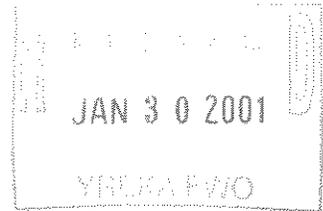


**Salmon River Restoration Monitoring
And Education Program**



Agreement # 14-48-11333-99-J067

99-3194-03

Final Report

Prepared By:

The Salmon River Restoration Council

Submitted:

January 30, 2001

ABSTRACT:

The Cooperative Agreement Numbered 14-48-11333-9-J067, entitled “Salmon River Restoration Monitoring and Education Program” had as its primary functions:

- 1) To collect water quality information on the Salmon River as a tool for Restoration Monitoring.
- 2) To input water quality, restoration activities and watershed education activities into the Klamath Resource Information System (KRIS) system.
- 3) Attend and sponsor technological training sessions to increase awareness of SRRC staff and community members about watershed processes and management impacts.
- 4) Provide technical assistance to schools, the community and community groups.

The Salmon River Restoration Council (SRRC) met its goals under this contract and established itself as a technological leader in the Klamath Basin. SRRC has been a major contributor to KRIS and has recently totally reworked the Salmon River Subbasin segment. We have also provided technical assistance to other groups working with KRIS and have helped lead KRIS training sessions. Our working relationship with the Forest Service under this grant has helped establish the beginning of a comprehensive Subbasin monitoring program. Combined with our Watershed Education Program, SRRC has supported the 3 local elementary schools in ecosystem awareness and technology that will give the students greater perception of the world around them. This exposure ties sciences and technology to the student’s surroundings, thus increasing their understanding of scientific concepts. SRRC shares GIS products with interested people and groups through maps, presentations, publications, brochures and newsletters. This aspect of our public outreach helps adults visualize watershed management concepts and increases their input into the resource management decision-making process. Overall, this Project has helped increase the Salmon River Community’s awareness of watershed processes and makes us better stewards of the land.

INTRODUCTION:

The specific tasks outlined in the contract and completed under this grant are listed below:

- ◆ Attend meetings on technical Subbasin issues and information sharing.
- ◆ Collect information from hobo temps identified as SRRC responsibilities.
- ◆ Assist three local schools in the deployment, checking and downloading of hobo temps assigned to them.
- ◆ “Clean-Up” Hobo Temp Data Files and deliver information in requested format to the USF&WS and the KRIS coordinator.
- ◆ Work with KRIS coordinator to supply appropriate Salmon River information to the KRIS project, including GIS projects we develop.
- ◆ Fish Monitoring and Education Activities.
- ◆ Toxic Education
- ◆ Initial stage - Development of Comprehensive, Coordinated Subbasin monitoring plan.
- ◆ Continue analysis of existing Forest Service data layers (identified thru cooperative sub-basin planning process) in order to determine potential update needs and methods and to ground truth existing information.
- ◆ Provide the three local schools with technical assistance related to watershed management and ecosystem awareness education.
- ◆ Sponsor technology-training sessions for the schools, SRRC participants and the interested public. These sessions will include computer fundamentals, GPS and hobo temp data collection and a GIS overview.
- ◆ Share developed GIS products with interested agencies, the three local schools, community

- ◆ groups, universities and the general public.
- ◆ Attend ArcView, ArcInfo and other technical training sessions.

DESCRIPTION OF THE STUDY AREA:

The Salmon River is one of the major subbasins of the Klamath River Basin. The 751 sq. mile watershed is entirely within the Klamath National Forest. Four communities lie widely dispersed within this watershed. There are approximately 250 people residing in the drainage. The Salmon River has long been known for its exceptionally high quality waters and high value fisheries as well as boasting one of the richest regions of species diversity in the temperate zones. It is noted to have the largest population of Spring Chinook Salmon in California. In general, the headwaters of the Salmon River are characterized by coniferous tree associations that change with elevations. The major forest types have various understory elements that characterize them specifically, depending on soil type and exposure.

The Salmon River watershed is one of the highest risk fire areas on the Klamath National Forest. It has a high natural frequency of lightning occurrence. In recent years the Offield Fire (1973) burned the area near the river confluence. The Hog Fire (1977) burned extensively in the lower North and South Fork watershed and in Nordheimer and Crapo Creeks. The total area was about 80,000 acres. In 1987, wildfires burned 90,900 acres in four separate areas, covering much of the Salmon River subbasin. In 1994, the Specimen fire burned approximately 7,000 acres (3,045 acres within the LSR). It is estimated that 40-50% of the Salmon River subbasin has burned since the early '70s. Catastrophic fires in this area are known to denude riparian and upslope areas, which increases water temperatures. **The Salmon Subbasin Sediment Analysis, 1994 provides evidence that denuding of these steep, granitic slopes drastically increases the amount of sediment entering the streams and rivers below.**

The Salmon River subbasin and the North Fork of the Salmon River is the home to several species of fish at risk of extinction: Summer and Winter runs of wild Klamath Mountains Province Steelhead FPT Federally proposed (Threatened) 3-16-95 (CDF&G). Spring and Fall Chinook Salmon, and Coho Salmon.

