

Salmon River Restoration Council

Salmon River Community “Weak Stocks” Fisheries Assessment & Protection Program
Draft Final Report
OCTOBER 1, 2002 – MARCH 1, 2004

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Agreement #113333G019
Prepared by Nat Pennington and Petey Brucker

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Coho spawning in the Salmon River – 11/29/03



SRRC Employees checking Spring Chinook Carcasses for Columnaris lesions

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Abstract:

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The Salmon River Restoration Council (SRRC) was funded by the Klamath Fisheries Restoration Task Force (TF) to monitor and assess fish species within the Salmon River referred to as “weak stocks”. The TF, California Department of Fish and Game (CDFG) Coho Recovery Strategy, Klamath Fisheries Management Council, and the National Research Council have all identified the need for further research related to abundance, habitat requirements, and limiting factors for weak stocks in the Salmon River.

Through the Salmon River Community Weak Stocks Assessment program, the SRRC has provided information to regulating agencies that is critical to the survival of the diverse fisheries occurring in the Salmon River sub-basin. This program continues to provide baseline data, as well as expanding data sets for the under studied species of the Klamath and Salmon Rivers.

The program has focused on the assessment of freshwater life stages of “weak stocks” species, such as spring Chinook, pacific lamprey, coho salmon and steelhead trout. The program has identified the presence of these species within the sub-basin and documented their habitat use throughout the basin.

Species such as coho Salmon were not thought to regularly inhabit the Salmon River. Also, until recently, when green sturgeon spawning areas were identified in the Salmon River through this program, spawning populations of green sturgeon had only been identified in two rivers in the entire continent.

This project addresses and seeks to fill data gaps for weak stocks. Providing this kind of information may prove invaluable to the recovery of the fisheries resource as cited by the National Research Council report Threatened and Endangered Species of the Klamath River (2003).

“A small but growing stakeholder group is cooperating with state and federal agencies and tribal interests in the Salmon River basin. High priority has been placed on monitoring of salmon and steelhead runs, improvements in riparian habitat, management of fuels, and assessment and rehabilitation of logging roads (Elder et al. 2002). Given proper funding and agency participation, these efforts may be sufficient to improve conditions for coho and other salmon and steelhead in the watershed.”

Tasks in this project have been performed in cooperation with the U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service (USFS), Karuk Tribe, Yurok Tribe, Klamath Salmon Anglers and Guides Association (KSAGA), and CDFG. This collaborative approach has been a major component of the program providing technical oversight, as well as on the ground assistance.

Introduction:

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The Salmon River Restoration Council (SRRC) has implemented and completed the tasks and projects set forth in the Community Weak Stocks Assessment and Protection Program (Weak Stocks Program). The tasks in this program involve monitoring species distribution and life history, including identification of selected habitat requirements for weak stocks. This type of data is currently lacking throughout the Klamath basin. Through this program, SRRC has provided critical data that is otherwise unavailable or unobtainable to research projects in the Pacific Northwest.

The Salmon River’s year round clarity and SRRC’s close proximity to survey areas has enabled us to provide sound and efficient data sets that are rare and valued by fisheries managers.

SRRC’s winter and summer steelhead surveys are a prime example of this. SRRC provides CDFG with the only trend data set for the entire Klamath Basin. This data is then used by the California Fish and Game Commission to set regulations on the take of steelhead for Northern California and Southern Oregon. In cooperation with the Klamath Salmon Media Collaborative, SRRC created a spring Chinook and summer steelhead training video, which is currently being used by many agencies and fisheries departments throughout Oregon and California to train employees and improve survey techniques.

Other examples of the value of weak stocks program data are the identification of Sturgeon Spawning areas on the lower Salmon River and spring Chinook holding or refugia areas. The identification of these sensitive areas has led to protection from disturbance of the large scale, dredge mining operations occurring on the lower Salmon River by the U.S. Forest Service.

Pacific lamprey has been petitioned for listing under the ESA; further research will be needed identify the current status of lamprey stocks in the Klamath Basin.

Through the weak stocks program, the SRRC has collected data on life history, population size, range and health of target species. The data has been collected by fisheries technicians from SRRC, tribes, agencies and trained community volunteers. The Karuk Tribe, CDFG, USFS, National Oceanic and Atmospheric Administration (NOAA) Fisheries, and USFWS have provided technical oversight and review. The KSAGA, and the Salmon River Spring Chinook Voluntary Recovery Group have acted through this project to further coordination between stakeholders in the recovery of anadromous fisheries. These groups and others, such as the TF Technical Work Group and the Klamath Basin Fish Health Assessment Team, have directed the goals of this project and will be involved in its review and further development.

The overwhelming support for the program within the surrounding community along with increased support from agencies and tribes, has afforded us the ability to complete the project tasks under budget. Staff and community volunteerism contributed over \$34,000.00 to the program, which almost doubles the match requirement. Additional funding from the TF for ’03 –’04, CDFG ’04 –’05 and an extension of the current agreement allows SRRC to continue implementing the weak stocks program assessment and protection objectives throughout the coming year.

