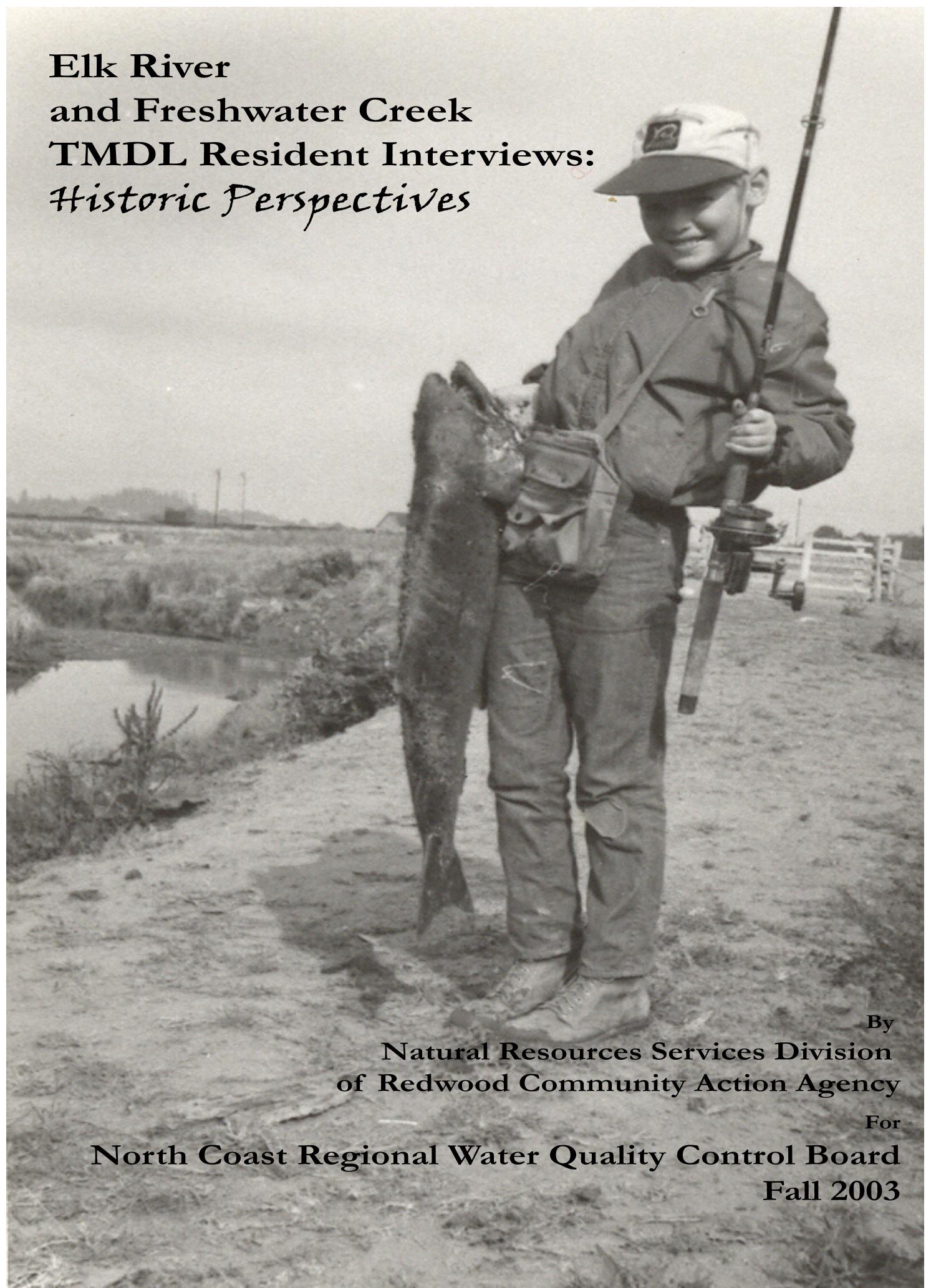


**Elk River
and Freshwater Creek
TMDL Resident Interviews:
*Historic Perspectives***



By
**Natural Resources Services Division
of Redwood Community Action Agency**
For
North Coast Regional Water Quality Control Board
Fall 2003

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Project Background

Elk River and Freshwater Creek are tributaries to Humboldt Bay in northwest California. Land within these watersheds are predominately commercial timberlands in the upper watersheds, and residential and agriculture uses dominate the lower and middle reaches.

The North Coast Regional Water Quality Control Board (Regional Water Board) and the U.S. Environmental Protection Agency (EPA) have listed the Elk River and Freshwater Creek watersheds under the Clean Water Act Section 303(d) as sediment impaired waterbodies. A program has been developed to recover 303(d) List waterbodies via the establishment of Total Maximum Daily Loads (TMDL). The Regional Water Board is in the process of establishing TMDLs for sediment in the Freshwater Creek and Elk River watersheds. The goal of these TMDL programs is to restore and maintain the sediment impaired beneficial uses of water of Freshwater Creek, Elk River, and their tributaries (RWB Elk River TMDL newsletter).

Natural Resources Services (NRS) staff, under contract with the Regional Water Board, conducted fourteen oral interviews of residents in the Freshwater Creek and Elk River watersheds. The interviews will provide information toward development of the Freshwater Creek and Elk River TMDL requirements. Observations and anecdotal information from residents about historic conditions in the watersheds will be used by the Regional Water Board to help define the historical beneficial uses of water, and the nature and extent of the beneficial use impairment in both of the watersheds.

Protocols

Residents interviewed were mostly chosen by Regional Water Board staff as a result of having expressed interest in participating in a lengthier interview from, the *Freshwater Creek/Elk River Watershed Sediment TMDL Short Survey*, which was mailed to the watershed landowners in July 8, 2002 TMDL newsletters. A few additional interviewees were selected by NRS staff based on location in the watershed and references from other residents.

The Regional Water Board's objective of resident surveys and interviews was to collect the information from watershed residents in a manner that is not position-oriented. The interviews were based on a standardized list of questions that were determined to be unbiased (Attachment A), and were recorded on audio tape. Included in this report are a written summary of each interview, and an overall summary of reported conditions for each watershed, based on a synthesis of all interviews in the respective watersheds.

The residents offered varying levels of knowledge and familiarity of the current conditions in the watershed. Most of the older residents offered insight on historic beneficial uses, but did not know a lot about existing conditions because they are not going into the creek anymore. Following are their stories, observations, and concerns beginning with watershed summaries, which are then followed by notes of their interviews.

Freshwater Creek Interview Summary

Historic beneficial uses of water identified during the Freshwater Creek interviews include agriculture, recreation (including swimming, fishing, and aesthetic enjoyment), anadromous fish migration, spawning, and harvesting, domestic water supply, and wildlife habitat. Refer to Table 1 for a synopsis of historic and current land uses, beneficial uses of water, changes observed over time, and existing conditions in the watershed that may affect the extent of beneficial uses.

To understand the “time-frame of remembrance” it is important to know the personal and family history of those interviewed. Of the seven Freshwater Creek residents interviewed for this project, one was born in the watershed (Walsh), two have been in the watershed for over fifty years (Storre and Cave), three over twenty years (Rittenhouse, Boston, and Sack), and the most recent resident has been in the watershed for seven years (Cook). The collective “family land use history” of those interviewed involve ranching, timber harvesting, horticulture, fishing, maintaining horse pasture and boarding facilities, recreational boating, and simply maintaining a residence. Historic photos and stories of their properties include agricultural land uses such as dairy ranching, hunting, and potato farming. Below is a summary of the overall conditions in the watershed, as reported by those who were interviewed.

Location in the watershed is important to note, as existing conditions are different along different stretches. Four of the residents interviewed live (or once lived) on Howard Heights Road (Cave, Sack, Cook, and Walsh), while two live and/or work in the lower stretch along Myrtle Avenue (Rittenhouse and Storre), and one on Felt Road (Boston).

Existing Conditions

Channel Structure

In the lower reach, the channel appears to have straightened when compared to historic photographs. Aggradation is occurring in several of the locations discussed during the interviews. Some residents remember more pools and gravel in the creek, and one resident (Sack) has noticed gravel bars increasing in size. Residents believe overall that there are less meanders, gravel, pools, large wood and that there is less water in the summer.

Flooding

In the time-frame of remembrance interviewed for this project, Freshwater Creek has always flooded. Long-time residents refer to the 1929 flood as being a particularly bad flood, and there have always been issues during the winter getting across Howard Heights Road. Residents that have been in the watershed for twenty or more years say that the 2002 floods were particularly bad, bringing water higher than in previous years with a smaller amount of rainfall. Flooding is an issue for all of the residents interviewed.

Sediment

Boston identified a landslide that was contributing sediment to a tributary of Freshwater Creek and says that the 1994 flood brought sediment down that never flushed out. Residents

receive varying levels of sediment on their fields and adjacent roads. Apparently Howard Heights Road used to be above the adjacent fields, but now the fields are higher than the road. According to Cook, the 2002 floods brought approximately five inches of sediment to fields. According to Storre, aggradation is not occurring along the stretch of Freshwater Creek adjacent to his property. John Bair of McBain and Trush believes that tidal action pulls the sediment out.

Erosion

Some of the residents experience significant erosion problems, others do not. Boston says that since 1994 banks have been collapsing into the creek and willows fall into the creek when the ground beneath them is eroded. Storre's stream bank sloughs into the creek regularly, and Sack experienced erosion problems until he did a bank stabilization project.

Riparian

A few of the residents interviewed have planted redwood and other substantial trees in the riparian area, and would like to see more tree planting projects. Willows are present too.

Primary Issues

Residents in the Freshwater Creek watershed are affected by land use changes. Three concerns brought up by these seven residents include increased residential development within the watershed and the rate of timber harvest in the upper watershed.

Table 1. Freshwater Creek Interview Summary, Part A

Elk River and Freshwater Creek TMDL Resident Interviews, Fall 2003

Landowner/Resident	Boston	Storre	Sack	Walsh	Cook	Rittenhouse	Cave
YEARS IN WATERSHED (approximate)							
<i>Self</i>	24	50	resident since 80s, familiar with watershed since youth	87	7	29	61
<i>Family</i>	24	50	97	88	7	29	61
LAND USES							
<i>Current</i>	residential, orchard, gardens	nusery business	horse boarding (pasture), timber harvest (NTMP), orchard		residential	residential	residential, large greenhouse
<i>Historic</i>	Carson family "summer home"; hunting cabin; log ponds for storage until winter rains	before the 50s active dairy farm; potato farm in the 70s		dairy farm until 1929	former used tractor yard; former pasture	agriculture such as beekeeping, ranching, and a few other ag uses	some timber harvest
WATER USES (BENEFICIAL USES)							
<i>Recreation</i>	fishing, hiking, swimming	"Canoe the Slough" event; up until 1932 a log "dam" at the property created a swimming hole where residents would gather	swimming, fishing	sailing a small "row boat sized" boat		boating (kayak and motorboat), fishing	spearfished for salmon above Freshwater Park
<i>Domestic</i>	county water since 1993, and before that springs, which have now been contaminated by the Mitchel Road landfill	city water system	spring	spring (1/2 mile away); cattle always in water so the family did not think water was potable	city water system	county water since the 1990s, before that used spring	spring behind house
<i>Agriculture/Other</i>		irrigates with city water	occassionally irrigates pasture and orchard from creek; historically mined gravel to rock nearby roads; upstream neighbors historically pumped from creek to irrigate	historically irrigated the lawn from the creek	occasionally pumps from Foss Creek in the summer -- difficult to keep lines clear of sediment		

The matrix is incomplete because it only reflects what was learned associated with the interview process: some participants did not provide information identified in this matrix. Natural Resources Services Division of Redwood Community Action Agency for the California North Coast Regional Water Quality Control Board