METHODS AND ACTIVITIES:

There were two general categories of activities covered by this grant.

1. Technical assistance and training – these activities educate the SRRC staff, students of the three local elementary schools and community members, building their capacity for understanding and awareness of watershed processes. This increased awareness promotes responsible stewarding of the Salmon River Watershed and activities conducive to clean water.
2. Water temperature monitoring – our program collects accurate and detailed water temperature information throughout restoration areas of the Salmon River.

The following activities took place during the grant period:

TECHNICAL ASSISTANCE, TRAINING AND ATTENDANCE OF TECHNICAL TRAINING SESSIONS:

In August 1999, SRRC's Technical Coordinator, Jim Villeponteaux worked with Klamath National Forest's Ecologist, Max Creasy on an Accuracy Assessment of the Forest Service CalVeg vegetation

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mapping project. Jim and Max delivered a paper at ESRI's 1999 User Conference. ESRI is the manufacturer of ArcInfo and ArcView – the most commonly used GIS programs. Also in August, Jim provided technical assistance to the Forks of Salmon School.

In October 1999, Jim provided more technical assistance to the Forks School and to the SRRC. Jim also attended a Six Rivers National Forest/Karuk Tribe Meeting in Orleans. The topic of the meeting was a cooperative watershed restoration-planning group.

In November 1999, Jim attended a SLUG-sponsored County Roads Field Trip where we looked at disposal areas for county road-generated debris. The SLUG group (Salmon Learning and Understanding) was initiated so the major management stakeholders could work together to achieve common goals in watershed management. The SLUG members include the US Forest Service (Salmon River District and Orleans District), the Karuk Tribe, the SRRC and Klamath Forest Alliance (regional environmental group). The Siskiyou county road department was also invited to attend some meetings. Jim also spent several days on the KRIS project and other technical support projects, including watershed education.

A Toxic Awareness Workshop was conducted in March 2000. The SRRC has also collected and distributed brochures on recycling and toxic waste. We have produced our own brochure about toxics and recycling on the Salmon River. This project was only partially funded by 319(h). Also in March, we hosted two KRIS Workshops in our Watershed Center: one was called "Using KRIS in the Classroom" and the second "Using KRIS for HoboTemp Analysis".

The Salmon River Volunteer Fire and Rescue organization has received numerous hours of technical assistance throughout 2000 and into 2001.

In May 2000 Jim put on a training workshop on using PowerPoint and use of the computer projector. This was given in Yreka at the FWS office.

In June 2000, Jim delivered a paper at the ESRI 2000 Users Conference in San Diego. At the Conference, Jim also attended many workshops on using ArcView and ArcInfo.

In August and September 2000, Jim provided Sawyers Bar Elementary School with technical assistance in computer setup. Throughout the Project, Jim has provided technical to the schools in the form of technology consulting and watershed education assistance – especially webpage construction assistance. Webpage assistance was also provided to the Karuk Tribe and other groups.

Jim taught a segment of the KRIS Map training session given at Shasta College in Redding on September 7, 2000.

In October 2000 Jim spent numerous hours upgrading the Networking System at the SRRC Watershed Center and setting up new laptops for staff and community use.

Jim attended a technical advisory committee for the Klamath "Provincial Advisory Committee" in November 2000.

In December 2000, Jim attended the two-day Klamath Task Force Technical Work Group meeting in Ashland.

In January 2001 the SRRC sponsored a Computer Training Week at the Watershed Center in Sawyers Bar. This Training week was for SRRC Staff and interested community members and included

components of Networking, Web Design, using the Windows operating system and use of other assorted programs. Also included was an overview of GPS-GIS use. Jim Villeponteaux was the lead instructor but the emphasis was on sharing expertise and everyone working together.

Fish monitoring activities have increased during the contract period. In addition to the annual Spring Chinook and Fall Chinook salmon surveys SRRC has begun monitoring of Winter Steelhead in selected tributaries. These late winter surveys have occurred annually since 1999.