The monitoring and assessment projects in the program that have been completed

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through funding provided by the TF are discussed further in the project summary, methods and materials, and results and discussion sections of this report. Raw data sets and Global Information System (GIS) maps are also provided in spreadsheet format in the appendices of the report.

Project Summaries:

Monitoring

- **Spring Chinook:** Through this program the SRRRC enlisted 285 volunteer hours towards the assessment and protection of spring Chinook. Research and monitoring projects included, spring Chinook run timing assessments, the Salmon River Cooperative Spring Chinook Population Dives, carcass and redd surveys, disease and mortality assessments, radio telemetry, refugia monitoring and Otolith research.
- **Winter Steelhead:** Through this program the SRRRC enlisted 596 volunteer hours towards the assessment and protection of winter steelhead. Research and monitoring projects included, winter steelhead spawning and redd surveys, and the Klamath Salmon Anglers and Guides Association Steelhead Monitoring Program. Technical and field assistance was provided by the CDFG Steelhead Research and Monitoring Program.
- **Coho Salmon:** Through this program the SRRRC enlisted 173.25 volunteer hours towards the assessment and protection of coho within the Salmon River. Research and monitoring projects included Salmon River juvenile coho presence / absence surveys and Salmon River adult coho spawning and redd surveys completed in cooperation with the USFS and CDFG.
- **Green sturgeon:** Through this program the SRRRC enlisted 30 volunteer hours towards the assessment and protection of green sturgeon within the Salmon River. Research and monitoring projects included green sturgeon dives on the lower three miles of the Salmon River and, green sturgeon larval sampling and radio telemetry done in cooperation with the Karuk and Yurok Tribes.
- **Pacific Lamprey:** Through this program the SRRRC enlisted 16 volunteer hours towards the assessment of pacific lamprey within the Salmon River. Research and monitoring projects included lamprey redd surveys.

Coordination:

- **Salmon River Fish Work Group Meetings:** The SRRRC held 8 fisheries monitoring

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coordination meetings. Attendees included, USFS, CDFG, USFWS, Karuk and Yurok tribes, North Coast Regional Water Quality Control Board, KSAGA, Mid Klamath Watershed Council, NOAA Fisheries and community members. These meetings served to coordinate monitoring projects relating to the target species of this program.

- The Salmon River spring Chinook Voluntary Recovery Group: During the project period the SRRC held two Voluntary spring Chinook Recovery Group meetings in cooperation with the USFS, CDFG, NCRWQCB, the Karuk and Yurok Tribes, USFWS, and NOAA Fisheries. The group acts to coordinate Salmon River spring Chinook research and has developed a limiting factors analysis for the species included in appendices of the report.

Description of Study Area:

The Salmon River is one of the most biologically intact watersheds in the west. It is the largest cold-water contributor to the Klamath River, and known as one of the cleanest rivers in the state of California. The Salmon River hosts an excellent fisheries resource within the Klamath Basin, possessing highly regarded runs of green sturgeon, spring Chinook, and winter steelhead. The National Research Council states in its 2003 report Threatened and Endangered Fishes of the Klamath that “although it is not well documented, runs of all the remaining anadromous fishes in the Klamath watershed occur in the Salmon River” (Moyle et al 1995, Moyle 2002). This 751 sq. mile watershed is entirely within the Klamath National Forest and is considered a key watershed by the Forest Service. Watershed analysis has been completed for the entire Subbasin, with the exception of Wooley Creek. The land base in the watershed includes: 98% Public Lands - USFS with 45% in wilderness. Sixty seven percent of the watershed is within Karuk Ancestral Lands. It is difficult to determine the historical population size of the anadromous fisheries in the Salmon River subbasin, however fish numbers were sufficient to supply the primary subsistence food and be the basis for the economy of the indigenous people prior to the mid -1800s. By the mid -1930s it was reported that anadromous fish populations within the Klamath Basin were already significantly jeopardized (Taft and Shapovalov, 1935).

Within the Salmon River subbasin, there were several historical water diversions and dams, which blocked fish migration (Taft and Shapovalov 1935; Handley and Coots 1953). A dam near Sawyers Bar on the North Fork of the Salmon River prevented fish from migrating above the town until the 1950's. Another dam was located four to five miles above the Forks of Salmon on the South Fork of the Salmon River, blocking migration for approximately 50 years or more.

Presently, water temperature is a concern for fish. Tributary temperatures are below lethal levels, however the main stem can get well above lethal levels. This

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was observed in the summer of 1994 during a very low flow year. There were 23 dead spring Chinook adults observed during the annual spring Chinook/summer steelhead count in 2003. Mortality was observed in adult as well as juvenile fish, and Pacific giant salamanders. The largest accumulation of juvenile fish killed was observed below an area congested with suction dredge gold miners. The SRRC actively participates in the Klamath Basin Fish Health Assessment Team, to be better prepared to monitor epizootics and developing fish kill conditions, as well as to develop preventative measures.