Table 1. Freshwater Creek Interview Summary, Part B

Elk River and Freshwater Creek TMDL Resident Interviews, Fall 2003

Landowner/Resident:	Boston	Storre	Sack	Walsh	Cook	Rittenhouse	Cave
CHANGES OVER TIME AND/OR EXISTING CONDITIONS							
Summer Flows	has heard from long-time residents that salmon likely came up and spawned in the tributaries -- now not enough water for that		Gary thinks there is more water in the creek now (in the summer) because residents are not pumping like they had in the past; remembers creek being too low to swim in the 50s and 60s	a certain amount of flooding occurred every winter, sometimes it would go through the fields below the house and often cut off access to Howard Heights Road		less water--too shallow for boating now	
Water Quality	changed since 1995 (coincided with increased flooding) -- the water smells, stays muddy longer, and "chocolate brown" from sediment		remains the same -- clears 6 weeks after rain stops, creek becomes clear during midwinter lulls; creek is reddish from tannins		high in turbidity	terrible in 70s, recovered in 80s and since has been declining again; A small rain results in murky water	
Channel Structure	in the 70s there were deep pools varying from 3 to 5 feet which were usually associated with large wood; now only small wood (4 inch diameter) present; once were gravel bars; change in substrate: large wood now buried in sediment	channel appears to have straightened since the 50s; concerning aggradation, Rick does not believe it occurs in this stretch -- John Bair of McBain and Trush said that tidal action pulls sediment from this stretch; at low-tide Rick can see old wood at the bottom of the creek; also has some gravel present	Gravel bars are growing. Less meanders, pools, and riffles -- now straight and shallow; has noticed approximately one foot of channel aggradation; less large wood; 100 years ago the channel was on the other side of his pasture; creek more sluggish now.	Janie does not remember there being deep pools	aggradation occurring (Salmon Forever cross-sections show this); no pools present between Hippen property and Little Freshwater Creek; walked from the Hippen property to the confluence of Little Freshwater Creek five years ago during the summer and saw enormous sediment plumes coming out of Little Freshwater Creek	aggradation--noticed the change in 1999; could see the dirt on the channel edges coming in to about 10 feet from the banks within one year; by 2001 the creek was channeling through the sediment build-up - you can now see the bottom of the creek at low tide, whereas before 1999 the bed was never exposed; above and below Devoy Road where it flattens out, it is very shallow and sediment settles there	remembers "steps" of logs that created dams with pools behind them that would be filled with spawning fish; logs were three to four feet high, and there was gravel
Flooding	increase in frequency and severity -- before the 90s high water only occurred in spring and durations between rains and observed high flows were 24–36 hours in the 80s and early 90s, now high flows begin two hours after the rain starts	2002 was the worst flooding they had in years -- lasted three days and a "wall of water" came over Myrtle Avenue from the Fulton property -- created three feet of water in Freshwater Farms office whereas normally only 6 inches	Howard Heights Road has always flooded, but in 2002 flooded more than ever (2 inches in 24 hour period was a major flood); 4 times in the last 20 years, 6 feet of water put his pasture underwater (two of those HY 2002)	1929 was the worst flood ever	increase in magnitude and frequency (can only speak to what he has heard from other residents in the watershed previous to 7 years ago); previous landowner said that the Howard Heights would flood every 3 years and that floods were associated with high tides since 1997 there has been approximately twenty-five incidents of water on the Howard Heights Road, which varies from a few inches to five feet of water; 2002 there were seven flood days; comparing flood heights with the 1955 flood, Freshwater Creek has surpassed it	Floods over a shorter duration than in the past; in 2002 it flooded three times; it used to have to rain for awhile, but now two inches of rain will overflow the creek -- creek cannot hold as much water as it historically had	
Sediment	small creeks on property have silted in and filled; 92/93 landslide adjacent to old logging road occurred in a tributary to FW Creek -- the '94 flood brought sediment that was unable to flush out	flooding deposits sediment, which is a good addition to the topsoil; willows that were planted on the banks in 2002 have already recruited approximately 1 foot	believes about .1 inches per year accumulates on his pastures (can be measured at concrete pads placed flush with ground several years back); sediment is not beneficial to Gary's pasture (low in nutrients)	evident along Hippen property to the confluence of Little Freshwater Creek; also the fields are higher than they used to be	sediment on the fields and roads and in the stream is evident; Howard Heights Road used to be above adjacent fields as recent as three years ago, but now it is below the fields; 2002 flood brought 5 inches of sediment to fields and 12 inch plume of sediment in the pasture near the bridge -- Alan could dig down and see grass	1996 to 1998 floods left silt on the grass, mud on Freshwater Road, and the Park had sand on the volleyball court and road; sediment, once gritty is now sticky and slimy	
Erosion	since 1994 banks began collapsing; willows are falling into the creek because bank beneath is eroding	a huge problem with bank erosion -- there is constant sloughing into the creek; neighbors cut 10 feet of vegetation on their side and Rick lost 10 feet of bank into the creek	bank was eroding 3-4 feet every winter, so Gary, RCAA, and CDFG did bank stabilization project which has to date been a success			has not had an erosion problem on her reach of the creek	
Wildlife	during the 80s David saw a lot of fish -- now sees much fewer		sees less fish now, but also pays less attention; 20 years ago when there were riffles, spawners were present along his stretch	could hear fish coming up from the porch (chinook 3-4' feet long)	longtime Freshwater residents who used to see fish in Graham Gulch, now it has practically no fish	used to see otters, turtles, mink--no longer; they would catch kings in October and steelhead -- she used to be able to hear spawners but has not in years	
Riparian	would like to do tree planting and bank stabilization projects; would like to see funding and technical assistance available to small landowners	has planted over 2000 trees along the stream bank -- before that riparian zone on that stretch non-existent	grandfather used to remove all vegetation 1910-1935 (most people did until about 30 years ago); Gary has planted redwoods every 15 feet along the bank	creek was overgrown when Janie was young -- it was difficult to walk in the creek because of the vegetation	has always been spruce and redwoods along the creek, and they are much larger now than in old photos; Alan would like to see planting redwoods in the riparian, there are very few now	more willows on Fulton property; there were very few trees, until Tiffany planted poplars, cedar, pine, fruit trees; there are also now willows along the creek	
Land Use Changes/Comments	increase in timber activities; would like to see more money and technical assistance available for projects like tree planting and bank stabilization for private landowners; landowner education on septic systems would be a good idea	working with the NC Regional Land Trust -- might do conservation easement; currently planning an estuary project on his property; is happy that some areas of the watershed are locked into ag land through easements, and in addition would like to see more retail/commercial space in the watershed	increase in development; views logging redwoods as a good use for the watershed, but believes PL rotation is too soon	increase in development (especially up-scale homes)	increase in timber activities; wants to see TPZ land retained and logging coexist with this little town; most people objecting to PL are pro-timber; residents are 5 percent of the problem, but efforts should focus on the other 95 percent -- the portion of the problem attributed to PALCO and their land practices.	potential educational outreach would be on the topic of wood in the creek	too much money has been spent trying to "produce salmon" in Freshwater Creek; believes that the timberland owners upstream should have the right to log their property; increase in development

The matrix is incomplete because it only reflects what was learned associated with the interview process; some participants did not provide information identified in this matrix. Natural Resources Services Division of Redwood Community Action Agency for the California North Coast Regional Water Quality Control Board

Elk River Interview Summary

Historic beneficial uses of water identified during the Elk River interviews include agriculture (including stock watering and irrigation), recreation (including swimming, fishing, and aesthetic enjoyment), anadromous fish migration, spawning, and harvesting, domestic water supply, and wildlife habitat. Refer to Table 2 for a synopsis of historic and current land uses, beneficial uses of water, changes observed over time, and existing conditions in the watershed that may affect the extent of beneficial uses.

To understand the “time-frame of remembrance” it is important to know the personal and family history of those interviewed. Of the seven Elk River residents interviewed for this project, five were born in the watershed over 47 years ago and have lived in the watershed since. Of the long time residents, three have had family in the watershed for over 80 years (Gierek, Estevo, and Wrigley) and two have had family in the watershed for over 55 years (Nichols and Dellabalma). One resident moved to the area in the sixties (Russ), and the most recent resident interviewed moved to the watershed in 1997 (Kallo). The collective “family land use history” of those interviewed involve dairy and beef cattle ranching, logging, potato farming, horticulture, fishing, owning and operating a store within the watershed, and simply maintaining a residence. Below is a summary of the overall conditions in the watershed, as reported by those who were interviewed.

Location in the watershed is important to note, as existing conditions are different along different stretches. Wrigley, Kallo, and Nichols are located further up the watershed than the others interviewed (Wrigley living the furthest up the watershed in what she refers to as “the bottleneck” and transition into the lower watershed). Gierek lives the lowest in the watershed, and Estevo, Russ, and Dellabalma live essentially along the same stretch, but the gradient increases a bit past the Russ and Estevo properties. Estevo lives on the south side of the river while Russ lives directly across on the north side.

Existing Conditions

Channel Structure

Residents agree that the course of the river has not changed. The long-time residents of Elk River remember that there once was more gravel in the river, and that the pools/holes that they fished and swam in were at one time deeper. Channel aggradation is occurring in some stretches of the river. There is a small amount (if any) large wood recruitment occurring, bringing only small “junk wood” to the middle and lower reaches of the watershed. Where banks have filled in with sediment, vegetation has increased.

Flooding

Elk River valley has always flooded. It is a fact of life for those who live in the watershed. Depending upon the storm severity and location in the watershed, flood levels and duration of events vary, but most residents agree that flooding has increased in severity and frequency. Two residents, Gierek and Dellabalma, believe that flooding is less frequent and less severe. Most agree that the water rises faster and recedes more quickly than it has in the past.

Sediment

Flooding deposits fine sediments along pastures and roads, and may cause aggradation of the channel, decreasing channel carrying capacity. Depending upon where the residents are in the watershed, the level of silt left behind after a flood varies. The Russ property at Zanes Road and Elk River Road does not experience sediment deposition as flood waters recede, but across the river at the Estevo property, fence posts are buried to a height of two – 3 feet, and irrigation equipment gets clogged. Nichols is the only resident that notices less silt on his property and adjacent roads now (compared to historically) after flooding. The Wrigley property experiences severe sedimentation problems—aggradation and sediment deposition on her orchard, burying fence posts and tree trunks. Dellabalma gets about one to two inches of sediment per year which he thinks is a great contribution to his topsoil.

Erosion

Elk River valley substrate is very sandy. Erosion is occurring on some properties adjacent to the river and not occurring on others. Specific erosive sites/events that were mentioned include: the bend near Zane's Bridge where the river is starting to cut through, bank sloughing at the Estevo and Wrigley properties; bank scour from an alder that fell three years previously at the Nichols property. At the Gieren property, there are ditches (likely once natural water channels approximately 10 inches deep) that are now deeply entrenched and channel runoff from roads, roofs, homes, and hillslopes.

Riparian

Nichols and Gieren note some very old redwood stumps along the creek and properties, but within the lifetimes of even the long-time residents of Elk River, the dominant riparian vegetation has always been composed of the species current now, willow and alder. Residents are concerned about the willows and debris jams caused small wood deposits. Residents spoke positively of the channel clearing (debris removal) that the CCCs engaged in during the 1970s and early 1980s.

Primary Issues

Residents in the Elk River watershed are affected by land use changes. The two major concerns brought up by these seven residents include increased residential development within the watershed and the timber harvest activity in the upper watershed. From a socioeconomic perspective, some of the landowners/residents are concerned about how TMDL regulations will affect their livelihood, and the fact that many regulations result in costs that small landowners cannot afford.

Table 2. Elk River Interview Summary, Part A

Elk River and Freshwater Creek TMDL Resident Interviews, Fall 2003

Landowner/Resident	Dellabalma	Russ	Nichols	Kallo	Gierek	Estevo	Wrigley
YEARS IN WATERSHED (approximate)							
<i>Self</i>	59 (since birth)	34+	since birth	7	67 (since birth)	47 (since birth)	57 (since birth)
<i>Family</i>	60	34+	55	7	80	85	118
LAND USES							
<i>Current</i>	agriculture-dairy farm, residential	selective timber harvest ('91), cattle ranch, residential	residential	residential	some cattle, residential	ag-dairy farm, residential	ag-apple orchard, residential
<i>Historic</i>	agriculture since 1943	property was active dairy ranch before Russ purchased in 60s; selective timber harvest on hillslopes; Joe farmed potatoes for a short period in the 70s			small dairy and a few beef cows, strawberry fields, fished salmon and steelhead (with line or gaffed) in 40s and 50s	ag-dairy farm since 1919, residential, occasional timber harvest (last one in 1970s)	ag - apple orchard since 1885; 12 acres TPZ; occasional selective cuts
WATER USES (BENEFICIAL USES)							
<i>Recreation</i>	fishing--Erling fished for cutthroat in the watershed before the mid 60s				Swimming (swam in fishing hole at Squaw Bend).	swimming and fishing	swimming and fishing
<i>Domestic</i>	Main house on spring. 55 years ago, the 2nd house was on an artesian well.	Spring and artesian wells.	Pumps from river (except in winter they collect rainwater), but buys drinking water.	When Paullette bought the house in Aug. 1997 everyone pumped from the river--when she bought her house she was told that the river was good for domestic use. Since she had the water tested, she buys bottled water for all domestic use.	House was originally on springs from above the house until the subdivision septic systems contaminated the water. Hooked up to county water in 80s.	Spring on property.	Pumped from Elk River since 1903. Collected some rainwater from roof of the house in addition.
<i>Agriculture/Other</i>	irrigates field with river water	used to irrigate east of Zane Road, but has not recently; has well in the barn for watering cattle, too high in tannins, iron and heavy metals for domestic use		Use river water to irrigate lawn and trees.	Paul's father used to irrigate his property and adjacent property to grow strawberries.	Pumps river water for summer irrigation, cattle drink from creek.	Pumped from Elk River since 1903.

The matrix is incomplete because it only reflects what was learned associated with the interview process: some participants did not provide information identified in this matrix.

Natural Resources Services Division of Redwood Community Action Agency for the California North Coast Regional Water Quality Control Board

Table 2. Elk River Interview Summary, Part B

Elk River and Freshwater Creek TMDL Resident Interviews, Fall 2003

Landowner/Resident:	Dellabalfa	Russ	Nichols	Kallo	Gierek	Estevo	Wrigley
CHANGES OVER TIME AND/OR EXISTING CONDITIONS							
<i>Summer Flows</i>							
Water Quality	has not noticed changes while irrigating	river has always been muddy - clears about a month after the last heavy rains	mother lived in watershed and did not notice a water quality change in her time; river has never been pumpable in winter	September '03 had water tested because bad smell, particles, and discolored. Health Dept. said unsuitable for consumption (high levels of bacteria).	The color of the creek has gotten darker, likely due to vegetation and silt and low flows. Never really flushed by winter rains.	More sediment now.	Increased degradation since 1990s--increase in turbidity.
Channel Structure	more silt in the river and log jams now; less gravel (still some present at Dellabalfa's) and pools; less large wood now, a lot of branches instead; Erling thinks this acts as a fish barrier at low-flows	have not noticed aggradation of channel or banks--evidenced by footing at Zane's Bridge; less large wood coming down now	Small logs there for a long time are beginning to be uncovered. Used to be logjams with pools beneath. Seldom sees large wood. Some erosion (bank scour); swam as a child -- a few deep pools	After flooding, Paulette has noticed bank erosion.	Not much gravel or deep pools anymore.	Used to be more gravel and pools. More sediment in channel now, wearing down irrigation system parts. Used to replace once every ten years now must be replaced every two or three years.	Used to be a succession of pools 6-8 feet deep, riffles, and gravel bars. Steep banks in the past are now gradual because of silt deposition. Logs buried under sediment. Once a wide "U" with a meandering watercourse is now a wide flat slow to un-moving watercourse. Changes occurred from 1987-1997.
Flooding	floods less frequently now; water rises and recedes faster now; Lower Elk flooding is more prevalent because of worn dikes; used to flood at Berta Rd., but now all the way to Showers Rd.; sometimes finds spawners in the fields after the floodwaters recede	Rain patterns have affected flooding patterns. Lane has noticed change in response time from when rainfall starts and peakflows are noticeable.	It seems like it used to flood at Berta Rd. and Wrigley Rd. at the same time, but now it takes the water 4-6 hours to get to Berta Rd. It takes longer now to drain out of the valley. Used to get bussed home early from school during floods.	Paulette bought her home after the 1997 flood. Says flooding has gotten worse over the years. Almost immediately water begins to rise after it rains. Believes peakflow times are increasing. Dec. '02, bad flooding at Kallo property.	Believes flooding is less and not nearly as deep on the stretch near his house. 1972 was the last big flood.	Raises faster and recedes more quickly. It used to take four days to reach the level of flooding that now comes unpredictably in a very short time once the ground is saturated. Increase in severity and frequency.	Flooding has increased (higher and more frequent) in the last 10-12 years. Areas that flooded historically 3-5 times in 10 years, flooded 8 times in HY 2003. Secondary/side channel floods more frequently (8-12 x per year) -1964 flood did not rise above the secondary channel. The Wrigley property experiences orchard problems because of flooding and subsequent silt deposition on
Sediment	floods bring sediment (1-2" per year), which is a good addition to topsoil.	no silt build up on Russ property	Less silt now. Has not noticed silting in of gravels. In the 70s, floods used to leave 2" of mud on the roads.	Flood waters leave 3-4 inches of mud and silt behind.	Small tributaries move a lot of silt from the "mucky" clay hillslopes. Ditches he used to be able to clear easily fill up with silt. Mentioned buried fence posts at Elk River Rd. farm	Flooding deposits a fine sediment, clogging irrigation equipment, and altering the topography of his fields.	Sediment has decreased channel capacity, increasing flooding on the Wrigley property. Fence posts and tree bases are buried over two feet with sediment.
Erosion	no problems on Dellabalfa property				Ten inch deep water channels on property, now very entrenched, channel runoff from roads and rooftops, hillslopes and homes. Landslides are prevalent along hillslopes, small slides along Ridgewood.	Saturated banks slough into the river.	Saturated banks slough banks slough into the river.
Wildlife	Sees fish coming up when it floods. Finds spawners in fields after floods recede.	Sees spawners shortcut through fields when at high water.	Once CCCs cleared, channel began to see fish again.	Has never seen spawners, only small fry.	40s and 50s saw a lot of fish moving up the channel; now mostly sees small fish in the lower reach	Sees fish occasionally.	Bear and deer on property; no fences, so they damage crops.
Riparian	more willows now, can no longer walk up the river bank like he once could	channel overgrown in 1960s and 1970s was cleared by CCCs in 1980s--needs clearing again.	increase in willows, alders, and brush; has planted redwoods along bank for 15-20 years		Grass growing in creek and along road--seems invasive (forms mat), and could be fish barrier. Willows used to be cleared, now make it difficult for river to flush out.	Riparian contributes to log jams -- John pulls some of the wood out with his tractor.	Increase and change in vegetation (Now Himalayan Blackberry used to be open with thimbleberry and salmonberry. Also much more sedges, grasses and broadleaved herbaceous plants. Alders fall more frequently into the river.
Land Use Changes/Comments	logging has slowed since 60s and 70s; less ag land than in the past--should be kept for ranching which also provides wildlife habitat; redwood plantation along river probably contributes to flooding; CDFG should cut grass on their property to provide young grass for geese	increase in housing development. When Eureka extends water and sewer, there will be more houses (currently city water stops at Berta Road). Would like to see ag uses continue in watershed. Concerned that new regulations will have a negative effect on small ag landowners	Would like to see more redwoods along the creek	Concerned that new filter systems purchased for landowners after the Clean Up & Abatement Order.	Construction of Ridgewood Road in 1958 disturbed the slope, and the soil deposited on Paul's fields. Agriculture uses have changed-- used to be more cattle, now horse boarding (little grass in pastures contributing to soil erosion/runoff). Changes in the watershed should not just be attributed to logging -- it's from a combination of land uses.	Rate of harvest increase in upper watershed	Increase in rate of harvest and poor logging practices in upper watershed. Would like to be used as a resource regarding changes to the stretch of river near her property.