The SRRC has continually shared our developed GIS projects with agencies, groups and the community. Throughout the contract period the SRRC has been analyzing existing Forest Service data layers that have been identified through subbasin and other planning processes. We have identified numerous data layers that need improvement. These include:

- Vegetation and fuels (we have proposals pending to update these layers)
- Streams – including riparian reserves
- Roads (currently completing through roads assessment projects)
- Geomorphology
- Ownership
- Fire starts
- Managed stands – logging areas
- Fire management areas
- Anadromous fish presence, absence and historic occurrence
- Noxious Weeds

In conjunction with the Forest Service, we have also been working towards development of a subbasin wide monitoring plan. The cooperation on this project has produced a proposal to complete and implement the monitoring plan.

TEMPERATURE MONITORING PROGRAM:

Hobo Temp Download and Relaunch-August 1999

Community members, students and SRRC staff downloaded and relaunched 36 hobo temps within the Salmon River watershed during the month of August 1999. Three other units in more remote areas of Knownothing Creek were allowed to continue recording temperatures without this interim download/relaunch action. Participation by community members has been a primary objective of the 1999 season's temperature monitoring program. Initially as volunteers, five community members began training in May 1999 under the supervision of SRRC Project Leader, Sue Maurer and with the support of AmeriCorps member, Dara Pearson. The August 1999 download and relaunch was their first full field experience. The process went exceptionally well. Only one unit had a battery problem (Taylor Cr.-mouth), providing no data. A new unit was also launched in August 1999 at one other site (Main Stem Salmon below the S. Fk./N. Fk Confluence), as it was discovered missing later in the month.

Hobo Temp Check-September 1999

Thirty-six Hobo Temps were checked by the community partners and the SRRC staff to assure they were in adequate water depth during the month of September 1999. Two of the remote units were not checked and one was downloaded and relaunched. Field notes were recorded in field notebooks. Community members were able to do this without supervision. Students from the three elementary schools (Sawyers Bar, Forks of Salmon and Junction Schools) downloaded and relaunched the units they are responsible for in early September. This took place as part of a stream field trip to kick off the

school year. Stream studies included, measuring % canopy cover using densiometers, measuring dissolved oxygen levels, using the Winkler titration method, taking upstream and downstream photos and writing detailed site descriptions and maps at each location.

Hobo Temp Download and Relaunch-October 1999

Thirty-six Hobo Temps were downloaded and relaunched in the field by the community members and SRRC staff. All community members were able to do this without supervision. Data was transferred via disk to SRRC Project Leader and compiled in the SRRC office main computer system. No problems were encountered.

Hobo Temp Retrieval and Final Download-November 1999

By mid November 1999 the river and tributary discharge increased enough to cause concern of loosing the Hobo Temps during high water, so all 39 units were retrieved, including those in the remote locations up Knownothing Cr. One unit in the North Fork Salmon below Eddy Gulch was relaunched and will remain in the river throughout the winter under the watchful eyes of local community members. This final segment of the 1999 data was again transferred to the SRRC main computer via disk from each of the community partners. Students downloaded their Hobo Temps in the classroom and did basic analysis by viewing the graph printouts.

GPS Locations-December 1999

All locations, except the two remote units up Knownothing Cr. were GPSed by the Project Leader during the month of December. The data was differentially corrected, providing a high level of accuracy (+/- 10 ft.), then input into ArcView and mapped.

KRIS Workshop/Training

On December 7, 1999, Pat Higgins provided a training day, using the new KRIS software 2.0 at the Siskiyou County Office of Education in Yreka. SRRC's Project Manager, Jim Villeponteaux, Project Leader, Sue Maurer, and community member, Sharon Hoppas attended this workshop.

Due to the lack of guaranteed funding, Training and Technical Assistance portions of the 319(h) tasks were minimal during the January through July, 2000 period. We did conduct two Outreach Equipment training sessions and a number of hours of technical assistance to the Salmon River Restoration Council and the Local Elementary Schools. The following are temperature-monitoring activities that took place during this reporting period:

1999 Data Input into KRIS (Klamath Resource Information System)

Salmon River Watershed temperature data from the 1999 field season was acquired by the SRRC Project Leader from USFS, Salmon River and Happy Camp Ranger Districts. This data was combined with data collected by the Salmon River Restoration Council and the Salmon River schools and imported into the KRIS system. Charts were built in the KRIS system to evaluate the four study objectives for the 1999 field season. Attached are the 1999 temperature-monitoring objectives and responsibilities and samples of the KRIS charts.