Much of the subbasin is bedrock controlled, therefore affecting the amount of direct shade created by riparian vegetation on the main tributaries (North Fork, South Fork, and Mainstem). In addition, the stream bank full width and channel flood prone widths are so wide, even old growth trees would not provide effective shade. Another factor working against maintaining sub-lethal temperatures in the river is aspect. The North Fork, South Fork, and Mainstem flow west, therefore having a prolonged exposure to thermal input from the sun. This in effect, heats the water as well as creates a heat sink in the bedrock banks. Most shade provided to the main tributaries is from topography. Therefore, maintaining temperatures in smaller tributaries is critical, particularly in low flow years.

Seasonal migration barriers (natural and man made) are present in several tributaries and are most noticeable in low flow years. Some of the barriers appear to segregate the spring run fish upstream from the mix of fall and spring fish downstream. The consequences (good or bad) of modification of these seasonal barriers during the last two decades are unknown. The SRRC has helped to identify the known man made fish barriers and is taking steps, through the associated Work Group, to remove them. A bridge has replaced the culvert at Merrill Creek and SRRC and the Karuk Department of Natural Resources have documented steelhead spawning above the bridge. Currently SRRC is coordinating work that is being done to remove man made barriers in Kelly's and Whites Gulches. Fish screens are also being installed on key water diversions.

Within the Salmon subbasin, coho salmon are listed as *Threatened* and steelhead are listed as a *Candidate* species under the Endangered Species Act (ESA); summer steelhead and spring Chinook are managed as *Sensitive* species by the Pacific Southwest Region Forest Service.

There are also native populations present of fall Chinook salmon, green sturgeon, lamprey, Speckled dace, stickleback, and resident trout. Non-native fisheries species include: American Chad, German brown trout, and Eastern brook trout.

Several documents and entities have identified that the Salmon River is one of the premier watersheds for diverse populations of anadromous fisheries. The most significant impacts to anadromous fisheries are suspected to occur outside of the subbasin in the Klamath River during out-migration and while returning to spawn, as well as ocean conditions and fishing. More recently released reports and others documents include the “Salmon River Subbasin Restoration Strategy”, “Endangered and Threatened Fishes in the Klamath River Basin - Causes of Decline and

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Strategies for Recovery” recently released by the Natural Research Council, and the Draft License Application for the Re-licensing of the PacifiCorp dams in the Klamath River- submitted to the Federal Energy Regulatory Commission in September of 2003.

Methods and Materials:

Tasks and objectives of the Salmon River Weak Stocks Program were performed in cooperation with the aforementioned agencies, tribes, and organizations. CDFG, and Karuk Tribal Biologists provided oversight. Nat Pennington, Fisheries Program Coordinator for SRRC directed on-the-ground monitoring projects and also documents the programs activities.

SRRC held 5 trainings to increase community knowledge of fisheries monitoring activities within the basin. Training workshops were offered for topics such as winter steelhead surveys, juvenile salmonid identification, spring Chinook and summer steelhead dives, and coho surveys and identification.

SRRC used protocol from CDFG and USFWS for sampling and monitoring activities. Example data sheets, survey maps, and a training video are included in the appendices of this document. Survey crews consisted of SRRC fisheries technicians, and Karuk Tribal biologists and fisheries technicians. Most surveys were completed with equipment either provided by this project or as in kind donation from SRRC. Publications and mailers were used to coordinate with the community and agencies. An example of the mailers for the coho, Chinook and steelhead surveys are included in Appendix A of this report.

Winter steelhead surveys in major tributaries of the Salmon River were performed by SRRC, Karuk Tribe, and USFS fisheries technicians from February – April 2003, and were in cooperation with CDFG. Data was recorded using CDFG protocol and GPS units provided by this project. Surveys were completed by snorkeling the river and walking streambeds looking for live steelhead, carcasses, and redds. Applicable data fields identified in the protocol included: numbers of fish observed, number of redds observed, location of fish and redds, redd length and width, habitat type, and temperature data.

Spring Chinook spawning surveys in the upper South and North Forks of the Salmon River were performed by SRRC, Karuk Tribe, and USFS fisheries technicians from September 15 – October 15, 2002-2003, and were in cooperation with CDFG. Data was recorded using CDFG protocol and GPS units provided by this project. Spawning surveys were completed by snorkeling the river and walking streambeds looking for live Chinook, carcasses and redds. The protocol was developed from the Klamath River Cooperative Chinook Spawning and Carcass Surveys Protocol (CDFG). Several fields were added to this protocol including disease infection information, and GPS location of redds. These new fields were added out of a desire to better

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understand disease in Salmon River spring Chinook and its relationship to spawning success. Other data fields in the protocol included: numbers of fish observed, number of redds observed, location of fish and redds, redd length and width, habitat type, carcass fork length in mm., sex, scars, percent of eggs spawned, scale samples and temperature data. Two sets of scale samples were collected for each carcass when enough scales were available. These samples are analyzed by Al Olson of the USFS and George Kautsky of the Klamath Fisheries Management Council and Hoopa Tribe. Information from scale analysis is used to classify fish length by age and is helpful in determining life history as well as cohort reconstruction and run size predictions.