Watershed: Freshwater Creek

Address: 3115-A Felt Rd. Eureka CA 95503

Date: September 22, 2003

Interviewer: Tamira Jones

Interview Location: Residence

Supplemental Material: Flooding photos (CD)

Family History in Watershed

David has lived at current residence since 1986 and has been familiar with the area since 1979. He was friends with the present owner's son and he used to visit the property in the 1970s for recreation- fishing, hiking, and swimming. David is now caretaker of the thirty-two acre property, which has been owned by Dr. Peter Burgess since around 1973.

The property is located along a bend in lower Freshwater Creek across from Fulton Ranch and Pierson property. There are two small former log ponds on the property that were built by the original owners, the Carson family, who used the property as a summer home. The houses were built around the 1880s. The log ponds held logs from Carson's logging operations in Freshwater until rains could take the logs down to his mill site. The property has four residences, two in the floodplain. Previous owners did not mention any flooding problems when the property was sold.

The property has mature landscaping including fruit trees, ornamentals, and recent landscaping of native grasses and trees.

Historic and Current Land Uses

The residences were built by Carson family and used for summer homes and hunting cabins. The property had a log pond for trees that were yarded down from the side valleys. Carson planted many trees which have been added to by more recent landowners. Ten acres are developed for the houses, gardens, orchard, and pond site; the remaining 22 acres are mature forest on the hillsides. David reclaimed much of the property in the late 1980s by clearing out willows and berries. The log pond was dredged, fill material was spread on the property, and a levee was built around the pond. Today the property is used for private residence.

The only change in land use observed in the watershed has been an increase in logging.

Historic and Current Domestic and/or Agricultural Water Uses

There are numerous springs on site, and two major ones were once the only source of domestic water. The springs were kept cleared with great effort. David manually shoveled out sediment after winter rains. The residences are on County water since 1993 because springs are contaminated by Mitchell Road landfill. The County tested water and found methanol chlorides (7.1ppm detected), an indicator of other potential contaminants, and chloroform (6.7ppm) in high levels. There are no wells on the property.

When David began living at his residence, new septic systems and leach lines were installed on all the houses. Formerly old wooden cesspools were in place, and David believes that some older homes in the valley still have these old systems. He believes there is no septic contamination in the creek, with the exception being when it floods and water gets into the tank.

The appearance of the water in the creek has changed, coinciding with the period of time when flooding increased (1995-2003). Before that time the creek would get muddy after the first rains, but now it remains muddy and has a smell. The water used to appear “black” from tannins, but now it is “chocolate brown” from turbidity.

Historical and Current Watershed Conditions

Channel Structure

Channel location has remained the same since the landowner can remember. The historic side channels on the adjacent property flood. A log jam has been working its way around the bend in the creek since 1996. David had to partially remove it because it was causing the bank to erode behind the two houses. Trees along the banks have been falling in more frequently.

Erosion

Banks along the property began collapsing into the stream channel in 1994. David believes erosion is due to the raised creek bed plus the velocity of the water undercutting the banks into the channel. David has planted trees along the bank to try and stabilize it (Monterey pine, maples, and alders) but has noticed that the willows which once held the bank are being eroded into the stream because their roots are now under several feet of silt, and the banks under the trunks are eroding. David cleared the property during the 1980s and left a four foot buffer of willows and Himalaya berries along the stream bank.

Sediment

David is concerned about the change in substrate that he has observed between 1994 and 2003 period in which gravel beds and pools have been silted in. The creek bottom is now higher, and he can remember the banks being steeper and higher. The silt makes walking in the creek bed difficult – David noted that it is possible to sink up to mid-thigh. When David first started visiting the watershed in the 1970s there were pools up to 3.5 feet deep during the summer, and gravel bars where in the shallow sections. Most pools were associated with large redwood stumps, which have since been buried.

The small creeks on the property have also been silted in, which has subsequently filled the log pond with sediment. David has a gate on the creek that feeds that pond which he opens during high flows. The creek drains into a silt pond that was dredged in 1996 because it had completely filled with silt (approximately four feet deep). In 1992-1993 a landslide occurred into a tributary of Freshwater. This landslide began off an old logging road. In the 1994/95 flood, the silt was not able to flush downstream and caused heavy silting along the tributary and Freshwater Creek. In 1993, David spoke with a California Department of Forestry representative regarding the landslide. The representative acknowledged the landslide and gave David the impression that the logging operator had been fined; however, no restoration or stabilization was forthcoming.

Flooding

David's primary concern is the increase in frequency and severity of flooding on the property. Before the mid 1990s high-water occurred only in spring, after March and April rains.

Duration between rains on Kneeland and observed flows was approximately a day, to a day-and-a-half in the 1980s and early 1990s. Peak flows now occur roughly two hours after rain starts.

David began marking floodwater height on the garage door after the 1994 flood. A "normal" flood would reach over the garage floor – approximately three to four inches above the ground. The 1995 flood, the highest flood marked by David, was two feet above the garage floor (Refer to Boston photos in Attachment C). The houses in the floodplain were flooded with approximately one foot of standing water inside (approximately three to five feet above the ground in places). The houses were raised three feet above the December 1995 flood level, which had left a half-acre of silt one foot deep in the orchard. The 1995/96 flood receded in twenty-four to thirty-six hours.

Riparian

Wood in the creek is small (about four inches in diameter), and collects in large tangles. The landowner and David would like to do some bank stabilization and tree planting. David had talked to Curtis Ihle when he did the Fulton Ranch enhancement project, but funding did not allow for enhancements along the reach where this property is located.

Fishing and Fish Observations

Long-time residents have told David that it was likely that fish once spawned up the small tributary creeks flowing out of the canyon, but now there is not enough water and limited access for them. In the late 1980s David saw numerous fish coming up Freshwater Creek, but now there are fewer.

Current Social Conditions in Watershed

It is obvious to David that the "dramatic" changes in the watershed such as flooding are due to land use changes – namely logging. There have not been significant changes in any other land use in Freshwater, and a housing site could not produce such changes. Weather is not the only factor, because in 1982 and 1983 winters brought a lot of rain, and there was not the type of flooding that has been experienced lately. Now it even floods even in relatively dry years.

The winter is now a time of stress for David and his wife, they have had to evacuate suddenly and have experienced property damage. David was involved in the Freshwater Coalition when they sued the upstream property owners, Pacific Lumber Company, with the goal of stopping the intense logging in the Freshwater watershed. David prepared a statement for Freshwater resident and watershed group activist, Joyce King, and has been videotaped voicing his opinions, both of which David thinks can be requested from Joyce. A Humboldt State University student, Elaine Atherton-Nelson, has also collected statements by landowners. Her phone number is 825-0884.

David would like to see more money and technical assistance available for projects like tree planting and bank stabilization for private landowners. He also thought landowner education on septic systems would be a good idea.

Watershed: Freshwater Creek

Address: 5851 Myrtle Avenue, Eureka CA 95503

Date: September 24, 2003

Interviewer: Tamira Jones

Interview Location: Freshwater Farms

Supplemental Material: Historic photos, current site photos (CD)

Family History in Watershed

Rick was raised in the Myrtleton area of Eureka, and spent time as a child in the Freshwater watershed, so has been familiar with the watershed for approximately 50 years. For the past 18 years, he has owned and operated Freshwater Farms, a native plant nursery that specializes in growing plants to be used in wetland remediation projects. Rick bought property in the Freshwater Creek watershed because he wanted to go into the sod business and be located in an unincorporated part of Humboldt County.

Rick has not spent a lot of time in the upper watershed so cannot speak to how it functioned historically or changed over time. For more information, he suggests talking to Harvey Harper who grew up on Pigeon Point. He also recommended his aunt, Rene Steele, Janie Walsh who grew up on Howard Heights, and the Wahlund family.

Historic and Current Land Uses

The property was the first Class A dairy in Humboldt County. Existing buildings such as barns and a parlor have been renovated for the nursery. The property has not been an active dairy since the 1950s and was as a potato farm in the 1970s.

Storre's nursery business is located in the lower reach of Freshwater Creek, west of Myrtle Avenue. Historically the property was known as Nielson Ranch, and before that was owned by Roy Fulton. Rick has managed the property for approximately twenty years. In that time he has planted over 2000 trees along the stream bank. In his memory, there was never a riparian area there before. Looking at historic photos from the 1940s and 1950s confirms this, and shows that the creek in the lower reach once had more meanders. Freshwater Creek appears to have straightened since the 1950s.

Infrared aerial photos of the property reveal the difference in soils along the creek. The strip closest to the creek is soil which is good for agriculture, and the remainder is clay. Once the river reaches bankfull and spills over the banks, it slows down and sediment settles in the floodplain, leaving that area closest to the creek most suitable for agriculture uses.

The Humboldt Fish Action Council weir used to be on the current Freshwater Farms property in the 1970s.

Historic and Current Domestic and/or Agricultural Water Uses

Rick does not withdrawal water from the creek. He is on city water which he uses for domestic purposes as well as to irrigate. The property has existing historical water rights to the creek, but he plans to establish a well. He is not concerned about the water quality of the creek for domestic use, because if he did withdrawal it would be for irrigation only.

Rick has not observed changes in water quality such as color. The water is clear and “sparkles” in the summer, unlike in the winter when the water appears dull. The water clears in June or July. The creek water is transparent, and the bottom is visible during low-tide.

Freshwater Farms does not have a sewer system. The property did have an existing system that was too old and when Rick tried to install a new one, the County Planning Department denied the plan because the area he was proposing was a ‘no-build zone’.

Currently, the property has portable outhouses, but Rick has future plans to have a small wastewater remediation wetland on the property with a capacity of 100 people.

Historical and Current Watershed Conditions

Channel Structure

Before 1932 when Freshwater Park pond was built, many people used Sandy Beach, a sandy location that was dammed to make a pool on the lower end of the property. Rick now uses this site as the put-in for “Canoe the Slough” (a Center Activities event). The logs that were used in the dam remain in the creek, and during low tides there is no sediment build-up behind them. Rick does not believe that sediment is settling in this portion of the creek, and John Bair from McBain & Trush told Rick that tidal action is pulling the sediment out.

Gravel is present along the creek bottom at Freshwater Farms. Rick hasn’t noticed a change in depth. Rick has not noticed what debris comes down the river either. He has observed a lot of wood in the bottom of the creek, old logs that can be seen at low-tide. When Rick was buying the property, Billy Fulton had come at night to haul logs out of the creek, stack a log deck, and haul them away.

There are levees at the lower end of this reach (from Devoy Road down) but there are none located on his property. Wood Creek, a small tributary draining Pigeon Point comes down into the southeastern portion of property and feeds a 20 acre freshwater marsh (Terry Roelofs, a professor at Humboldt State University, has done some biological assessment of this area). Wood Creek has a functional tide gate to Freshwater.

Erosion

The property has had a huge problem with bank erosion. There is constant sloughing-off of the sandy bank. The neighbors cut all vegetation out of the creek on their side and Rick lost 10’ of bank. The corner of a building is now hanging over the creek; he has had to reinforce that corner with fill and willows. In 2002, a group of Humboldt State students and John Schwabe from the California Department of Fish and Game planted willows, which have all since died. Rick wants to plant sedge to hold the bank where the willows were. Since last winter, the willows that were planted have already recruited approximately one to one and a half feet of sediment.

Flooding

December 2002 was the worst flooding Rick has seen in the last twenty years. It had rained for 3 days and a “wall” of water came over Myrtle Avenue from the Fulton property. There was three feet of water in the Freshwater Farms office, whereas, in Rick’s time-frame, there has never been more than six inches. It takes about 24 hours to drain off a flood. Rick does not mind the flooding because it adds sediment to the fields which is a good addition to the topsoil, and Freshwater Farms is mostly a wetland nursery so the plants like the water. He is aware of the wetland history of the property and expects that when it rains it may flood.