On May 18, 2000, Pat Higgins, Jim Villeponteaux and Sue Maurer met to discuss the updating of the KRIS CD with the 1999 data and to standardize the various components of the data set, including the metadata tables. We decided to clean up the Salmon River Topics and change titles as needed to group

common items. As an example, areas that have several years of data divided into different topics were grouped into one topic. The previous year's graphs were incorporated into the new topic as an image. We also used a new utility developed by Jan Derksen that tells us the files in the SA Directory that are not needed by any topic. This allowed us to clean up the SA Directory. The outcome of our work was a much cleaner, more refined Salmon River section of KRIS that also takes up much less room. The cleanup was completed throughout the spring, summer and fall of 2000, with the final product being delivered in November 2000.

2000 Field Season Planning

On May 26, 2000 a meeting was held between USFS personnel, Brenda Olson, Salmon/Scott River Ranger District Fisheries Biologist and Jon Grunbaum, Happy Camp Fisheries Biologist and Sue Maurer, SRRC Project Leader to review the 1999 data and to determine the objectives and field study design for the 2000 temperature-monitoring program. A total of 59 locations will be monitored this field season. SRRC will assume the responsibility for 47 locations, Salmon River RD for 6 locations and Happy Camp RD for 6 locations. Attached are the objectives and responsibilities for the 2000 field season.

2000 Field Season Implementation

Forty-two SRRC Hobo Temps were calibrated in a 0 degree C ice bath for two hours on May 24, 2000 by community members and students from Sawyers Bar School. Field procedures and responsibilities were reviewed with the students and community members by the project coordinator. New field notebooks were provided.

Hobo Temps were launched and deployed in the field by the students at each of the three river schools during the following field trip dates:

May 30,2000	Sawyers Bar School
May 31, 2000	Forks of Salmon School
June 2, 2000	Junction School

The following community members launched their respective Hobo Temps during the first week of June 2000:

Sharon Hoppas and George Martin	Upper South Fork
Sarah Hugdahl	Lower South Fork and Mainstem Salmon
Tom and Lorelei Holzem	Upper North Fork
Sue Maurer, Project Leader	Knownothing, Specimen, Little North Fork, Crapo

All locations were field checked during the first two weeks of July to assure that the Hobo Temps were still on site and in an adequate depth of water. Temperature data will be downloaded during the first two weeks of August. The units will be relaunched for the duration of the summer, with field checks scheduled the first week of September, downloading and relaunching in early October and final retrieval in early to mid November, depending on weather and stream conditions.

August 2000

The 42 temperature units previously deployed throughout the Salmon River were downloaded and relaunched in the field by community members and SRRC staff during early August. Data was forwarded to SRRC and transferred to the server. All Hobo Temp files are coded as "A" to indicate the 1st download in the series. Three of the devices had battery problems, so full data was not collected at these sites. Batteries were replaced and the units were relaunched.

September 2000

All Hobo temps were checked during September, except for those at remote locations, to assure that they were still in place and in flowing water. Although flows were low this season, no units were out of the water. Students from Junction, Forks of Salmon and Sawyers Bar Schools took field trips to their Hobo Temp sites and downloaded and relaunched those units they are responsible for. Students also did other streamside activities at each site, such as collect and identify aquatic insects, measure stream flow, measure dissolved oxygen and snorkel to observe fish and other organisms.

October 2000

All Hobo Temp units were downloaded and relaunched in the field by community members and SRRC staff. This second download was coded as version “B”. Again, all data was transferred to the SRRC server. School Hobo Temps were not downloaded and relaunched at this time. Remote units were retrieved and downloaded during the later part of October. Jim worked with Pat Higgins one day for 8 hours going over Salmon River KRIS updates. Jim worked 2 days with Scott Quinn at the Karuk Tribe’s Department of Natural Resources office on the Mid Klamath KRIS updates.

November 2000

All remaining Hobo Temps were retrieved from the field and downloaded for the final version, “C” in mid November. Two Hobo Temps in the Upper North Fork Salmon were relaunched to collect winter temperatures. Local community members monitored these units. The students downloaded school Hobo Temps in the classroom, with help from Watershed Education Team members. USFS Happy Camp and Ukonom RD sent raw data files to SRRC from sites in the lower Salmon and Klamath Rivers. SRRC will be including these in the KRIS system and in the analysis process. We turned in our final KRIS 1999 update to Pat Higgins and Jennifer Silveira.

December 2000

The project coordinator met with Upper South Fork community member, Sharon Hoppas to begin process of data cleanup and the combining of the three versions for each location. This process will be completed in early spring. A mega data table (“Source Table”) will be created in KRIS for all the temperature data on the Salmon, including that obtained by USFS partners. USFS Salmon River RD will be sending data to SRRC in January. Various charts and graphs will be developed using the KRIS system to analyze the 2000 temperatures.

