. For Sonoma County watersheds, 2000 County-created orthophotos in the State Plane, NAD83 projection are also available.

Stream Order: 2

Note: Stream order is by Strahler method, recorded in CDF-NCWAP "nchydro1" 1:24k streams layer.

Total Length: 3.46 Miles / 5.57 Km

Note: Length is for the USGS blue-line 1:24,000 stream.

Drainage Area: 857 Hectares / 2119 Acres / 3.31 sq. mi.

Elevations: Mouth: 164 feet; Headwaters: 1811 feet

Note: Headwaters elevation is the highest elevation found in the watershed.

Lakes in Watershed: Number: 0 Surface area: 0 sq. mi.

Note: Source for lakes data is the USGS-DFG 1:100k lakes layer "lakes.shp"

Fish Species (as indicated by historical salmonid streams layer created by Bob Coey): Steelhead

Ownership, for the watershed, in acres (and % of total watershed):

Federal:	State:	Local:	Private:
0.0 acres	0.0	0.0	2118.6
0.00 %	0.00 %	0.00 %	100.00 %

Note: Source for owneship data is 2002 DFG-CCR "ccr_public_lands.shp" GIS layer.

Major Land Uses in the Watershed, in acres (and % of total watershed)

Mixed hardwood/conifer:	**Hardwood:**	**Conifer:**	**Agriculture:**	**Urban:**
153.35 acres	724.63	0.00	594.44	0.00
7.2 %	34.2 %	0.0 %	28.0 %	0.0 %

Shrub:	**Herbaceous:**	**Barren/rock:**	**Water:**
43.39	575.44	0.00	26.56
2.1 %	27.2 %	0.0 %	1.2 %

Note: Land use areas were calculated using the 1994 CDF-USFS "Calveg" GIS layer.

Watershed HydroId **422** Gird Creek

USGS 7.5' Topographic Quads completely or partially in the watershed:

Quad Name	USGS Code
JIMTOWN	38122F7

Endangered/Threatened/Sensitive Species: (California Natural Diversity Database, May 5, 2003 version)

Scientific Name	Common Name
Rana boylii	foothill yellow-legged frog

Hydrologic Sub-Areas covered by the watershed

Hydrologic Sub-Area Name:	ID code (RBUAS)	Hydrologic Area Name	% of watershed in this HSA
Geyserville	111425	Middle Russian River	100