Rick has not seen a difference in response between rainfall and peakflows. Once the rain starts it takes about three days for the water to get to the lower reach.

Fishing and Fish Observations

Rick does not take fish out of the creek anymore. One year (about ten years ago) he took some fish and later discovered that only nine salmon reached the Humboldt Fish Action Council weir.

Current Social Conditions in Watershed

Current plans for changes to the property are implementation of an estuary project. McBain & Trush have been doing design and data collection for an estuary enhancement project on Freshwater Farms that includes longitudinal profiles, measuring peak flows at extreme tides, and contour mapping, in hopes to restore some saltwater marsh at the site.

Rick is also going through the appraisal process to determine an easement sale on 2/3rds of the property with the North Coast Regional Land Trust. The conservation easement will be on the area of the property that he currently uses for propagation ponds.

The level of activism has changed over the years, which Rick attributes to newer residents. Many people have taken responsibility for educating themselves, and he believes that they need to now take that information and educate the lawmakers. Residents are willing to put their money where their mouth is and are willing to go to court. Rick gives the example of the Freshwater Working Group, as a group whose members seem to share mutual direction, are vocal, and are proud to be part of the Freshwater creek watershed. Rick values the rural character of the area, and is happy to see parts of the watershed locked into agricultural land through easements.

Rick believes the community will change once amenities are brought into the valley. He would personally like to see the Three Corners area become a retail commercial space and is working towards changing the zoning from Felt Road to Freshwater Road.

Watershed: Freshwater Creek

Address: PO Box 6082, Eureka CA 95502

Date: September 25, 2003

Interviewer: Tamira Jones

Interview Location: Howard Heights

Supplemental Material: none

Family History in Watershed

Gary's grandfather moved here in 1906. The property included the Hippens property before 1945. Gary has lived in the Freshwater creek watershed since the 1980s, but visited every year before that so is familiar with the watershed for a longer time-frame.

Gary owns 112 acres, with about 1200' of stream footage, and his cousin Howard has 130 acres.

Gary recommended talking to Kurt and Gale Hippen; Harvey Harper; Art and Loraine Cave, who have lived at the end of Howard Heights Road since the depression; Joe and Hazel Swanners, who lived at the Hippens property for years; and Janie Walsh - both sisters are almost ninety years old, and were raised in the Freshwater Creek watershed at the Hippens house on the creek.

Historic and Current Land Uses

At the turn of century Gary's grandfather tried grazing dairy cattle up to the ridge (30 head). It was cut-over redwood at the time. Now Gary boards horses (nine currently) and logs trees off his 100 acres. He has an NTMP and is currently thinning.

Prior to 1980, the field was overgrown with blackberries and had to be cleared.

Gary used to take gravel off the bar for rockin the roads 10 years ago until the permitting became too much trouble. Gary had a road skidded down to the river which the California Department of Fish and Game has used to back the hatchery truck to access the river in order to release the fish. At this site the gravel bar is growing.

Some changes to the property made by Gary were planting redwoods every 15 feet along the bank. Gary collaborated with Redwood Community Action Agency and California Department of Fish and Game to do a stream bank stabilization project about 16 years ago where the bank was eroding three to four feet every winter. They rock armored the bank and planted trees, and erosion has not occurred since.

Historic and Current Domestic and/or Agricultural Water Uses

Gary's domestic water comes from a spring on the ridge and collected rainwater (his property is above the contamination from the Mitchell Road landfill). He occasionally irrigates his pastures and orchard from the creek. He knows upstream neighbors used to pump from the creek to irrigate. They used to pump a lot in the summer and the creek was visibly lower

because of it. Gary thinks there is more water in the creek now because people are on city water and are not pumping.

Water clarity remains the same. The water clears about six weeks after rain stops but the creek becomes quite clear during midwinter lull in weather. The water is reddish from tannins.

He remembers that the creek was too low and stagnant to swim in during late summer in the 1950s and 60s.

Historical and Current Watershed Conditions

Channel Structure

This reach has a gravel substrate with gravel bars throughout, which Gary believes are growing. Gray used to mine gravel from the bar to rock roads but thinks it had little effect on the amount recruited there. In general the rock “strata” has remained the same. Gary thinks the channel bed has risen about one foot. The creek appears more sluggish than 20 years ago. There used to be deep pools (about four feet deep) – a pool about six feet deep was used for swimming – the children would jump off the trestle that was where the power lines cross the creek now. This reach used to have more bends and riffles, now appears straight and shallow. Gary believes it has lost pitch – historically the creek moved back and forth in the channel more. The bank has not moved six inches in 30 years, the north side is clay and eastside mostly sand.

The location of the channel has not changed in Gary's lifetime. There was an oxbow lake on the other side of the pasture where the channel used to run (over 100 years ago). Eighty years ago it was a duck pond. Today there is still a pond that is overgrown, with stickleback, and probably fecal chloroform contamination coming off Howard Heights. The pond is shallow, with deep spots about three–four feet, but dries out in dry years.

Flooding

Gary has not seen much change in the watershed in the past twenty years. He is not here enough to notice peak times after it rains. Howard Heights Road has always flooded, but in 2002 it flooded more than ever. Four inches of rain in 24 hours is a major flood typically, but two inches in 24 hours in 2002 was a major flood. Four times in the last 20 years six feet of water has put the pasture completely underwater. Two of those times occurred during the 2002 hydrologic year.

The sediment deposited on Gary's field during flood events seems to be low in nutrients and not very fertile, so it is not beneficial to the pasture grass. Gary believes that he is only getting about one-tenth of an inch of soil on his field per year. Sediment accumulation could be measured above concrete pads (which were flush with the ground) located at the survey corners of the Hippen property.

Riparian

Gary's grandfather used to remove all the vegetation down to the stream from 1910-1935, most people did up until 30 years ago. Revegetation has likely contributed to flooding because it slows down the water. There has been little change in the diameter of wood coming down the stream – it is mostly 6 x 6 inch pieces, although Gary does remember there once being larger chunks of wood. There is a log jam made up of small woody debris from winter 2002.

Fishing and Fish Observations

Gary's mother used to say she would go down to the creek at night with a lantern and a pitchfork and spear a winters worth of salmon in the early 1920s. Gary has not seen a big fish in Freshwater Creek since they put in the weir in 1988 at Three Corners. He found one big steelhead years ago, but no salmon in 10 years. In the 1980s he saw salmon regularly, but not in great numbers. He has not paid as much attention lately or fished in 40 years.

There were a small number of spawners in the creek at the property 20 years ago when there were riffles.

Current Social Conditions in Watershed

Development has increased in the watershed. Gary believes that one of the best things the Freshwater Creek watershed produces is redwood trees, but the cost of logging is too high. Pacific Lumber Company is going through another logging cycle, which Gary believes is too short of a rotation. Gary has been on Pacific Lumber roads and thinks that they are too wide (30 feet) – he prefers 8 foot roads. The old-timers in the watershed like Art Cave, who say that nothing has changed, remember the first and second cycle logging, so to them this is normal.

There are two minor tributaries on the property, Howard Creek and Foss Creek. A forester came out and classified Foss Creek as a Class I stream but no fish has ever been observed in the creek. Gary had to replace an 18 inch culvert with a 72 inch culvert on the creek. The County road culvert below the new culvert is only 48 inches.

Gary is interested in turbidity monitoring on his property. Salmon Forever had taken some turbidity sampling before for his own curiosity.

Watershed: Freshwater Creek
Address: 1515 Buhne Eureka CA 95501
Date: September 26, 2003
Interviewer: Tamira Jones
Interview Location: Residence
Supplemental Material: none

Family History in Watershed

Janie Walsh is the daughter of William Douglas Howard who moved to Freshwater in 1915. He enlarged the original farmhouse to a two-story home that is still there today, and started a dairy farm. In 1929 he stopped dairy ranching and started a pawnshop in Eureka. William Howard lived from 1863 to 1941. The family had a quarter section (360 acres) and some more property adjoining it on both sides of the county road, but Janie does not recall the acreage. Marie Howard, Janie's mother, called the place Horseshoe Bend Ranch because of the bend in the river that skirted the property. The house was built on a slight hilltop up out of the floodplain.

Janie left the Freshwater area in 1933 to go to college and returned in 1938 to teach school. She married in 1940, and her father built a bridge and started developing Howard Heights giving the couple land to build a home at the end of Howard Heights Road. That property is now owned by Kurt Hippen, and Janie's most recent Freshwater home is owned by her daughter. Janie lived in the valley till 1975 when she moved to Eureka. She still owns property between the Freshwater Road and Freshwater Creek. Half of the property is below flood level and half is a building site.

Historic and Current Land Uses

William Howard built the first bridge to Howard Heights in about 1939. It was a substantial car bridge.

Howard put a concrete dam in the river about two to three feet high. A four foot pool formed below the dam but the kids did not swim in it. Janie's father put another dam on a small stream that fed into Freshwater Creek and formed a lake on the west side of Howard heights road.

Across Freshwater Creek to the north was the Conti's truck garden. It has been a long time since the Conti's quit growing vegetables. They may have been in the flood zone.

Historic and Current Domestic and/or Agricultural Water Uses

The ranch house's domestic water supply came from a spring a half mile away. They never drank the creek water because they did not think it was potable. There were cows along the creek at the time and they thought they were contaminating the water. In her Howard heights home, Janie and her husband ran a pipe line to the creek to pump water from the creek to irrigate their lawn.

Historical and Current Watershed Conditions

Channel Structure

Janie doesn't remember there being very deep pools, she played along the creek often as a kid often but did not swim. When she was eight years old, her father gave her a sailboat the size of a rowboat that stayed in the creek.

Flooding

The footbridge to Horseshoe Bend Ranch was wiped out twice in Janie's memory, once in the 1929 flood and again later (Janie does not recall the year). The 1929 flood came up to the house door but did not enter, also a hired man was left stranded on the property, and the Howard's had to call Coast Guard to come out with a boat and rescue him at about 10 o'clock at night – that was the highest flood Janie remembers.

A certain amount of flooding occurred every winter, sometimes it would go through the fields below the house and often cut off access to Howard Heights Road. After her first husband died, Janie went out to the house at the end of Howard Heights Road around December 10th, 1996. It flooded so badly one day that, while she got out, her daughters stayed and were flooded in for two days.

What Janie refers to as historic floods did not happen much but she remembers flooding at Three Corners when she was young. There were times they could not get across the Howard Heights Bridge .

Riparian

The creek was overgrown when Janie was growing up, it was difficult to walk along the creek bed because of the vegetation. There were no changes in the streamside vegetation during the period that Janie lived there. There were no stumps along the creek either.

Fishing and Fish Observations

In the 1920s it was legal to gaff fish. Janie's mother used to go out when the fish were running and gaff them. Back then there were Chinook; they were so loud Janie could hear them from the house coming up the creek. The fish were three–four feet long.

Current Social Conditions in Watershed

Some social changes that have happened in the watershed are the makeup of people who live out there. When Janie lived there most people were on welfare and did not work in the watershed. The train ran up the valley near their property (parallel to the Freshwater Road) up to the log camp on Pacific Lumber Road. There was a large lumber camp, with a cookhouse and bunkhouses, and the train took them in to Eureka on Saturday nights.

In recent visits to Freshwater, Janie has noticed the large housing development behind Freshwater Park; she doesn't know when that came in. The town of Eddyville (maybe 20 houses) is gone, but more upscale houses have been built in the valley.

Watershed: Freshwater Creek
Address: 341 Howard heights Rd
Date: October 2, 2003
Interviewer: Tamira Jones
Interview Location: Residence
Supplemental Material: none

Family History in Watershed

Alan had visited the area in 1976 and wanted to return to Freshwater. Alan and his wife bought the house in 1994 and moved back in 1996. The previous landowner, Don Comstock, said that the Howard Heights would flood every three years and that floods were associated with high tides. Adjacent to the property is Foss Creek. Alan's property is not directly on Freshwater Creek, but forty vertical feet above the creek.

The property was once a former used tractor yard and it was pasture at one time. There used to be a road or an oxen road that crossed the field, and there is road fill and cross ties across Foss Creek.

Alan recommended speaking with Rudy Langlois, who is 65 years old and has lived right on the creek for 45 years. Rudy used to work in the logging industry and has experienced changes on his property such as loosing his well. Kurt and Gale Hippen would also be good to talk to.

Historic and Current Land Uses

When he flew over the watershed Alan saw a lot of bare soil as well as intact forest. Pacific Lumber Company has cut nearly sixty-five percent of their property, which is 15,000 acres of a 20,000 acre basin, in 10 years. There have been no other significant land changes- no county roads, and few houses. The only landscape change of note has been PL logging. Since 1996 there has been maybe fifteen houses built.

Foss Creek once had a damn that created a pond. The dam broke approximately 20 years ago. There has always been spruce and redwoods along the creek, and they are much larger now than in old photos. There is a culvert on Foss Creek that doesn't allow passage that the County put in on the road; the mouth of the culvert is too high for fish access. There may be fish in the lower Foss before the culvert. The CDFG fish trap (project headed by Seth Ricker) is at the Foss-Freshwater confluence.

Historic and Current Domestic and/or Agricultural Water Uses

Alan pumps water from Foss Creek for irrigation but not for household use. They do not pump from Foss Creek in the winter because they do not need the water for irrigation and it is too hard to keep lines clear. They are on city water. Their septic, was about 30 years old recently failed and they are going to build a new one.

Historical and Current Watershed Conditions

Channel Structure

There are no pools in Freshwater Creek from the Hippen property to Little Freshwater Creek. Alan has walked the whole way, and the water never came over his boots. Salmon Forever has done cross-sections that reveal the banks appear to be aggrading and the floodplain building. Cross-sections show that the channel has risen three feet in some places, and aggradation is evident.

There was a big log jam up river that Humboldt Fish Action Council or staff of a local agency took out five years ago because of the potential damage it might cause when it “unjammed”. They were afraid it might take out Howard Heights Bridge.