January - April 2001

The following activities are occurring in this period:

- Cleanup of 2000 field season data in preparation for data analysis
- Analysis of data in KRIS by SRRC staff and volunteers – attached are the 2000 temperature-monitoring objectives and responsibilities and samples of the KRIS charts
- Development of Maps depicting field season 2000 Hobo Temp locations in the Salmon River
- Creation of KRIS topics from field season 2000 data (including Forest Service) and projects

IN-KIND CONTRIBUTIONS:

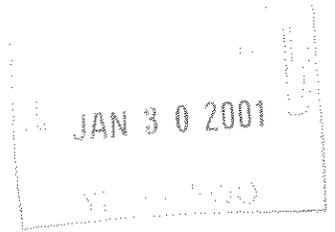
Community members were trained as citizen monitors under this grant. They put in many hours of their time (and many miles) deploying, checking and downloading Hobo Temps in the Salmon Basin. Volunteers also assisted in cleaning up data and building topics in KRIS.

Summary of In-Kind Contributions:

DESCRIPTION	AMOUNT
Vehicles for transportation: 6264 miles @ \$0.31 per mile	\$ 1,942.00
Crew time: 320 hours @ \$12/ Hr	\$ 3,840.00
Travel time for acquiring equipment and materials: 17 Hours @ \$12/ Hr	\$ 204.00
Value of professional GIS/GPS services 210 @ \$ 70/ Hr	\$14,700.00
Matching Funds/In-Kind Contributions TOTAL	\$20,686.00

**Sarmon River Restoration Council
Watershed Education Center**

Using KRIS in the Classroom - March 21, 2000



I. What is KRIS –

- a. Developed through the Klamath Task Force and funded by the Clean Water Act.
- b. Designed as a Data “*Storehouse*” for many types of Physical and Biological information collected in the Klamath River Basin.
- c. Easily accessible by students, the public and scientists alike.

II. Organization –

File Structure – and *Why* You need to Know

III. Finding Your Way Around

- a. Choosing Topics
- b. Seeing what each Topic offers
- c. Accessing Bibliography and Metadata