Dives to determine the timing of the spring Chinook run were performed by SRRRC and the Karuk Tribe from May – June, 2002-2003. These dives were completed with two or three trained technicians who performed snorkel surveys in the river and tallied all fish observations. One person rowing a fourteen-foot cataraft accompanied the divers for safety purposes. The protocol for fish enumeration and identification are included in the Salmon River Snorkel Survey and Fish Identification Training Video, which is included in a Compact Disc in the appendices of this report.

Coho surveys were performed in suspected habitat by SRRRC, Karuk Tribe, and USFS fisheries technicians in November – January 2002-2003, and were in cooperation with CDFG. Data was recorded using CDFG protocol and GPS units provided by this project. Juvenile coho surveys were done while snorkeling. Adults were surveyed by walking streambeds looking for live adults, carcasses and redds. Adult coho survey protocol involved recording data on: numbers of fish observed, number of redds observed, location of fish and redds, redd length and width, habitat type, carcass fork length in mm., sex, scars, percent of eggs spawned, tissue samples for genetic analysis by CDFG, scale samples and temperature data.

SRRRC, the Yurok and Karuk Tribes and USFWS performed green sturgeon surveys. Adult green sturgeon surveys took place during spring Chinook dives in May, June and July 2003. These dives were performed in the lower Salmon River, from Wooley Creek (about 3mi. upstream from the mouth) to the mouth. Applicable data fields included: number of adult sturgeon observed, and their location. Larval green sturgeon sampling took place in two locations, the USGS staff gauge at approximately river mile 1.5 and George Geary river access, approximately river mile 2.0. Trapping protocol was adopted from USFWS research on the Columbia River. Sampling began in late May and continued through June. Sampling involved deploying larval drift nets, which sample the organisms that are in the bottom ten percent of the water column. These nets were generally in place between 10:00 pm and 1:00 am to increase our ability to catch larval green sturgeon, which are nocturnal. The nets were deployed using a fourteen-foot cataraft and an anchor system to hold the net in place. Larval Sturgeon caught in the net were counted, measured, and released. No mortality occurred during sampling procedures.

SRRRC and the Karuk Tribe performed pacific lamprey surveys. Surveys took place from Wooley Creek upstream to the confluence of Nordheimer Creek on the Salmon River and involved identification and mapping of lamprey redds. SRRRC technicians

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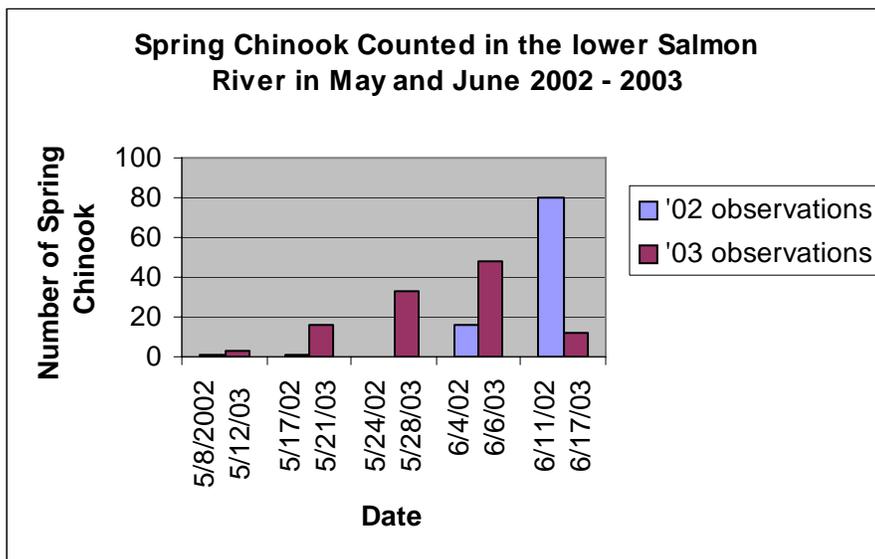
recorded the number and locations of redds that were observed during the dives. Surveys were completed while snorkeling the lower Salmon River in June and July 2003.

Results and Discussion:

Spring Chinook:

Task 1 - Determine when the head of the spring Chinook run enters the Salmon River.

Surveys took place in April, May and June, 2002 and 2003. In both years spring Chinook were observed entering the river in early May. The surveys were completed by SRRC and Karuk Tribal technicians. Surveys took place on the stretch of river between Wooley Creek and the mouth, which encompasses about four miles of river. Due to high flow conditions in '03 the SRRC and the Karuk Tribe were not able to perform surveys in March or April.