Sediment

Alan can only speak to what he has seen in the last seven years, and what he has heard from other landowners. He has walked from the Hippen property to the confluence of Little Freshwater Creek five years ago during the summer and saw enormous sediment plumes coming out of Little Freshwater Creek. He dug down on the alder roots and observed recent sedimentation. The sediment on the fields and roads and in the stream is evident. Howard Heights Road used to be above the adjacent fields as recent as three years ago, but now it is below from the sediment accumulation in the fields. After the December 2002 flood, there was five inches of sediment accumulation throughout all of the fields and a 12 inch plume of sediment in the pasture near the bridge, Alan could dig down and see grass. Alan, his wife Teza, and Jesse Noell took photos. Alan has seen fines on the road and fields after floods.

The Hippen property has sand accumulation in the field making areas unusable.

Seth Ricker, a Department of Fish and Game fisheries biologist, has been doing surveys in Freshwater Creek tributaries, using small dams to count fish. The dams have been filling up with silt. Dave Kuszmar of the Regional Water Board has taken photos.

Foss Creek was logged in the 1970s. Clark and Tisa have done turbidity sampling during storm events on Foss at the same time as on the mainstem. Foss Creek is about 1.5 miles.

Flooding

Since 1997 there have been approximately twenty-five incidents of water on the Howard Heights Road, which varies from a few inches to five feet of water. Last year there were seven flood days. Comparing flood heights with the 1955 flood, Freshwater Creek has surpassed it a half dozen times. There is an aluminum plate on the bridge where the 1955 flood height was. A two inch rainfall in a 24 hour period comes close to the 1955 flood. The December 2002 flood was after 6 inches in 24 hours was the highest flood ever. Howard Russell has been taking photos of flooding. A two inch rain in a 24 hour period is not a rare event, which could happen any month of the year from November to April. The 1998 flooding analysis done by PALCO in Freshwater only looks at ‘four inches in a 24 hour period’ in the historical record because there were historically not floods with less rain than that. Currently, Freshwater Creek floods with as little as one and three-quarters inches of rain. Alan does not attribute this problem to weather because there has not been a change in the weather pattern in seven years. Kurt Hippen has raised his house two and a half feet.

It seems like less water creates floods. Prior to 1995 we would have never had a flood after a two inches rain. In Alan's opinion, the main causes of flooding in the Freshwater Creek watershed are canopy removal and aggradation. The changes have been volatility, frequency and magnitude of the floods. Alan has seen floods at high tide and low tide. It is not all due to geology, but some is. Wildcat predated the conditions, and land managers should change management practices to be appropriate for the geology.

Response time to rain events has changed. During the drought year there was no floods, but you could see how quickly the creek turned turbid after small amounts of rain. It takes days for the water to clear again.

Fishing and Fish Observations

Alan has spoken with longtime Freshwater residents who used to see fish in Graham Gulch, now it has practically no fish.

Current Social Conditions in Watershed

Alan moved here before the latest round of logging in 1996. Since then he has done site visits on Pacific Lumber property, walked Freshwater Creek with Forest Service scientist Leslie Reid, and flown over the watershed. He believes that it easy to connect the dots regarding the changes that he has seen in the watershed and Pacific Lumber's logging practices, because in his opinion there have been no other significant land use changes.

The most significant impacts Alan has experienced is access to his home and the threat of floods from November to April. He has had to come home early to ensure he could get through, and has had to spend the night in town with his family when he could not. He has been unable to get from home to work or from town to home on numerous occasions with floods crossing Howard Heights Road. Current conditions are such that with any and every storm, the threat of lost access is present (Nov.-April). According to Alan, this was not true prior to 1996.

Alan would like to see planting redwoods in the riparian, there are very few now. He wants to see TPZ land retained and logging coexist with this little town. Most people objecting to PL are for timber. He thinks that residents are 5 percent of the problem and that we should focus on the other 95 percent – the portion of the problem attributed to PALCO's land practices.

In Alan's opinion, the problems in the watershed "have been caused by canopy loss which, in turn, leads to increased erosion and consequent deposition of sediment. The only way to begin to correct the current degraded conditions is to halt all canopy removal and road building for a finite period. This period can end when there has been a demonstrated recovery as measured by water quality parameters (e.g. turbidity, cross-sections). When significant recovery has occurred, then timber harvest may resume at a modest rate as calculated by the Leslie Reid model. Without drastically reducing the harvest rate, there will be no recovery in our lifetime."

Watershed: Freshwater Creek
Address: 5855 Myrtle Ave Eureka CA 95503
Date: October 9, 2003
Interviewer: Tamira Jones
Interview Location: Residence
Supplemental Material: Photos of historical fishing and aerial of property (CD)

Family History in Watershed

Tiffany and Jerry moved to the property in 1974. The property was a dairy farm with many outbuildings and barns. They bought the property from Roy Fulton (see Rick Storre for history of dairy farm). The house Tiffany lives in was the residence for the dairy. It was built prior to 1907 and was once a saloon at Three Corners. It was moved to its present location in 1915 and became a residence. The house burned in a fire in 1968 before they purchased and rebuilt it. They used the property for ranching various animals, beekeeping and other agriculture uses which ceased about 15 years ago.

Historic and Current Land Uses

The biggest impact to land use has been the loss of boating in the creek because it is too shallow. Tiffany used to see otters, turtles, and mink along the creek but has not seen any for years.

Historic and Current Domestic and/or Agricultural Water Uses

Tiffany does not withdrawal from the creek. She has been on County water since the 1990s, before which the house used a spring.

The property did not have a septic system when they bought the land – the homes used to have a pipe directly into the creek. Tiffany and Jerry have put in a new system.

Historical and Current Watershed Conditions

Channel Structure

Tiffany's main concern is the raising of the creek bed which in turn causes flooding to occur more often and faster. She noticed a change in bed elevation in 1999. She could see the dirt on the channel edges coming in to about ten feet from the banks within one year. By 2001 the river was channeling through the sediment build-up. You can now see the bottom of the creek at low tide, whereas before 1999 the bed was never exposed. Above and below Devoy Rd. where it flattens out, it is very shallow and sediment settles there. This is where Tiffany thinks the sediment plug is settling. The reach along Tiffany's property has about 12 inches of water during lowtide in the summer (Tiffany is not comfortable quoting numbers because some low tides are lower than others, and with an elevation drop of the creek of several feet over the half mile of creek frontage it is difficult to say just one figure. (Rick Storre told her six inches on his parcel in the summertime)). Freshwater Bridge is about the area where the tides no longer affect the creek and that is the corner of her property line. She says that sometimes there is more water coming down the creek at low tides. Tiffany used to kayak and motorboat out to the bay and back, and could return at low-tide. Now she cannot get down or back during low-tide.

In 1982 the bridge to the property from Myrtle had to be replaced. They had cut the old piling down to ground level and the pilings are still visible and have not been buried. Tiffany has seen very little change in this reach. There is a riffle with gravel and large redwood logs at the bridge. This channel structure has maybe had six inches of sediment in the last 20 years. Tiffany thinks that because the water moves quickly here it is not aggrading.

The sediment that is coming down is sticky. The texture of mud which was once gritty is now slippy and slimy. The 1996 to 1998 floods left silt on the grass, mud on Freshwater Road, and the Park had sand on the volleyball court and road.

Tiffany has not had an erosion problem on her reach of the creek. One of the buildings (a former bunkhouse that has since been converted to a house), has been right on the bank and has remained there since the 1920s.

A man who was born on the property in the 1920s came by one time and told Tiffany that as kids they used to jump off the bridge that spans her property with Rick's. This must have been the 1930s. The bridge is still there but the creek is too shallow to jump into (approximately three feet deep). As far as the season, Tiffany is assuming that the man was swimming in the summer.

Sediment

When Tiffany moved to Freshwater in the 1970s they were logging and water quality was terrible. The water quality recovered by the 1980s and has been declining again. A small rain results in murky water.

Flooding

It floods over a shorter duration than in the past, depending on tides. It has flooded during low-tide but after substantial rains. In 2002, it flooded three times. It used to have to rain for awhile, now two inches of rain will overflow the creek. The creek cannot hold as much water. The sediment is now above water level. A flood in Tiffany's determination is bank overflow. She has not had water in the house yet – the house is located 100 feet from the creek and is at an elevation of 13 feet. She had to lift the yellow house on Myrtle Avenue in the late 1970s to prevent it from flooding. It was close to the time that the County raised Myrtle Avenue, which no longer floods.

The highest flooding was in winter of 1998 due to the highest rainfall (about ten inches on Kneeland in three hours). When the County raised Myrtle Avenue, they breached the railroad trestle grade on the property, so water could drain out of fields, and used two acres of Tiffany's land to mitigate wetland area. The County created a low spot for a marsh near Freshwater Bridge and planted willows, which they cut from the road. Before this, an eleven to twelve foot high dike at the property (now belonging to Mr. Guynup) caused the water to back up and badly flood the property. After the railroad grade was breached the flooding severity subsided.

Riparian

Changes Tiffany has noticed include the amount of willows on the Fulton property. She knows that they are good for fish but it slows the water down. They used to get bad logjams but not any more. There are some big chunks of wood in the fields left from the floods. Most of the wood came down in the 1970s when there was logging in the watershed, and they would have machinery in the creek and fall the trees down to the waterline. Now limbs come down and get tangled up. The old bridge that was replaced with a span bridge had center posts and hooked up debris. The County would “un-jam” the debris at Freshwater Bridge and wait for the jam to get caught at Tiffany’s bridge, which she would then clear, and then the County would clear Devoy Bridge. Tiffany used to take wood out of the creek for firewood.

When they bought the property there were very few trees, Tiffany planted a lot of trees, which are now mature. She planted poplars, cedar, pine, fruit trees and now there are willows along the creek.

Fishing and Fish Observations

Tiffany and other residents used to fish the creek. She has photos of 30 lb. king salmon caught right there at the house. They would catch kings in October and steelhead. She used to be able to hear spawners but has not in years.

Current Social Conditions in Watershed

Tiffany tried with other citizens to organize monthly seminars on topics like natural history for residents to get to know their watershed. No one came to the seminars however. The group, Friends of Freshwater, is now the Freshwater Watershed Working Group.

A potential educational outreach would be on the topic of wood in the creek. It used to be that they should clear the creek, then they put the wood back in the creek, now people want to remove wood again.

Watershed: Freshwater Creek
Address: 499 Howard Heights Road, Eureka CA 95503
Date: November 19, 2003
Interviewer: Nicole Murano
Interview Location: Residence
Supplemental Material: None

Family History in Watershed

Art and his wife Lorraine moved to Humboldt County between 1942 and 1943 to make a living. He bought his home on Howard Heights Road not too long after their arrival. Art, among other things, helped to build the airport in McKinleyville, worked as a welder on the docks, house painter, and truck driver. He owned and operated approximately 160 acres of timberland in Jacoby Creek, and owned a smokehouse in Eureka, so he worked mostly outside of the watershed

Historic and Current Land Uses

Art has remodeled the main house extensively over the years, and maintains a large greenhouse with a lot of plants. The timber on the hill slope behind his house is second growth.

Historic and Current Domestic and/or Agricultural Water Uses

The property gets its water from a spring behind the house

Historical and Current Watershed Conditions

Flooding

Flooding has occurred since Art and Lorraine moved to Freshwater. Art believes that the surface area of the watershed compared to the carrying capacity of the channel is the reason for this flooding, and that it has nothing to do with timber management activities. Lorraine used to drive the children to and from school, and on numerous occasions would have to go early to school to pick them up, so that they would not get stranded on the other side of the creek. Art remembers times when they were stranded on the other side of the creek and had to stay with friends until the flood waters receded. There is only one year since 1942 that the family could cross the creek on Howard Heights Bridge any time of the day they wanted. Art does not remember the year, but says that it was a few years ago.

Fishing and Fish Observations

Art would spear fish for salmon above Freshwater Park. He remembers “steps” of logs that created dams with pools behind them that would be filled with spawning fish. He and his friends would be so interested in the spawning fish that they would abandon their fishing and observe spawners instead. He said that the logs were three to four feet high, and there was gravel. Every pool had spawning salmon.

Current Social Conditions in Watershed

Art believes that too much money has been spent trying to “produce salmon” in Freshwater Creek. He believes that the timberland owners upstream should have the right to log their property.

An increase in development has occurred in the watershed during the timeframe Art and Lorraine have been in the watershed.

Watershed: Elk River
Address: 6780 Berta Road Eureka CA 95501
Date: September 24, 2003
Interviewer: Tamira Jones
Interview Location: RCAA office, 904 G Street Eureka CA
Supplemental Material: none

Family History in Watershed

Erling's father bought the property in 1943 and drained and cleared the land for agriculture. Erling has lived in the watershed since birth (59 years). The farthest upriver he has been on the North Fork is to Boy Scout Camp. Erling owns pasture on Berta Road to Showers Road and runs cattle on property leased from Gene Senestraro in the Martin Slough area. He has a dairy and three manure ponds at the end of Showers Road.

Historic and Current Land Uses

Hammond hauled logs a lot on train to Homes Eureka from Elk River, logging has slowed. There was a lot of logging in the 1960s and 70s. The property Kristi just got, the old ranch below the confluence, was logged in the 1970s, and was once open fields. They have planted a redwood plantation there that is about 20 years old that is probably contributing to flooding up above.

Historic and Current Domestic and/or Agricultural Water Uses

The main house water is supplied by a spring and an artesian well was on the other house 55 years ago. The wells on the other side of the valley are no good. Erling irrigates with water from the river for his fields and has not noticed a change in water quality.

A couple of weeks after the rain stops, the water clarity returns. The water is slightly dark from the algae, but you can see the bottom two–three feet deep.

Historical and Current Watershed Conditions

Channel Structure

Erling recalls large gravel bars along his reach with deep pools, mostly three – four feet deep, with some four – six feet deep, and a few even deeper. The gravel bars along Erling's property are still present in spots but there is more silt. The river has always had many bends, and the meander has not changed.

Erosion

There doesn't seem to be an erosion problem along the property.

Flooding

The winter rains saturate the ground, and because the soils are clay, the water just sits there like a sheet, it takes days to dry out. It floods after long rains every winter. The river used to run hard during the winter at Berta Road, but now it comes down past the bridge to Showers where Erling had to build a dike around the barn to keep the water out. The last big flood was

in 1997. In 2001 there were about 12 medium (16 inch) floods and four–six medium floods in December 2002, but none that severe.

Erling does not believe that it floods as much as it did historically. He says that it used to be three–four inches deep in the 1950s. It flooded more frequently, and the water stayed longer. Now the water rises fast and recedes faster—usually in 12 hours. In the 1970s the river broke through the banks and went straight through at the Russ ranch. They tried to fill in the bank there.

The flooding in the lower reaches of Elk River is more prevalent. The water comes over Swain Slough dikes more often because the dikes are worn down which contributes to flooding at the golf course. There is no tidal effect or backup at his property.