IV. Saving Topic Information

V. Adding Information to a Topic

VI. Adding a Topic

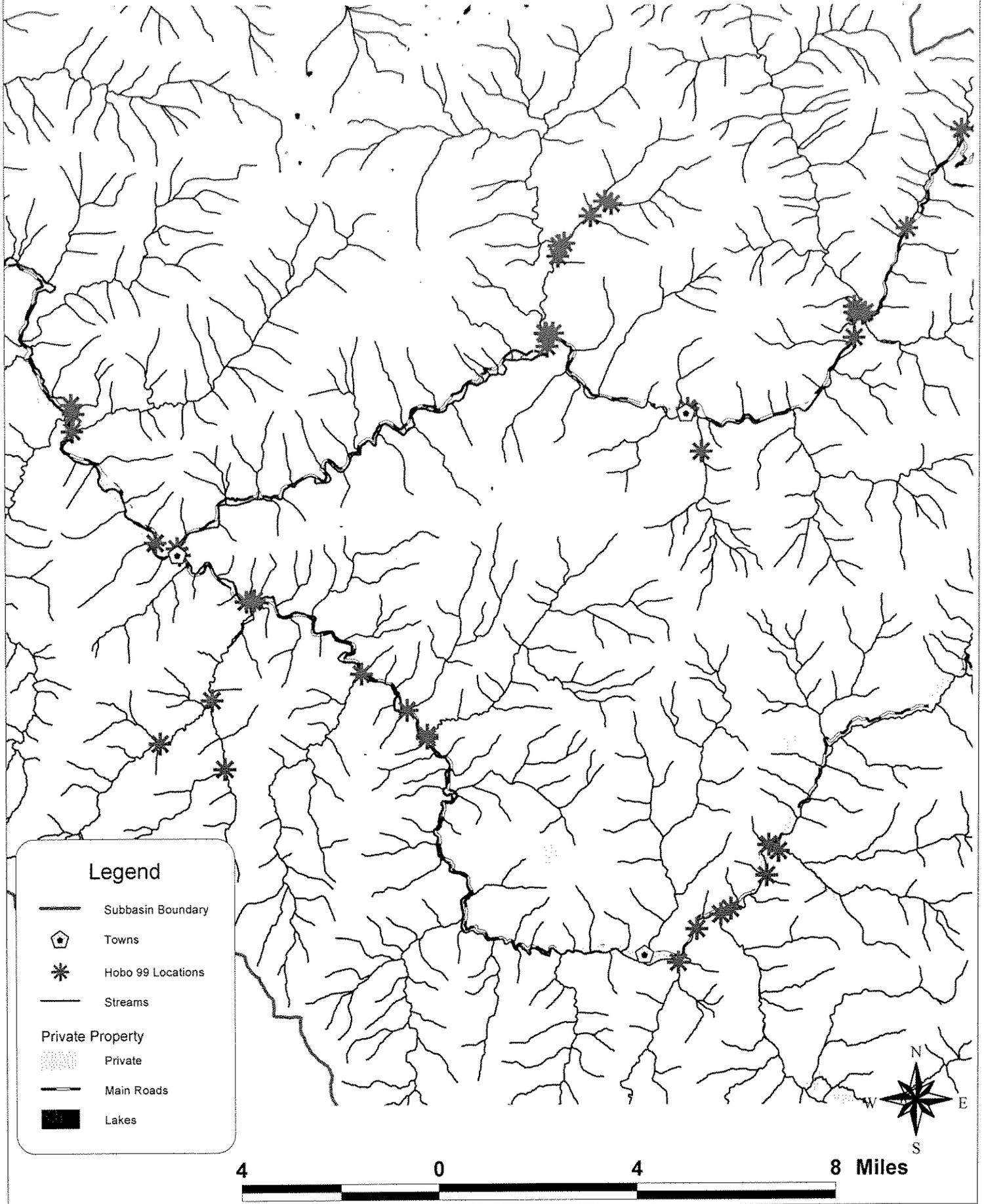
VII. Questions

Salmon River Restoration Council
Watershed Education Center

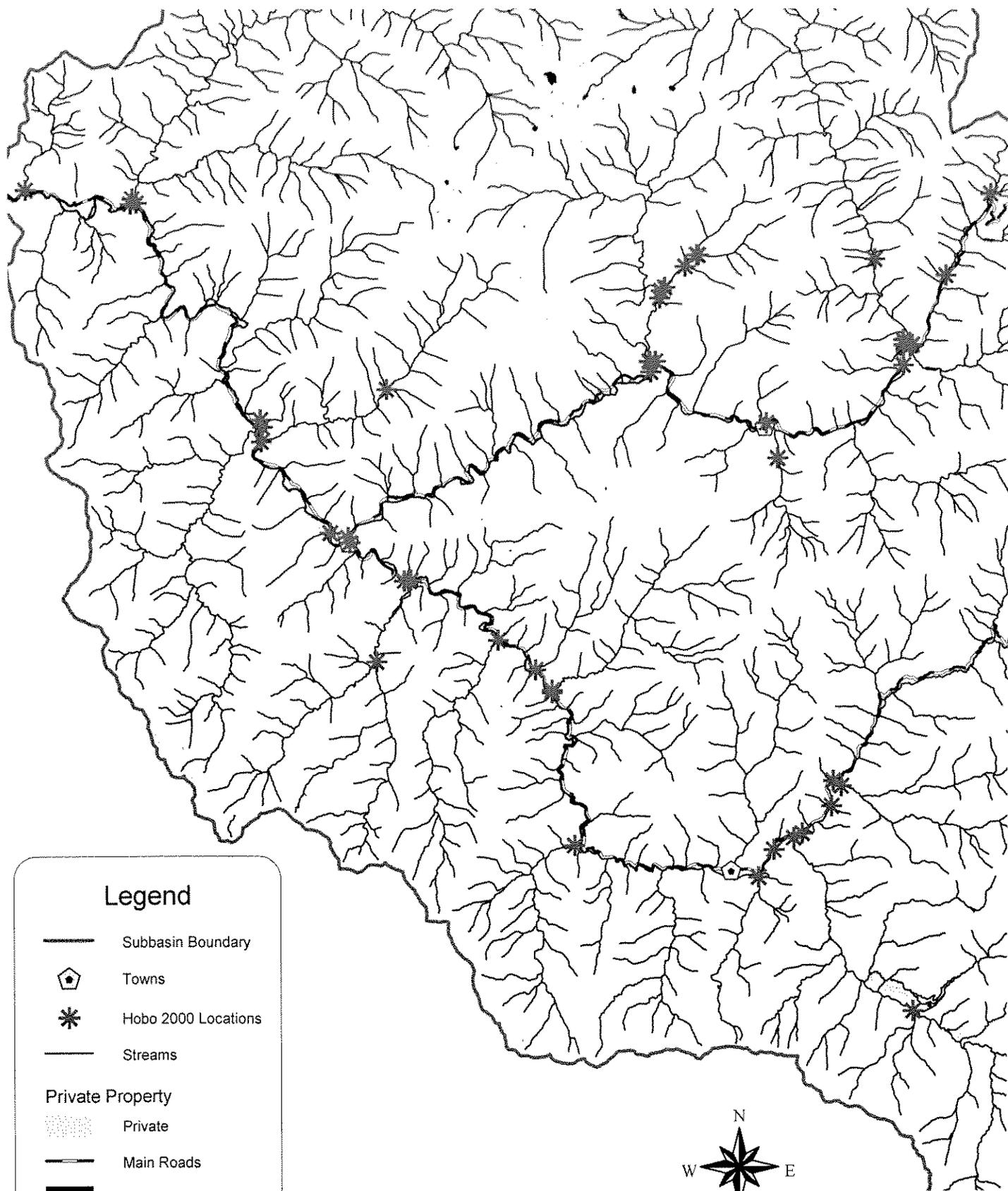
Using KRIS for HoboTemp Analysis - March 22, 2000