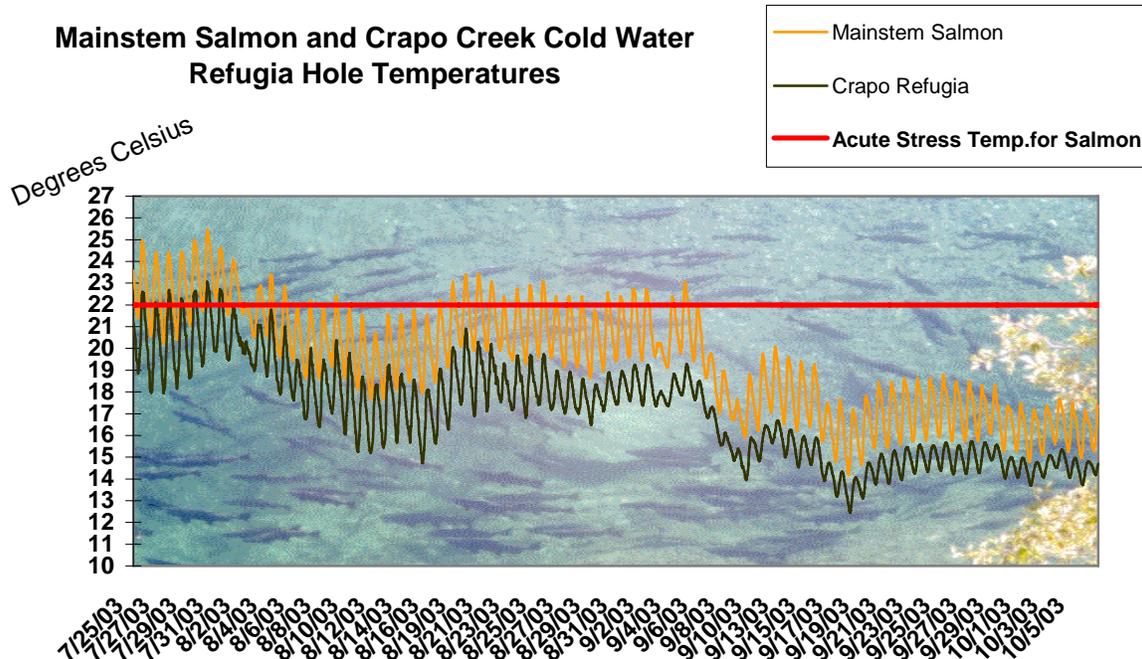
Task 2 - Identify when and where the run holds in the summer.

The summertime temperatures in the Salmon often reach stressful levels for Chinook salmon in the months of June and July. Spring Chinook can be at risk of disease infection and eventual mortality during these periods. Through the weak stocks program SRRC has monitored and identified key refugia locations within the Salmon River where spring Chinook hold in the summer. These locations are critical to spring Chinook as they spend the summer in fresh water. Threats to these key sites like recreational mining are being monitored and eliminated, by SRRC coordination with specific user

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groups like the New 49ers mining association. During the spring Chinook Population Census and in other Restoration Council activities the SRRC and community members observed 32 spring Chinook pre spawn mortalities. Research is needed to address whether this level of die off is within the range of natural variability or if it may be heightened by current habitat conditions. Temperature data was collected for the Boulder Gulch refugia, the Crapo Creek refugia, and the Little South Fork refugia. Temperature data for the Crapo refugia, charted with the mainstem Salmon River temperature, as well as the stress threshold for Salmonids, is shown below.



Task 3 - Determine when the end of the run enters the Salmon River.

Surveys in '02 and '03 showed lowered numbers of spring Chinook in the lower Salmon River during the months of August and September. Although in '02 a high number of spring Chinook were observed in tributaries in the Mid Klamath watershed during the month of August, it is thought that these fish may have been held up during migration to the Salmon by high temperatures and low flows in the Mainstem Klamath. These fish showed obvious signs of disease infection and were present throughout the summer in the lower stretches of Klamath tributaries and cold-water refugia areas. The SRRC has

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worked in collaboration with Josh Strange and the Yurok Tribe to perform radio telemetry on spring Chinook. The Restoration Council assisted in the maintenance of a radio tracking station located at the mouth of Wooley Creek, four river miles from the confluence with the Klamath. The tracking period extended from early June to late July. During this period the station logged two spring Chinook holding in the Wooley Creek cold-water refugia. During an initial snorkel dive of the Wooley refugia, Restoration Council technicians observed and additional 47 adult spring Chinook. During surveys of the lower Salmon using a hand held tracking device one of the tagged spring Chinook was found dead on the side of the river approximately 1.5 miles downstream of the tracking station. The second tagged fish was not located after the initial identification at Wooley Creek.

Task 4 - Work with tribes and agencies to collect carcass and spawning information.