Sediment

Floods deposit approximately one–two inches of sediment per year on Erling’s fields, totaling about twenty–twenty-four inches over the last forty years. The banks have built up too, with more brush along them. The whole valley is clay; there is only eight inches of topsoil so the sediment that settles in the fields after flooding is good in Erling’s opinion.

Riparian

Erling remembers the river used to be more open (less willows), and he was able to walk up the riverbank. There were jams but you could walk on the gravel bars. The riparian corridor has always been willows, with not many alders. Erling’s father cleared the property with a Cat when he bought the property in the 1940s. It was all willows and berry vines then.

Erling has observed that there is not much debris coming down in the winter anymore. There used to be logs, but now it is mostly branches. Some large chunks get tangled up in the willows and create jams. Erling does not think the fish can get through the debris jams when the water is low. He clears the banks where the willows take over the pasture but does not touch the stream channel. He would like to see the willows cleared out of the creek.

Fishing and Fish Observations

Erling fished in the small tributaries on the mainstem and North Fork, mostly for cutthroat. He fished up on Elk River Timber Company land in Browns Gulch and other small streams, where there were small pools. He also fished in little streams below Clapp Gulch (unnamed). The mid 1960s was the last time he went fishing. Erling never went to watch spawning, but has found spawners in his fields after floodwaters recede. He only noticed fish coming up when it floods.

Current Social Conditions in Watershed

There is less agriculture land in the valley than in the past. Erling thinks that the floodplain should be kept for ranching which, in addition to providing agriculture land, provides wildlife habitat.

More houses are being built out of the floodplain. The Elk Courts development is a new addition to the valley. Erling does not like the CDFG management of the old dairy. He believes that the grass needs to be cut so that the geese will stop coming to his property to eat the new grass.

Watershed: Elk River

Address: Joe Russ Russ Ranch Partnership 655 Bear River Road Ferndale CA 95536
Lane Russ 7025 Elk River Road Eureka CA 95503

Date: September 29, 2003

Interviewer: Tamira Jones

Interview Location: Fernbridge Store

Supplemental Material: Elk River map (attached)

Family History in Watershed

Joe leased the property in the 1960s from Sim Zane and bought the property in the 1970s. Before that, it was an active dairy ranch. The property line follows the river from Berta to John Estevo's yellow house above Zane Road.

The property has always been used for agriculture and timber on the hill slopes. The Russ family keeps cattle on the property. They have two major pastures between the river and the road. There is a fence along the property line so the cattle cannot access the creek. The property consists of one to one and a half miles of stream footage. They selectively logged their ownership in Elk River in 1991 and will probably log again in the next twenty years. Joe currently lives out Bear River Road behind Ferndale. Lane Russ, Joe's son, has lived at the property since 1990.

Joe and Lane recommended talking to the following additional ranchers in lower Elk: John Giacomini, who has been there since the 1900s, is now in his 80s. His ranch is located below Berta Road; Gene Senestraro on Martin Slough; Chris Prior, who has a beef ranch bordering the Department of Fish and Game property at the bottom of the watershed; Francis Shanahan has property between Giacomini and Prior; John Estevo, who has 100–200 acres on both sides of the river (bordering the Russ property); and Lane talked to a man named Richard who lived in upper Elk from the 1940s to the 1980s, and could get the telephone number if necessary.

Historic and Current Land Uses

The Russ family has ranned in Elk River since the 1960s. Joe farmed potatoes for a short period in the 1970s. The property is half agricultural and half timber. After the harvest in 1991 on the Russ property, they monitored the silt in the drainage ditch on the property. There was no substantial silt coming off the plan.

There was not much logging when Joe moved in. Sierra Pacific Industries had bought Elk River Timber and logged heavily in the 1980s on the South Fork. Pacific Lumber got the Emerson property [Clapp and Railroad Gulch] in the Headwaters deal.

Historic and Current Domestic and/or Agricultural Water Uses

Joe used to irrigate east of Zane Road , but has not irrigated recently. The Russ's never used the creek for domestic use, because they have a spring and artesian wells. There is a well for the barn for watering the cattle, which has too much iron, heavy metals, and tannins for domestic use.

The river has always been muddy and clears about a month after the last heavy rains. After a six inch rain the river turns muddy quickly. In the last ten years they have had several six inch rains in a 24–48 hour period. Lane has not noticed a change in response time from when rainfall starts and peakflows.

Historical and Current Watershed Conditions

Lane has a picture from 1920 of where the forest line used to be after it had been clear-cut in the late 1800's. Over time, the timberline has crept down lower into the valley.

Channel Structure

Joe and Lane haven't noticed any drastic changes in the channel appearance. The river channel has not moved since 1900 (when railroad was built). The old railroad grade went straight across the field so the bend has remained where it is. The river has not moved much within the channel, and the channel is steep and entrenched. The river does eddy around the willows, at Zane Bridge it eddies on a sharp bend and is cutting at the bank. The river was starting to cut through at the bend, so Joe put some cement chunks along the bank in the 1980s to protect it. That is the only bank erosion that Joe and Lane have noticed.

Neither Russ has observed channel aggradation. The channel bed does not appear to be getting higher, evidenced by the still visible footing at Zanes Road bridge, which has been there since 1900. The banks do not appear to be building up either.

There was never gravel in the creek as long as the Russ Family has lived there. The substrate is chalky clay. There are not any deep pools more than three feet deep. When there were debris jams there used to be four foot pools behind the jams.

Sediment

Twelve-inch drainpipes were installed in the 1950s to drain off the water from the fields when it floods. The pipes are still functional and have not been buried by sediment. They have never had to "re-farm" because of the silt. There's been no silt build-up in the fields. Lane hasn't seen any sediment build-up on the fence posts either.

The soils are mostly underlain with sand. Lane has noticed digging holes on the property that it is mostly sandy below topsoil.

Flooding

Elk River valley has always flooded. Floodwater comes through the field at the big bend, where it floods before anywhere else. Elk has always breached banks four–five times per year.

Lane noticed in the mid 1990s there was a lot of flooding. From 1998–1999 there was no flooding because they only had 70 percent of normal rainfall that year. 2002 was a big year for flooding, but Lane thinks the worst flooding took place in 1996. Lane says it is evident when it is going to flood because after two weeks of rain the ground is totally saturated. Furthermore, the high tides in December cause the water to slow and back up above.

The weather pattern has changed in recent years. It used to start raining in September and now it does not start until December. It used to drizzle all winter long, but now it rains more at one time.

Riparian

The channel was overgrown when they first remember it in the 1960s and 70s. There was one debris damn after the other. In the 1980s the CCCs cleared the creek on their property. They were the first landowners to agree to give access so they had their reach cleared of willows and debris in the channel before the CCCs ran out of money and did not clear anywhere else. Joe does not think there is the amount of wood coming down that there used to be. They have not seen jams like there is in the lower reach since the debris on their stretch of river was cleared. Joe thinks there may still be big pieces of wood below Berta Road.

Fishing and Fish Observations

Joe and Lane never fished. The only salmon they have noticed are those who cut across the fields during flooding. Spawners “short-cut” through the fields when the river is running high and fast.

Current Social Conditions in Watershed

A land use change in the watershed has been the increase in development along the North Fork, especially on the north and south hills in the lower valley. When the City of Eureka extends water and sewer out to the valley there will be more houses. Now all the houses are on individual septic. Currently the city water stops at Berta Road.

Joe and Lane would like to see agriculture continue in the watershed. They are also concerned how new regulations will affect them and their plans for logging in the future. They do not have an NTMP, but have paid for a past Timber Harvest Plan and infrastructure on their holdings. The family logged to pay off inheritance tax, but the THP cost has gone up 100 percent in the last ten years. It seems that the cost of logging forces landowners to cut more trees to pay for the plan. THP costs are continuing to go up because of the regulation designed as a result of timber company activities. The newest water quality rules that people are pressuring for are meant to deal with PALCO but are going to affect smaller landowners. Most landowners do not know how they are going to be affected [by the TMDL]. For example, after the TMDL requirements are in place, ranchers will not be able to cross the river with their cattle. Lane thinks that sediment impairment recovery is going to take is being patient and letting nature takes its course.

The Russ' do not touch the willows in the channel, but Joe believes they lead to jams and cause flooding and block access for fish. Joe would like to have the creeks cleared again.

Watershed: Elk River
Address: 2390 Wrigley Rd Eureka CA 95503
Date: October 2, 2003
Interviewer: Tamira Jones
Interview Location: Residence
Supplemental Material: none

Family History in Watershed

David's father built the current residence. It is located about 70–100 feet away and twenty feet vertically to the river. David grew up at this house and moved away from 1986 to 1993. His grandfather moved here around 1948. His grandfather owned most of this part of the valley and lived where Ralph Kraus now lives. He sold it off in lots at some point. David's grandfather did a little ranching and no other kind of agriculture.

David recommended speaking with Marvin Lowe, who is 72 years old and moved here in the late 1950s. He lives across the river in the red house.

Historic and Current Land Uses

David platted redwoods fifteen–twenty years ago to stabilize the bank where it had slipped out. The bank has remained stable since they were planted. They have shaded out the less desirable undergrowth but most of the bank is thick willow and impenetrable.

Historic and Current Domestic and/or Agricultural Water Uses

David still pumps for domestic use but they buy drinking water. This time of year the water is not drinkable, it is too high in iron. He cannot use galvanized pipes because they get plugged up. The Nichols' used to drink the water but do not think it is a good idea to drink surface water. They do not pump in the winter, but instead collect rainwater. The river has never been pumpable in the winter. David's mother lived in the watershed and did not notice a change in water quality in her lifetime.

Historical and Current Watershed Conditions

Channel Structure

The river was plugged up till the CCC's cleaned the whole system out in the late 1970s. Once they did that David began to see fish again. There were logjams behind the house, one was 100 yards long with logs up both banks. There were once deep pools beneath the logs where they would fish. Now they very seldom get jams, because only small debris comes down with the occasional chunk.

David does not think there have been changes in the channel alignment. He has noticed that the river has been uncovering small logs that have been there for a long time. There has been bank erosion where an alder went down three years ago and scoured the bank. David took it out of the creek. There is a six–eight foot pool where the alder was which will probably eventually fill in. There used to be a large redwood stump off the bank that had a deep pool

where they fished. Whenever a tree goes down he takes it out. He does not think most people do anything with wood in the creek or stream vegetation. He used to haul logs out of the South Fork for firewood.

David swam in the creek as a child, and says that there were not very many places deep enough to swim. They would sometimes go to the church camp where they had a dam with a pool.

The North Fork does not have the gravel like there is on the South Fork. This reach has always had gravel, and David has not noticed silting in of gravels. He thinks there is less silt now, when the water comes up on the road it used to leave two inches of mud on the road in the 1970s. Mud used to cover the grass in the yard.

A small creek coming off Ralph Kraus' property comes through the property via a culvert. The creek drains a mature second growth sub-watershed. During high-water, the culvert backs up. They had a mound of dirt 2-2.5' high where the sediment settled out at the mouth of the culvert.

Flooding

When David was in elementary school they used to get the call that the river was flooding and would get bussed home through rising water on the road. There would be floodwater on Berta Road about one foot deep, which would be the same height when they got to Wrigley Road. Now it takes the water four–six hours to get from Wrigley Road to Berta Road, when it used to seem like it flooded at the same time. Sometimes it is totally impossible at Berta Road but not near his property. It takes longer to drain out of the valley. David believes the vegetation slows the water down and contributes to flooding. He has not seen a connection between flooding in the lower reach and tidal action.

During David's childhood it flooded three–four times a year on average. Now, it floods about the same frequency, depending upon the rainfall. Last December was the highest flood ever.

Once the river overtops its banks it slows down and it takes a lot of rain to raise it another one inch.

Riparian

There is an increase in willows and alders and brush. There used to be thimbleberry but people cleaned out the vegetation. During the drought in the 1980s, David noticed an increase in willows. Before that, the river was a straight open stretch, and you could see the road from the river. Marvin Lowe who lives in the red house across the river has a picture of behind his house with nothing on the bank.

David tried to keep the banks clean, there used to be no debris or streamsider vegetation, you could walk along the North Fork bank. The willows seem to fall into the creek after about ten years. Growing up there was a lot fewer trees, and never conifers. David has planted four redwoods. Old-growth stumps are present along the creek.

Fishing and Fish Observations

David went fishing as a child, catching mainly rainbow trout behind the house up into Pacific Lumber Company property. There were not a lot of coho or salmon in the creek back then. David does not remember seeing spawners, but he has seen spawners in the last couple of years; although, he has not fished in a long time. David has spent a lot of time on the South Fork. He used to chase fish (salmon) up the main fork. He remembers Tom's Gulch being plugged up and silted in, not allowing passage. Railroad and Clapp were also choked up with debris. Little South Fork had a lot of water but becomes too steep for fish.

Current Social Conditions in Watershed

David thinks the health of the creek depends on the trees on the bank. He would like to see more redwoods along the creek. He knows trees are needed for pools but wants good trees not junk wood.

Interviewee: Paulette Kallo
Address: 2001 Wrigley Rd. Eureka CA 95503
Watershed: Elk River
Date: October 8, 2003
Interviewer: Tamira Jones
Interview Location: Residence
Supplemental Material: Photos

Family History in Watershed

Paulette Kallo has lived in Elk River since 1997. She bought the house from Debbie Bendall who also lives in the watershed. The house, located across from the concrete bridge, about 100–150 feet from the river, was built around 1914 according to Paul Mazzuchi. When she bought the house she was told that there was a flooding problem and that the river water was good for domestic use.

Paulette interviewed Paul Mazzuchi about his historic memories on the watershed and gave a copy to Jesse Noelle of the video. She recommends talking to him as well as Steve Cave, Chris and Norm Pastori, Phil Nicholas, Keith and Luwana Martin, Marvin Lowe, Donald Brewer, Scott and Susan Keel, Donna and Monty Lowe, Marcy Bohannan, and Ronda Hollenbeck.

Historic and Current Land Uses

Paulette has lived in Elk River for six years so her memory of the property is not historic. The changes she's had to make to the property have been related to renovating the house and home repairs related to flooding damage such as replacing the porch and steps, floors, new paint and going through the process of having a new water system installed.