- I. **What is KRIS –**
 - a. Developed through the Klamath Task Force and funded by the Clean Water Act.
 - b. Designed as a Data “*Storehouse*” for many types of Physical and Biological information collected in the Klamath River Basin.
 - c. Easily accessible by students, the public and scientists alike.
- II. **Finding Your Way Around**
 - a. Choosing Topics
 - b. Seeing what each Topic offers
 - c. Accessing Bibliography and Metadata
- III. **Organization –**
File Structure – and *Why* You need to Know
- IV. **HoboImport –** Know Where Your Files are
- V. **Data “*Clean-Up*” –** Using Excel
- VI. ***Cloning a Topic* –** What Questions We are Asking
- VII. **Table *Building***
- VIII. ***Chart Attributing* –** Detail Work
- IX. **Attributing Rest of *Topic* –** *More* Detail Work
- X. ***Update Fields* –** When You’re *SURE* You’re Through
- XI. **Saving Topic Information**

1999 Salmon River HoboTemp Locations



2000 Salmon River HoboTemp Locations



Legend

- Subbasin Boundary
- Towns
- Hobo 2000 Locations
- Streams
- Private Property
 - Private
 - Main Roads
 - Lakes



**Salmon River Cooperative Temperature Monitoring Group
Study Design for 1999 Salmon River Temperature Monitoring Program
April 9, 1999**

JAN 30 2001
3:15 PM '00

A planning meeting between the Salmon River Restoration Council and the USFS, Ukonom RD and Salmon River RD personnel was held at Forks of Salmon on April 9, 1999. In attendance were, Jim Villeponteaux, Sue Maurer, Jim Kilgore and John Grunbaum. The following objectives and subsequent study design were developed for the 1999-monitoring season:

1. Determine the influence of the temperature of major tributaries to the main river temperature by bracketing above, below and in the tributary. A reduction of the number of tributaries bracketed will occur this year. Those selected will meet one of the following criteria:
 - a) Have currently only one year of data
 - b) No complete bracket has been previously obtained
 - c) Previous data shows influence in at least one of the past two years.

2. Determine the temperature of all tributaries just above the confluence with the main river. These are tributaries have been previously monitored, but are not included in objective 1. Monitor air temperature at three locations: Little North Fork, Nordheimer and Blackbear Creeks. Grant Creek will be omitted from tributary monitoring due to its lack of significant volume.

3. Determine longitudinal temperature change for specific tributaries by locating units at three or more locations from the mouth to the headwaters: Crapo, Specimen, Wooley, North Russian and Knownothing Creeks.

4. Continue long-term trend monitoring of river temperatures in mainstem, north and south forks, by retaining previous monitoring locations spaced throughout the watershed.

Proposed 1999 Locations and Responsibilities, 4/23/99

Objective 1: Bracket of Tributaries (30)

Stream	Responsibility	# of Units
Salmon River	USFS-Grunbaum	3
Wooley Creek	USFS-Grunbaum	3
NFk/SFk/Mainstem	SRRC	3
Little North Fork & AIR	Sawyers Bar School	4
Specimen	USFS-Kilgore	3
Russians N Fk & S Fk	SRRC	5
Knownothing Creek	SRRC	3
East Fork	SRRC	3
S Taylor	SRRC	3

Objective 2: Tributary Mouths (10)

Stream	Responsibility	# of Units
Merrill Creek	Junction School	1
Butler Creek	SRRC/Community	1
Nordheimer Creek	Forks of Salmon School	1
Nordheimer Creek-AIR	Forks of Salmon School	1
Methodist Creek	SRRC	1
Blackbear Creek	SRRC	1
Blackbear Creek-AIR	SRRC	1
Indian Creek	SRRC	1
Cecil Creek	SRRC	1
Eddy Gulch	Sawyers Bar School	1