The SRRC and cooperators collected spawning and carcass data from the Upper South Fork and Upper N. Fork of the Salmon River. These surveys took place from September 12th through Oct 17th. Crews recorded the location of fish and redds, redd length and width, habitat type, carcass fork length in mm., sex, scars, percent of eggs spawned, scale samples and temperature data. Two sets of scale samples were collected for each carcass when enough scales were available. Redds were recorded with GPS units and carcasses were measured, sex determined, and analyzed for signs of disease. During disease assessments trained fish technicians examine the carcasses for external characteristics of Columnaris, Ichth, and C.Shasta. During the '03 survey season examination of 179 spring Chinook carcasses revealed that 53% had Columnaris lesions. This information has been provided to the USFWS Fish Health Center and the Klamath Basin Fish Health Assessment Team. Spring Chinook data and GIS maps showing GPS redd locations are in Appendix B and C of the report.

Task 5 - Assist the U.S. Forest Service in the coordination of the Annual spring Chinook and summer steelhead Census held in mid-summer.

The SRRC has worked with the USFS Salmon River Ranger District in the coordination of the Annual spring Chinook and Summer steelhead Dives since 1996. SRRC enlisted a total of 68.5 volunteer hours towards the completion and coordination of the event. This year's count for spring Chinook within the Salmon River was 1220. The data set for Salmon River spring Chinook abundance goes back to 1980 providing valuable trend data for spring Chinook management. The Klamath Fisheries Management Council is assessing spring Chinook abundance in the Klamath basin and will attempt to manage harvest and predict run size for spring Chinook. Currently no management of the harvest of spring Chinook is taking place in the Klamath. Fishing interests are free to take as many spring Chinook as they can catch, up to two fish a day for recreational

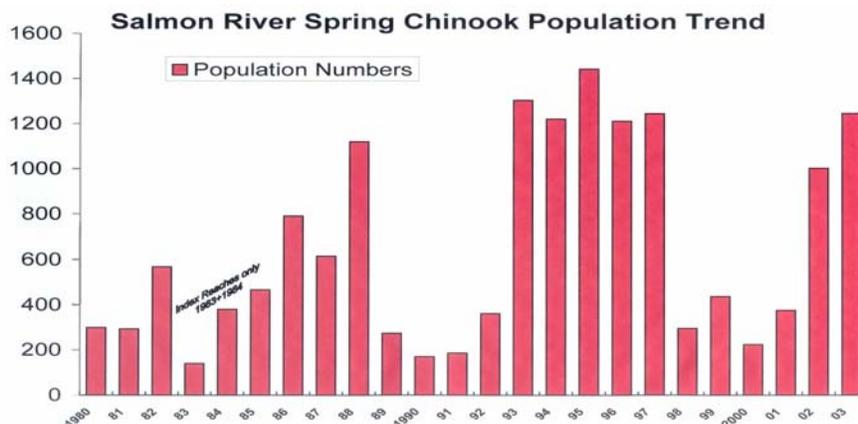
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anglers. The Restoration Council is concerned that this lack of attention for management and protection may lead to further decline of this sensitive species. Provided below is a chart showing the findings from our cooperative surveys. The population numbers in the chart include adult and grilse, or 2 yr old spring Chinook.



Task 6 - Examine the association of run timing with water temperatures and flows.

The SRRC placed temperature loggers in key refugia areas for spring Chinook, loggers were also placed in the main river channel near refugia areas. Spring Chinook refugia areas were monitored throughout the summer for fish density.

Task 7 - Identify migration barriers.

The SRRC in September of 2002 surveyed the upper portion of the S. Fork Salmon River to determine the range of spring Chinook within the basin. Fisheries technicians located spring Chinook above the previously known extent of anadromy in the South Fork Salmon River. A migration barrier in the form of a 20-foot falls was found and documented approximately 1.5 miles upstream of the South Fork and Little South Fork confluence. Additionally during the '03 carcass and redd surveys, SRRC technicians identified and removed 3 man made rock dams from spring Chinook spawning reaches mainly on the East fork Salmon River.

Additional Accomplishments

The SRRC, USFWS and Karuk tribe were funded by the task force to collect and analyze otoliths of Salmon River spring Chinook. This project was implemented in

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March of 2004. The otoliths were collected from juveniles and adult carcasses during the spring Chinook redd surveys. The otoliths are given to the USFWS to be analyzed. The growth rings that are imbedded in the otoliths can be used to identify conditions and growth rates for Salmon River spring Chinook and may also allow for selective harvest to avoid harvest of particular stocks.

COHO

Task 1 - Identify and/or verify the presence or absence of coho in various areas of the Salmon River subbasin, including known or suspected tributaries.

The SRRC in cooperation with CDFG, Karuk Tribe, USFS and USFWS completed coho presence / absence surveys in suspected areas and tributaries of the Salmon River. These surveys were successful at identifying six coho Salmon in areas where coho were previously undocumented within the subbasin. The Restoration Council has provided this data to USFS and CDFG fisheries biologists. Both juvenile and adult coho surveys took place in '03 and '04. Below is a GIS map showing locations of adult and juvenile coho sightings for '03 – '04. Coho data tables, several photos taken of Adult and Juvenile coho and a GIS map are located in the Appendix E - G of the report.