Historic and Current Domestic and/or Agricultural Water Uses

At the time that Paulette bought the house, everyone pumped from the river. Paulette moved into the house in August and took a water sample in September to the Health Department, because she was concerned about the water quality. It had a bad smell, was full of particles, and was discolored. She contacted CDFG, CDF, and the Humboldt Watershed Council. The Health Department said it was unsuitable for consumption. They did not test for chemicals but they found heavy levels of bacteria. Paulette is concerned about herbicide use on PALCO land up river contaminating the water. She started buying bottled water after September 1998. Paulette then called Water Quality who issued a Cleanup and Abatement Order which required PALCO to provide bottled water for drinking and to fill the tank for domestic use. They think that they're going to put everyone back on river water with new elaborate filter systems. Paulette does not use the river water for domestic use, and is skeptical that it will be suitable for drinking with the new system. Paulette wants Water Quality to test for pesticides in the water.

Paulette's former system was a sand and charcoal filter, treated with bleach. The new system that SHN is installing is similar but more complicated. In the winter they collected rainwater

and still do. They use water to irrigate the lawn and trees. SHN is redoing the waterlines after sealant failed in their tank and ruined the plumbing. They drilled a well by the road but did not find suitable water. There are springs up on the hill behind the house that have not been tapped. [Joelle from Water Quality has letter Paulette wrote detailing her recent water use issues.]

Paulette had the septic tank checked and emptied last year. It has not failed yet, but the leach lines have not been examined.

Historical and Current Watershed Conditions

Erosion

Paulette has noticed bank erosion after it floods – the sides of the river channel are falling in.

Flooding

After the disastrous flood of 1997, the landowners sold the house to Paulette. The water did not come into the house nor has it yet. The small house they rent on the property had floodwater in it, it has been raised, and Paulette has replaced the floors, carpet, and porch steps and painted. The little house flooded last year. The lady who was renting there had to move after her belongings were ruined.

December 2002, the Kallos had to be rescued by the Fire Department from their house with a boat. The water rose so fast it went from the first step of the house to the third in less time it took to watch a movie. In that same flood in December 2002 people had to be helicopter rescued from Berta Road. The front yard was totally underwater and water had surrounded the house. Paulette has stopped people from crossing her yard when it floods because of liability. People take boats across when the road is underwater. That flood took three days to recede, then two days later it rained and flooded again, taking another two days to recede.

Paulette has noticed the flooding getting worse; she worries every time it rains. Almost immediately water begins to rise after it rains, she believes the peakflow times are increasing. They've had floods as late as April. A flood in her determination is when you cannot drive through the road (three–four inches of water). She has observed the land around the house getting “bumpy” where it used to be level from the flooding. The floors in the house have warped because of the peg and post foundation.

The floodwater leaves three–four inches of mud behind, and there was mud and silt left on her porch after the December 2002 flood. It coats everything including the grass and under the house. Paul Mazzuchi has told Paulette that the sediment is building in the channel to create a large sediment bar in the creek. There is a petition to dredge the river by landowners encouraging PALCO to cover the costs.

As soon as there is heavy rainfall the river is mud, and it is unpumpable. When it clears you can see the new sediment buildup. Until the winter rains the river typically experiences low flows.

There are no significant pieces of wood coming down, only small debris, nothing that they have had to take out.

Fishing and Fish Observations

There are no fish hanging out in this reach, no fish could live in it in Paulette's opinion. She hasn't seen any spawners coming up since she has lived in Elk River watershed. The only fish she has seen have been up the river, and they are just small fry. Paul Mazzuchi told her about finding fish in the fields stranded after floods.

Current Social Conditions in Watershed

Paulette is concerned about the new water delivery and filter systems being installed by SHN for residents affected by loss of water pumping capabilities. She wants to make sure she knows how to operate the systems as well as the other landowners that have them.

Watershed: Elk River
Address: 6071 Elk River Rd. Eureka CA 95503
Date: October 10, 2003
Interviewer: Tamira Jones
Interview Location: Residence
Supplemental Material: none

Family History in Watershed

Paul has lived in Elk River 67 years. He was born at his current residence which was built sometime before 1904. His grandfather moved here and owned a store in Elk River in the early 1920s. The store had a gas pump and was located where the garage now sits. They used to have a small diary and a few beef cows until the Ridgewood Road was built and prevented access to leased pasture. Ridgewood Road was built in 1958 cutting the dairy off from pasture in the Westgate area. Paul still maintains a few head of cattle.

Paul's sister lives on the south side of Elk River Road on Zanone Road.. She has four houses and has lived there since 1946. She is not directly on the creek.

Historic and Current Land Uses

The most grievous land use change has been the construction of the Ridgewood Road in 1958. When the County put the road in it disturbed the soil on the slope which deposited soil into Paul's fields. The silt from the road washed down in ditches, floods and gullies. Paul's flat land on the north side of Elk River has approximately one foot of silt. The ditches which he once kept clear relatively easy are still filling up with silt. Fence posts are buried two–three feet in height at a farm along Elk River. Landslides are prevalent along the hill slopes, and small size slides along Ridgewood are common. The road used to cave in and take out one full lane and the fill would ultimately end up in Paul's fields. He has a gully which has been dug out of his hill slope, the water continues to trench deeper.

Historic and Current Domestic and/or Agricultural Water Uses

Paul's residence originally was on springs above the house until the subdivision septic systems contaminated the water. They went on County water in the 1980s. Elk River has a problem with septic because of the clay soil. People are reverting to mound systems. The subdivisions on Westgate and Ridgewood all have individual septic. Growing up Paul always had a septic, before which they had an outhouse.

Paul's father grew strawberries on his property and adjacent property, which at that time was irrigated, but that was before Paul's time.

The color of the creek has gotten darker, likely due to the vegetation and silt in the creek and low flows. Paul feels that the river is never really flushed by winter rains.

Historical and Current Watershed Conditions

Channel Structure

Paul has noticed there is not much gravel in the river anymore. He believes it had to have been deeper at one time when logs were hauled down the river with horses/oxen from the banks. The river had to be clearer of vegetation and debris too. There used to be deep pools that were used for fishing; he hasn't noticed whether there are still pools along the reach.

Erosion

Paul and his father used to clean out the ditches on the property when he was young. Back then the ditches would get clogged with grass. The ditches were likely natural water channels approximately ten inches deep, and now are so entrenched they appear like canyons. They are channeling runoff from roads and roofs from hill slopes and homes. The hill slopes are "mucky" clay. The little tributaries to Elk River get lots of water moving down in the winter and move a lot of silt.

Flooding

Last year there were a lot of floods because of the rain. Paul thinks there are less floods and not nearly as deep. In 1972 was the last biggest flood. People along this reach have not experienced flood damage. Floods have been inconvenient for road closures. They raised the road, it used to be level; now it acts as a dike. It floods much higher at Berta Road. Before there was Ridgewood Road, residents would use the "new road" straight up the hill, where Westgate Road is. Water would make Elk River road impassible but recede within a day or two. Berta Road would remain flooded for a few days. Paul was Superintendent of the schools and had to advise bus drivers to cross the road when there was water. Paul would estimate that the road would be flooded three–four times per winter. On occasion they would have to drive the Elk River school children home early if the river was flooding.

Elk River overflows at Zanes Road and Showers Road. The water spreads out down lower and flushes into bay fairly quickly. Elk River raises fast and recedes quickly. Paul knows the river is going to rise after one – two days of hard rain. They have not had steady rains for years except for last winter.

High-tide and floods coincide. High-tide results in water backing-up.

Riparian

Paul is concerned about the cut grass growing in the creek and along the road. Paul never saw the grass until recently and thinks it is spreading quickly; it forms a thick mat in the creek which could make it difficult for fish to move through.

Also of concern are the willows in the creek. Willows were cleared regularly and not allowed to grow into the fields. Paul does not remember there being any other kinds of trees in the channel. Paul has not seen any large wood in the river. He does not think that it could get down the channel now because of the thickets of willow in the channel. Before the willows were so thick, the river would be flushed every winter.

Historically there were trees where the pastures are above Paul's house. Redwoods have since seeded into the pasture with currently mature trees on the property. In the late 1950s they

logged the property which had a few old-growth trees at that time. Old-growth stumps can still be seen. Paul's grandfather and father cleared the property of trees for the cattle in the 1920s and 30s.

Fishing and Fish Observations

Paul can remember looking across the river and seeing the fish moving up the channel. They were big sized fish, mostly salmon with some steelhead. He would fish with a line trying to hook them when they went by or gaffed them. This was in the timeframe of the 1940s and 50s. Paul remembers watching fish jump over the dam at the old pumping station. The popular fishing hole was Squaw Bend below the pump station. He saw fish till late 1960s to early 1970s but has not been down there in years. Paul still sees small fish in the lower reach, the biggest being five inches.

Current Social Conditions in Watershed

Paul was on the Citizen's Advisory Committee for the Eureka Community Plan and walked the potential expansion area for the County. Paul is concerned about the number of homes expected to be developed on the Elk Valley slopes and the associated road building. The geology is erosive and his experience is that the silt eventually comes downhill into the river.

Paul remembers when people built their homes in the floodplain near the concrete bridge. Watershed residents thought it unwise to build there because it flooded.

Paul has noticed that agricultural uses have changed. There once were more cattle, now people have an acre or half-acre and board horses. There is little grass in their pasture, just bare dirt, which creates runoff in the winter.

Paul believes that changes in the watershed are not from one source and in his reach it's a combination of roads and housing development. It is not just logging, everyone is contributing.

In Paul's opinion, there are so many landowners in Elk River it would be difficult to reach them all to get consensus. It seems like big landowners get more help from agencies than small landowners that don't already have projects set up. Paul at one time had been interested in doing an erosion project or irrigation of his property but didn't have established irrigation so, along with others, he didn't qualify for assistance.

Paul believes that Elk River really needs a major clearing out. Also, hills around Elk River need protecting from disruption of soil that winter rains carry into the valley floor and ultimately the river.

Watershed: Elk River
Address: 7387 Zanes Rd. Eureka CA 95503
Date: November 22, 2003
Interviewer: Nicole Murano
Interview Location: Residence
Supplemental Material: none

Family History in Watershed

John has lived in Elk River 47 years. He was born at his current residence which is on 160 acres. His paternal grandfather moved here and purchased approximately 187 acres of land as a dairy farm in 1919. His maternal grandfather owned 45 acres on the north side of the river, which has become part of his current 160. His father worked in the construction business for part of his life, but worked the dairy later until into his sixties. John's uncle inherited the adjacent parcel (27 acres), but moved off the ranch and raised his family in Cutten, and the 27 acres was recently sold.

Historic and Current Land Uses

The Estevo property has been used as a dairy farm since 1919. Currently the dairy has 121 milking cattle. The dairy has been a Grade A dairy since the 1970s and a loafing barn was built in 1984 for the cattle to spend time in during the winter. His grandfather logged the property before John's time, and his father selectively logged the timber areas on the eastern part of the property in the 1970s, instigated by a windstorm in December 1977 that resulted in a blow-down.

Historic and Current Domestic and/or Agricultural Water Uses

John pumps water from Elk River for summer irrigation but not for household use. John's residence receives water from a spring located on the property. The cattle have access to the river for drinking water.

John's residence and barn are on septic. He has two 2500 gallon storage tanks. Once a month he drains the sand out of one of the tanks. The hills are like sand dunes, so it is just a fact of life out there that there will be some degree of sand in your spring and septic system.

Historical and Current Watershed Conditions

Channel Structure

Historically, John is mostly familiar with the river at his property, because he did not frequent other parts of the river as a child. The northern property boundary spans about 1-1.5 miles of the Elk River. John says that there was at one time more gravel in the river. The substrate is very sandy now. There used to be deep pools that he fished in and swam in, but the pools are not as deep as they once were. John believes that in his lifetime the river was really at its peak in the early 1980s when the CCCs pulled out the log jams. The City of Eureka used to do the same thing when they had the pumping station. The course of the river has not changed much as far as John remembers. There are three small tributaries that run through John's property into Elk River.

Erosion

The saturated banks slough into the river on John's property.

Flooding

Elk River overflows at Zane's Road and raises fast and recedes quickly. John says that it used to take a good four days to reach the level of flooding that now comes unpredictably in a very short matter of time once the ground is saturated. Flooding deposits a fine sediment on John's fields altering the topography of certain areas on his property.

In 1982, John installed a 1300 feet underground plastic pipe in order to drain water off his fields. He put in one inch slope for every 20 feet of pipe length and that is working fine to drain the water and keep the sediment flushed through. It would be impossible to keep a ditch in the fields because a ditch would just fill up with sand.

Sediment

There used to be a substantial amount of water all summer long, but now there is very little water left in the river through the summer. It is getting more difficult to irrigate with these low flows because of the sediment. John has some fine nets around the suction to keep twigs and leaves out, but the sediment is too fine. John has to replace parts of his irrigation system due to the high sediment levels wearing down parts. Parts that he once replaced every ten years, he now has to replace every couple of years. John and I walked around his property during the interview, and he showed me fence posts that were buried two–three feet in sediment. Before a flood, the river breaks on John's property before it breaks on the Russ property on the other side of the river. It appears that the sediment is mostly dumped at John's since the Russ property does not see large inputs of sand after a flood event.

Riparian

John doesn't remember there being any other kinds of trees in the channel (other than willow and alder mostly with spruce in some areas). The riparian area contributes to log jams. Occasionally John pulls some of the wood out with his tractor, clearing the channel.

Fishing and Fish Observations

John remembers fishing in the river along his family's property, mostly smaller fish. He believes now that if you put a net across the river to determine fish presence you would not find any or very little--they seem to be gone. John has only seen one or two spawners going past, and not in recent years.

Current Social Conditions in Watershed

The biggest concern that John expressed is the rate of harvest in the upper watershed. John and his wife, Toni would like to see the upstream landowners in the watershed return to more of a sustainable practice. For a long time he supported the timber industry, but over the years he has become skeptical of their practices, as he sees more and more sand in the river bed, and the increase of frequency and severity of flooding. John is a pilot and flies over the watershed and is alarmed at the amount of cutting that has occurred since the Headwater's Deal. John is also concerned about the costs of timber operation inflicted on smaller landowners because of the regulations enforced as a result of the actions of larger companies.