Objective 3: Tributary Longitudinal Temperatures (13)

Stream	Responsibility	# of Units
Wooley Creek (bracket NF)	USFS-Grunbaum	3
Crapo Creek	SRRC	3
Specimen Creek	USFS-Kilgore	2
North Russian Creek	SRRC	2
Knownothing Creek	SRRC	3

Objective 4: Long-term River Monitoring (3)

Stream	Responsibility	# of Units
Blackbear-Above	SRRC	1
Eddy Gulch-Below	SRRC	1
Nordheimer-Below	Forks of Salmon School	1

**Salmon River Cooperative Temperature Monitoring Group
Study Design for 2000 Salmon River Temperature Monitoring Program
May 26, 2000**

A planning meeting between the Salmon River Restoration Council and the USFS, Happy Camp RD and Salmon River RD personnel was held at Sarah Totten Campground on May 26, 2000. In attendance were, Sue Maurer, Brenda Olson and John Grunbaum. Some data from the 1999 season was reviewed and it was agreed to continue the 2000 season with the same objectives as in 1999, with a few adjustments. Brenda will monitor the "historic" Salmon River RD sites: upper and lower North and South Forks and Mainstem. Specimen Creek will be monitored by SRRC. Additions will include: Upper South Fork at Petersburg (Olson) and below Blindhorse Cr. (SRRC) and in the mouth of Plummer Cr. (Olson). The following objectives and subsequent study design were developed for the 2000 temperature-monitoring season:

1. Determine the influence of the temperature of major tributaries to the main river temperature by bracketing above, below and in the tributary. Those selected will meet one of the following criteria:
 - a) Have currently only one year of data
 - b) No complete bracket has been previously obtained
 - c) Previous data shows influence in at least one of the past two years.

2. Determine the temperature of all tributaries just above the confluence with the main river. These are tributaries have been previously monitored, but are not included in objective 1. Plummer Creek will be added during the 2000 season.

3. Monitor air temperature at three locations: Little North Fork, Nordheimer and Blackbear Creeks.

4. Determine longitudinal temperature change for specific tributaries by locating units at two or more locations from the mouth to the headwaters: Crapo, Specimen, Wooley, North Russian and Knownothing Creeks.

5. Continue long-term trend monitoring of river temperatures in mainstem, north and south forks, by retaining previous monitoring locations spaced throughout the watershed.

Proposed 2000 Locations and Responsibilities, 5/26/00

Objective 1: Bracket of Tributaries (27)

Stream	Responsibility	# of Units
Salmon River	USFS-Grunbaum & Orleans	3
Wooley Creek	USFS-Grunbaum	3
Little North Fork & AIR	Sawyers Bar School & SRRC (Maurer)	4

Specimen	SRRC (Maurer)	3
Russians N Fk & S Fk	SRRC (Holzem)	5
Knownothing Creek	SRRC (Hanauer)	3
East Fork	SRRC (Martin) & USFS-Olson	3
S Taylor	SRRC (Martin)	3

Objective 2: Tributary Mouths (12)

Stream	Responsibility	# of Units
Merrill Creek	Junction School	1
Butler Creek	SRRC/Community (Cafferata)	1
Nordheimer Creek	Forks of Salmon School	1
Nordheimer Creek-AIR	Forks of Salmon School	2
Methodist Creek	SRRC (Hugdahl)	1
Blackbear Creek	SRRC (Hugdahl)	1
Blackbear Creek-AIR	SRRC (Hugdahl)	1
Indian Creek	SRRC (Hugdahl)	1
Cecil Creek	SRRC (Martin)	1
Plummer Creek	USFS (Olson)	1
Eddy Gulch	SRRC (Holzem)	1

Objective 3: Tributary Longitudinal Temperatures (12)

Stream	Responsibility	# of Units
Wooley Creek (bracket NF)	SRRC (Harling)	3
Crapo Creek	SRRC (Maurer)	2
Specimen Creek	SRRC (Maurer)	4
North Russian Creek	SRRC (Holzem)	2
Knownothing Creek	SRRC (Hanauer)	1

Objective 4: Long-term River Monitoring (9)

Stream	Responsibility	# of Units
South Fork Salmon (Lower, > Blackbear, Petersburg, <Blindhorse)	USFS-Olson & SRRC (Martin) & (Hugdahl)	4
Mainstem Salmon (< Forks, < Nordheimer)	USFS-Olson, Forks School	2
North Fork Salmon (Lower, <Eddy Gl., Mule Bridge)	USFS-Olson & SRRC (Holzem)	3