2002 - 2004 Salmon River Adult Coho Salmon Spawning Surveys
Data Summary

Stream	Reach	Date	# of Redds	# of Lives	# of Carcasses	Total Coho Observations
Main Stem	Forks to Nordhiemer	11/24/2003	0	2	0	2
East Fork	Georges to Confluence	12/16/2003	0	0	0	0
Knownothing Cr.	East Fork to Mouth	12/9/2003	0	0	0	0
Methodist Creek	Sign Cr. To Mouth	12/9/2003	0	0	0	0
Nordhiemer Cr.	Hammel Cr to Mouth	12/9/2003	0	0	0	0
Butler Creek	Falls to Mouth	12/9/2003	0	0	0	0
Knownothing Cr.	East Fork to Mouth	12/16/2003	0	0	0	0

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South Fork	Knownothing to Missouri Bar	12/16/2003	0	0	0	0
Methodist Creek	Sign Cr. To Mouth	12/16/2003	0	0	0	0
Butler Creek	Private Prop to Mouth	12/30/2003	0	1	0	1
Merrill Creek	2miles to Mouth	12/16/2003	0	0	0	0
Knownothing Cr.	1 Mile to Mouth	12/23/2003	0	0	0	0
Totals	11		0	3	0	3

WINTER AND SUMMER STEELHEAD

Task 1 - Continue to monitor key spawning locations and numbers of redds in key reaches within the Salmon River and its tributaries.

The SRRRC cooperated with CDFG, the Karuk Tribe, USFS, USFWS, and NOAA Fisheries to survey key spawning locations within the Salmon River Subbasin for the presence of Winter Steelhead. This project has been ongoing since 1999. The data is used by the CDFG steelhead Research and Monitoring Program to determine general run size for the Salmon River. The Summary Tables for the '03 steelhead surveys and a GIS map of redd locations on the North Fork Salmon are shown below. The Data Tables, GIS maps for winter steelhead surveys, and an example of a data sheet are included in Appendix H - J.

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2003 Salmon River, Weak Stocks Winter steelhead Redd and Spawning Survey Totals

Reach	Date Surveyed	# of Surveys	Total Redds	Total Steelhead
Specimen Creek	3/14/2003, 3/28/2003, 4/11/2003	3	23	3
N. Russian (Snow Gates - NR. Bridge)	3/14/2003	1	1	0
N. Fork (Mule Br.- N. Russian)	3/14/2003	1	3	7
N. Russian (Br. - Mouth)	3/14/2003, 4/11/2003	2	7	0
Whites Gulch	3/14/2003, 4/11/2003	2	0	0
Butler Creek	3/14/2003	1	0	0
Merrill Creek	3/19/2003	1	9	3
East Fork (Shadow - Mouth)	3/21/2003, 4/18/2003	2	10	2
Black Bear (3mi. - mouth)	3/21/2003	1	1	0
South Fork (Petersburg- East Fork)	3/21/2003, 4/18/2003	2	12	7
Knownothing (Bridge - Mouth)	3/21/2003	1	1	1
South Fork (Blindhorse Creek- Petersburg)	3/21/2003, 4/4/2003	2	18	0
Crawford Creek (Forks - Mouth)	3/21/2003, 4/18/2003	2	23	0
Mehtodist Creek	3/21/2003, 4/4/2003, 4/18/2003	3	0	0
Indian Creek	3/28/2003	1	0	0
Matthews Creek	3/38/2003	1	0	0
Eddy Gulch	3/28/2003	1	0	0
Negro Creek	3/28/2003	1	2	0
Jackass Gulch (Bottom 1.5 mi.)	3/28/2003	1	0	0
Kelly Gulch (Bottom 0.5 mi.)	3/28/2003	1	0	0
Plummer Creek (Fork- Mouth)	4/4/2003	1	11	4
St. Claire (Mouth- 1.5 mi.)	4/4/2003	2	9	0
N. F. Salmon (Big Cr.- Forks)	4/9/2003	1	61	20
NF Salmon	4/10/2003	1	50	20
N. Fork (Russian to Whites Gulch)	4/11/2003	1	6	5
Little North Fork (Specimen- Mouth)	4/11/2003	1	12	0
S. Fork (East Fork - Cecil Creek)	4/18/2003	1	2	0
Cecil Creek	4/18/2003	1	0	0
Blacks Gulch	4/18/2003	1	0	0
Totals:		40	130	72

Task 2- Determine presence or absence of steelhead in streams where data is lacking.