Watershed: Elk River

Address: 2550 Wrigley Rd. Eureka CA 95503

Date: November 30, 2003

Interviewer: Nicole Murano

Interview Location: Residence

Supplemental Material: Current Photos (CD)

Family History in Watershed

The Wrigley family has been in the watershed since 1885. Kristi's grandfather worked as a wheelwright at the Falk Mill. The family lived in a number of places in the Elk River valley. George Wrigley, Kristi's grandfather, bought the property where Kristi currently lives in 1903. Her father, Irving Wrigley, the youngest of nine children was born there in 1908 and lived there till he died in early 1995. The property has functioned as a home and apple orchard since at least 1885. The property at the apple farm totals 25 acres and is composed of two parcels. One parcel contains the house and orchard, and the other is 12 acres zoned for timber production (TPZ). Kristi lived on the farm from her birth in 1946 until she was 20. She married, went away to college and lived out of the area from 1968 to 1978. She moved back to the area and worked the farm with her father from 1979 through 1995. Since then she has worked the farm with her children.

From a historic perspective, Kristi is most familiar with the North Fork Elk watershed from the apple farm to the Boy Scout Camp because that is where she swam, fished, and played throughout her childhood. She is very familiar with the condition of the river around the farm as it forms the defining boundary of the orchard.

Historic and Current Land Uses

The apple farm has been in production for over 100 years. An orchard was originally planted around 1885; further plantings were done periodically over the years by both Kristi's grandfather and her father. The present orchard was planted in the mid-1960s, mid-1970s and the early and late 1980s. The present home was built in 1950. It sits on a hill 20 feet above the orchard and over looks both the orchard and over a quarter mile of the North Fork of Elk River. The "new" apple house which is down the hill and directly below the south end of the present home was built in 1958 (the flood water now threatens to invade this structure). The "old" apple house which is south across the parking lot and still partially standing, was built in the 1920s. The orchard comprises about eight acres. -The Wrigley's have periodically logged the timbered portions of the property. In the 1960s, Humboldt State University was involved in a selective logging study, and they again selectively logged this same property in the mid 1980s.

Because of the increased degradation of the water quality in the mid-1990s an ISCO sampler was installed by Salmon Forever approximately three years ago in order to gauge and record turbidity levels flowing past Kristi's property.

Historic and Current Domestic and/or Agricultural Water Uses

Kristi's comments regarding changes that she has observed in water quality are documented in the first Independent Scientific Review Panel (ISRP) report and the many written and spoken comments she has made to both Water Quality Board and Staff since 1997. Water from the river has been withdrawn by the Wrigley family for typical agriculture and domestic use since 1903. The family also had a system to get some rainwater from the roof of the house, but the bulk of the water used came from the river. The family has had gardens, but used most of the agriculture water for propagating trees. One of the most significant water-use activities associated with farming a conventional orchard is spraying, which is typically done in the spring. The Wrigley Farm operates with the philosophy that less spray is best, and uses mostly fungicides. Kristi has sprayed regularly with her father since 1979. The water for spraying was pumped directly from the river into the spray equipment and her father taught her to "read the river" which meant observing its quality and determining its usability for agricultural purposes. If the river was too muddy, they would not put it into the spray equipment because it would damage the equipment. It is also important not to dilute the sprays with water that has a lot of clay in it. Typically in the wintertime water could be pumped within three–five days after a storm, but now it takes a week to ten days, if not longer, to be pumpable. By 1992, Kristi could not use the water directly from the river as dependably as they had in the past. She has seen an increase in the level of turbidity and the degradation has continued to increase over the years. In November of 1997 the turbidity was so bad, that the water was not pumpable until May 15, 1998. When the water directly from the river was not useable, they had to use the stored water that was used for the house. Kristi noted that although others in the North Fork watershed were not farming as her family was, they also began to see changes in water quality such as, more silt in their toilets, coffee tasted funny, showers were gritty, and silt collected in creases of clothing when laundered. Between 1990 and 1993 these changes were noticeable and from 1993 through 1995 they became increasingly significant, and by 1996 water quality had become unacceptable all of the time.

The water in the summertime had nothing but mud, moss, duckweed, and algae, and was a muddy raging torrent most of the winter. It became unusable for domestic or agricultural uses by the mid-nineties. The water is also a lot darker in the summertime because of the increased tannins resulting from more trash wood and vegetation in and around the river.

Historical and Current Watershed Conditions

Channel Structure

Kristi's memories of Elk River are of a succession of pools, many of which were six–eight feet deep, and riffles separated by rocky gravel bars. She describes gravel varying in size from thumbnail to a thumb, to three–four inches down around the farm and six–eight inches of cobbles farther up the watershed. The river was like this continuously (pool-riffle-pool) from the Boy Scout Camp to 1500 feet down stream of the confluence with South Fork Elk River. As one progressed downstream, the gravels got progressively smaller. The river remained in this condition through Kristi's childhood and into her adulthood. Kristi's children were able to swim in the same pools that she swam in as a girl. The river banks were steep and in summer the river was a meandering thread of water between the steep banks. There was a lot less small wood creating log jams. A large log that Kristi and her youngest son, born in 1982, used to fish from is now buried under sediment. The river banks

are more at a sloping 45 degree angle (as opposed to a steep 65–80 degrees) because there is now so much silt deposited throughout the system. Kristi notes that these dramatic changes occurred over a short 10 year period of time, 1987 to 1997. They were not merely the slow accumulated change over a 40 to 50 year period of time. Once a wide “U” with a meandering watercourse between gravel river bars, the river in its current state, a straightened channel of wide flat slow moving to no moving water in summer with silt crowding in the banks, covering the once gravel river bed and bars, is foreign to Kristi.

Erosion

The erosion that occurs on the Wrigley property involves sloughing of the bank into the river because it is frequently saturated with flood waters. Erosion has also taken out whole side banks of the river and straightened the channel. Many trees fall into the river as well.

Sediment

Kristi fished with her children and noticed that around 1990 the river bars were becoming soft and squishy. By 1992 mud on the side of the creek became much more prevalent, and the river bars became increasingly soft. As mentioned previously, the banks, which were at one time steep, became gradually sloped because of an increase in sediment. The carrying capacity of the channel has decreased. Fence posts and tree bases are buried in sediment on Kristi’s property. One tree in particular looks like three trees coming out of the ground because over two feet of the base is covered, and what you are really seeing are the first branches. This sediment deposition occurred between 1987 and 1997 according to Kristi. A two-foot extension was added to part of the perimeter fence in the early nineties because deer started jumping the fence. Kristi mentioned that if the sediment had deposited much earlier than that, they would have had to extend the fence a lot earlier.

Flooding

According to Kristi, flooding has increased dramatically in the last ten to twelve years in the Elk River watershed. A significant fact being that between 1958 and 1964 Kristi did not miss a day of school due to flooding. There are areas that have traditionally flooded (e.g. the road at Dead Woman’s Corner near the left-hand turn onto Wrigley Road from Elk River Road), but not nearly the frequency it floods today. This area would historically flood three–five times in ten years; last year (HY 2003) it flooded eight times from November through late April.

Elk River has a main channel, a secondary or side channel, and the main floodplain. The side channel has been flooding eight – twelve times per year since 1995. In 2002 (classified as a moderately rainy year), the side channel was flooded at least eight times. Historically, these floodplains are used for farming, and only partially flood once every few years. The 1964 flood did not rise beyond the secondary channel, which has clearly been silted in (see sediment section below). An area of the orchard known as “Playpen II”, the most eastern upstream portion of the orchard has not been productive. The trees, planted in 1990, have been flooded repeatedly, as much as a dozen times a season, in an area that historically flooded once every three–five years.

Surrounding the orchard is a fence, built at various times from the early 1960s through the late 1980s that at one time would only be inundated by floods water three times in a ten-year

period. That fence is now flooded from three to a dozen or more times per year. The floods encroach all the way to a second fence, which is 200 feet further from and five feet higher than the creek. The flood waters now frequently (from once in three years to three times in one year) flood over the top of the now destroyed fence that surrounded the orchard, and once protected it from damage by deer and bear. Kristi has about 500 Waltana apple trees (a local variety) that have been severely negatively affected by flooding because of the effect of flooding on soil conditions; the increased water table, the increased frequency of overland flow, and the deposition of clay soil. The main Waltana orchard which covers the 300 to 400 feet wide floodplain from top of river bank to base of the hill, now completely floods. These trees are stressed and unproductive. Other trees in the orchard are dead and dying because of Phytophthora, a root fungus, which is now rampant in the soil. (Kristi had the soil tested in 1995 and the fungus was barely detectable. In 1997 she saw the first signs of the disease, and by 2002, it was rampant in the soil). Before 1995, during a typical year the Waltana orchard yielded between 900 and 1400 twenty-five pound boxes that now sell for \$10 each. In 2003, Kristi got about 50 boxes off those trees. Overall, the orchard should produce about 3000 twenty-five pound boxes, but in 2003 Kristi harvested less than 500 twenty-five pound boxes.

Kristi has been staking the high water marks of each year on her property. December 27, 2002 flood was over a foot higher than the December 9, 1996 flood which was almost two feet higher than the historic December 21, 1964 flood. The flooding continues to get higher and more frequent as the years go by. During the interview, Kristi pointed out high water stakes in the orchard, or marks on the apple house. The stakes for the December 2002 flood were at the base of the hill where the house sits, and over the top of the historic pumping station.

Riparian

With the deposition of silt has come an increase in vegetation along the river banks. Since 1996, invasive Himalayan blackberry has taken over along portions of the property that used to be mostly open with thimbleberry and salmonberry bushes. Sedges and other broad leaved herbaceous plants now grow where only clover and orchard grass grew until 1995. Trees such as alder along the river bank more frequently fall into the river.

Fishing and Fish Observations

Kristi is aware of historic spawning sites on this portion of the river. She used to see fish spawning on her way to school, as she crossed the old railroad bridge that led across the river from her property to Elk River Road. There was another historic spawning site above the old pump site on her property, another one upstream, and another down stream. The spawning would occur in the downstream end of a shallow pool or riffle. The time period that Kristi can speak to this most is through 1964 because that is when she walked to the school bus stop and frequently observed spawning.

Kristi also speaks of her uncles fishing at Lake, McWhinney and Bridges Creek, Railroad and Clapp Gulch. She says that the water was clear, there were small gravel and fish were present in these small side creeks which drain into Elk River.

Kristi fished the North Fork Elk River as a child and took her children now aged 29, 27 and 20, fishing as children in the same pools she had fished in as a child. The fish size and

quantity did not change much until the mid to late 1980s when both size and quantity of fish noticeably increased.

There are no current spawning locations near the Wrigley property now, and Kristi rarely sees spawning fish go up the stream now. In the late 1980s and 90s she and her father noticed that the more fish were coming back up the stream to spawn. They could hear the fish going up stream while pruning the apple trees in winter, and from just outside the house in the evening when it was quiet. At the Wrigley property from 1990 through 1996 the fish population decreased dramatically. Kristi remembers hearing the fish through 1993, but not much after 1994 when heavier winter rains returned.

Current Social Conditions in Watershed

Kristi's family property is at the gradient change and at the bottleneck to the downstream watershed. She has been observing the changes in the river and on her property since the 1950s. She believes that it is disrespectful and demeaning to ignore the knowledge of the long time residents, particularly when their knowledge is based upon measurable observances.

Kristi believes that property owners can do anything they want on their property as long as they do not adversely affect their neighbors and community. She feels that her riparian water rights and her private property rights (most significant of which is to use her land for farming) are being violated because of the affects of the rate, kind, and quality of logging that has been, and still is being done by the upstream landowner. She works in town in addition to running the farm. She cannot continue the family livelihood solely at the farm with conditions as they are now or in the foreseeable future unless meaningful land use activities in the watershed above the farm are changed. Kristi also believes that these conditions are not good for the fish and won't be unless some major changes are enacted soon.

Some entities believe that the situation that has developed and is here today should be blamed on the poor logging techniques of the forties and fifties (legacy effects). Kristi says that those that live in the watershed did not notice the effects until after the logging in the late 1980s and early 1990s. The downstream effects of the logging were manifested when the heavy rain cycle returned. She observed by the late 1980s that the watershed had recovered considerably from the logging of the 1940s and 50s. The forest had grown back and was intact by that time. By the 1990s, the upstream landowner had logged on 65 percent of the 19 square mile watershed above her property.

Logging is the only land use that has ever occurred in the upper watershed. She does not want all logging stopped, but believes that the harvest may need to be limited until the watershed can recover. Logging at the present rate of 600 clear cut equivalent acres a year is four to eight times what the rate of logging (mid-1960s through mid-1980s) was when the watershed experienced recovery from the logging of the 1940s and 1950s. The watershed was not as damaged then as it is today.

Kristi believes that all the public trust agencies should be involved and working with the residents toward doing what is morally right for everyone. It is critical to the health and safety of the residents of the watershed, and the survival of the fish. She believes that the real

issues that need to be addressed are land management issues, particularly rate of harvest and type of logging between 1987 and 1997.

ATTACHMENT A

TMDL Resident Interview Questions

1) Family History in Watershed

- Length of time in watershed?
- Why did you choose to live here?
- What were the conditions in the watershed when you moved here?
- Did you visit different areas of the watershed? Describe their condition and timeframe of remembrance.
- Other people who've been here historically that I should contact?

2) Documentation of Conditions

- Describe what the river looked like at earliest memory and changes over time.
- Have there been changes to the river channel- where were there once meanders, gravels (size), pools (depth and length), large wood, substrate, etc.?
- What did the riparian look like? Tree size and species, width etc.
- Historical spawning sites. Species, numbers, and time of year.
- Recent or current spawning sites.
- Flooding and impacts to adjacent property. Impact to residents.
- Historical and recent frequency of floods.
- Changes in response to storm events?
- Changes in riparian, LWD in stream?
- Do you collect any type of water quality data? Photos, maps.

3) Description of uses of water

- Describe recreational uses such as fishing (species, size, and location), swimming, boating, hunting, etc.
- History of personal withdrawals.
- History of water quality and seasonal changes (i.e. color, taste, flows, pumpable/unpumpable).
- Do you think amount/quality of water in the river has changed and why?
- Any changes in well use and function?

4) Description of land uses

- What are historical land uses you remember on your property and in the watershed?
- What changes have you or previous landowners made to the property?
- Did you work in the watershed in agriculture, logging, etc?
- What changes in land use have you observed? Changes in land use in different areas of watershed? (urbanization)

5) Social Conditions in the watershed

- Have you been affected by landuse changes? How so?
- What are some educational needs in the watershed concerning landuse changes?
- What type of landuse changes or continued landuse would you like to see?

ATTACHMENT C

Includes:

Photos provided by David Boston (CD)
Photos provided by Rick Storre (CD)
Photos provided by Paulette Kallo (hardcopy)
Photos provided by Tiffany Rittenhouse (CD)
Photos provided by Kristi Wrigley (CD)

ATTACHMENT D

Audio Tapes with Recorded Interviews