SRRC documented steelhead Spawning in several streams where no previous data existed. Merrill Creek and Negro Creek are examples of streams that had not been

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know to hold anadromous populations of Steelhead. This data has become very important in assessing the effectiveness of restoration projects like the Merrill Creek fish passage improvement project, which was funded by the CDFG. The project involved the removal of a culvert at the Merrill Creek Crossing of the Salmon River Road. The culvert was replaced with a bridge and the streambed was restored to its natural gradient. The project was completed by late summer '02. On March 19th 2003 weak stocks technicians observed 3 adult steelhead and 9 total redds while surveying the lower 2 miles of the creek. The data and GIS maps for these streams are located in the Appendices H and I of the report.

Task 3 - Identify migration barriers.

The SRRC and the Karuk Tribe are in the process of creating a Salmon River Fish Barrier Matrix to identify and prioritize barriers for modification. The weak stocks program has helped to further barrier modification projects within the subbasin like the Merrill Creek culvert removal and the Whites Gulch dam removal project. Weak Stocks technicians documented Winter steelhead spawning in Merrill Creek for the first time after the removal of migration blocking culvert by the County Roads Dept.. Specific migration barrier information for tributaries was recorded during winter steelhead redd surveys. This data is included in the comments section of individual data sheets (appendix H). All of the barriers that were identified through winter steelhead redd surveys were natural in origin.

STURGEON

Task 1 - Monitor lower reaches of the Salmon River mainstem for sturgeon presence.

The SRRC and Karuk Tribe held Sturgeon Dives in the months of April and May 2003. During the dives a total of 13 green sturgeon were observed in the lower Salmon River. SRRC and the Karuk tribe also cooperated to sample the lower Salmon River for Larval green sturgeon. Over one hundred larval green sturgeon were caught during the sampling period. Larval Sturgeon early in the year were usually 20 –30mm. Rapid growth of the Sturgeon was noted when crews began catching Juvenile Sturgeon several months later that measured 100mm. or more. The Yurok Tribal Fisheries Program tagged and tracked adult green sturgeon in the Klamath River during 2002 and 2003 (Belchik, 2005). The SRRC assisted in the maintenance of a radio tracking station located at the mouth of Wooley Creek, four river miles from the confluence with the Klamath. A GIS map showing sturgeon sightings is located in Appendix K of the report.

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LAMPREY

Task 1 -Monitor known and suspected habitats in Salmon River subbasin for lamprey presence.

The SRRC monitored stretches of the Lower Salmon for the presence of pacific lamprey. Lamprey presence was determined in areas of the river by the evidence of lamprey spawning activity. These lamprey nests were recorded during spring Chinook dives. The mapped lamprey nests are located in Appendix L. SRRC also contributed to the operation of a Downstream Migrant Trap, which catches juvenile Lamprey. Data from the down stream migrant trap is still being compiled by USFWS. A photo of a pacific lamprey Ammocete caught during rotary screw trapping in the lower Salmon River is shown below.



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Acknowledgements:

The Salmon River Restoration Council would like to acknowledge the following organizations and individuals for their contributions to the implementation of this project.

The Klamath Fisheries Restoration Task Force

The U.S. Fish and Wildlife Service

The California Dept. of Fish and Game

The U.S. Forest Service, Ukonom and Salmon River Ranger Districts

The Karuk Tribe

The Mid- Klamath Watershed Council

The Klamath Salmon Anglers and Guides Association

The Salmon River Community

Summary of Expenditures and In Kind:

In Kind

SRRC staff donated services and mileage valued (including implied benefits) at \$20,065.62 and community volunteers donated services and mileage valued at \$14,595.77. SRRC made in kind contributions of \$3,470.00 to the Salmon River Weak Stocks Program in the form of office rental, equipment use, supplies, postage, and survey equipment including waders felt boots wetsuits and drysuits. California Dept. of Fish and Game and local groups donated \$1,560.70. The total in kind match for the project is \$41,534.12.

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Expenditures:

Personnel

6060 · Bank Service Charges	\$	30.00
6560 · Payroll Expense	\$	6,360.00
6580 · Payroll Taxes	\$	1,154.62
Total Personnel Expense	\$	7,544.62

Operating Expense

6400 · Insurance (Prop&Liabil.)	\$	25.00
6620 · Printing and Reproduction	\$	25.00
6690 · Rent	\$	100.00
6880 · Telephone	\$	25.00
6890 · Web Page & ISP expense	\$	25.00
6900 · Travel & Ent	\$	39.63
6940 · Utilities	\$	50.00
Total Operating Expense	\$	289.63

Materials & Supplies Expense

6610 · Postage and Delivery	\$	32.00
6770 · Supplies	\$	2,556.92
Total Materials & Supplies Expense	\$	2,588.92

Admin Expense

6560 · Payroll Expense	\$	1,092.75
6580 · Payroll Taxes	\$	201.44
6770 · Supplies	\$	19.48
6900 · Travel & Ent	\$	51.14
6940 · Utilities	\$	196.90
Total Admin Expense	\$	1,561.71

Total Expenses \$ 11,984.88

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