

YUROK TRIBE - FISHERIES DEPARTMENT

Fisheries Program Annual Report, 2008

Dave Hillemeier – Fisheries Program Manager
Labecca Nessier – Bookkeeper/Administrative Assistant

Lower Klamath Division

Dan Gale - Senior Fisheries Biologist/Division Lead
Dave Weskamp - Fisheries Biologist II
Sarah Beesley - Fisheries Biologist II
Monica Hiner – Fisheries Biologist II
Andrew Antonetti - Fisheries Biologist
Pam Kostka – Fisheries Biologist
Scott Silloway – Fisheries Biologist
Jason Ogawa – Fisheries Biologist
Bryan Crouch – Fisheries Biologist
Aldaron McCovey - Fisheries Technician III
Delmer Jordan - Fisheries Technician III
A. J. Webster – Fisheries Technician II
Josh Lewis – Fisheries Technician II
Steve Nova Jr. – Fisheries Technician II
Robert Grubbs – Fisheries Technician II
Dwayne Davis – Fisheries Technician I
Gil Caleja – Fisheries Technician I
Nick Fulkins – Fisheries Technician I
Todd Moon – Fisheries Technician I

An additional 4-5 technicians will be hired to conduct summer/fall restoration work

Trinity River Fisheries Division

Tim Hayden, Senior Fisheries Biologist/Division Lead
Aaron Martin, Fisheries Biologist II
Shane Quinn, Fisheries Biologist II
Carl Anderson, Fisheries Biologist I
Hank Alameda, Fisheries Technician II
Jeremy Alameda, Fisheries Technician II
Timothy Ulrich, Fisheries Technician I
Albert "Bubba" Markussen, Fisheries Technician I

Harvest Management Division

Desma Williams, Senior Fisheries Biologist

Arnie Nova, Fisheries Technician IV
Tommy Wilson, Fisheries Technician II
Nick McCovey, Fisheries Technician II
Robert Ray, Fisheries Technician II

Approximately 13 additional technicians during the fall fishery

Klamath Division

Michael Belchik, Senior Fisheries Biologist
Josh Strange, Biologist II
Barry McCovey Jr., Biologist II
Jamie Holt, Fisheries Technician II
Rocky Ericson, Technician I
Troy Fletcher Jr., Technician I

The Yurok Tribal Fisheries Program is comprised of four Divisions that are responsible for the management, conservation, and restoration of the Tribe's fishery resource. The following is a list of the activities, projects and issues that these Divisions have been involved with during the past year.

Lower Klamath Division

Juvenile Outmigrant Trapping

- **Blue Creek**

Juvenile salmonid emigration is monitored with a rotary screw trap from February through September in lower Blue Creek. This provides a means of monitoring long-term production trends of juvenile chinook, coho, steelhead, and coastal cutthroat trout. In addition, this project allows for continued refinement of juvenile salmonid life history patterns within the Blue Creek basin. This project has been conducted annually from 1995 through 2008.

- **McGarvey Creek**

A pipe trap is utilized in lower McGarvey Creek between February and June to monitor long-term juvenile salmonid emigration and life history trends. This trap also provides a means of assessing population trends in response to on-going restoration activities in the McGarvey Creek basin. This project has been conducted annually from 1997 through 2008.

Adult Spawning Surveys

- Blue Creek

In order to assess annual run size and spawning activity of chinook salmon, snorkel surveys are conducted weekly throughout the Blue Creek basin between September and December as flow conditions allow. These surveys assess annual escapement trends in Blue Creek as well as refining knowledge of spawning timing, locations, and magnitude. These surveys have been conducted annually from 1994 to 2007.

In addition to the fall surveys, snorkel counts of migrating/spawning coho salmon and steelhead are made in Blue Creek between January and June as flows and survey conditions allow. Additionally, annual summer counts are made throughout the Blue Creek basin in late July/early August to assess the presence of summer steelhead and spring chinook.

- Misc. Lower Klamath Tributaries

Snorkel surveys are conducted throughout various Lower Klamath tributaries during the fall/winter/spring months as staff/funding levels allow. These surveys provide a means of assessing adult salmonid spawning activity throughout these drainages. Streams routinely surveyed in the past have included Terwer, Hunter, McGarvey, Hoppaw, Tectah, and Pecwan Creeks.

McGarvey Creek Complete Life Cycle Population Monitoring

In addition to the annual juvenile salmonid outmigrant trapping, YTFP also conducts annual summer abundance surveys and also operates an adult weir and conducts adult spawning surveys throughout the fall, winter and spring months. These additional efforts allow YTFP to enumerate anadromous salmonid populations at all life stages (adult spawning, summer rearing, and spring outmigration) and thus be able to assess survival rates between each of these life stages. YTFP also operates a series of PIT tag monitoring stations throughout the McGarvey Creek drainage. PIT tags are small electronic tags that are implanted in juvenile salmonids and then can be tracked at each of the antenna stations each time these pass. This allows data on fish movement and residency time, as well as growth data when individual fish are recaptured and measured.



Figure 1. Juvenile salmonid outmigrant trap in lower McGarvey Creek.

Coho Salmon Ecology Project

YTFP is entering the third year of our ongoing coho salmon ecology project. This project is funded through BOR to assess and monitor juvenile coho habitat use, movement, growth and distribution throughout the Klamath estuary and surrounding slough and backwater habitat. Crews have been operating several juvenile fish traps in Waukell, Salt, McGarvey, Panther, and Spruce Creeks to track upstream and downstream fish movement and recapture fish previously marked with PIT tags. This project is undertaken in conjunction with the Karuk Tribe, who have been PIT tag marking several thousand juvenile coho they have captured throughout the Mid-Klamath sub-basin. We then are able to recapture these marked fish in and around the estuary and document habitat use, fish growth, and migration timing.

Stream Habitat Restoration

Using the Lower Klamath Watershed Restoration Plan as a guide, YTFP has undertaken extensive instream and riparian restoration throughout several lower Klamath tributaries. Crews have been conducting extensive riparian planting throughout the highest priority drainages, including revegetating roads recently decommissioned by the Watershed Restoration Department. In

addition, crews have been conducting extensive willow baffling in lower Terwer Creek to aid in bank stabilization and revegetation in this heavily braided stream reach.

YTFP initiated large woody debris (log and rootwad) placement in McGarvey Creek during 2007. Large woody debris (LWD) is essential for habitat formation, fish cover, and instream sediment storage and was extensively removed from lower Klamath stream channels during logging operations over the past 50 years. YTFP is re-introducing logs and rootwads at key locations to facilitate improved habitat conditions and encourage entrainment of LWD naturally floating down the stream. During 2007, YTFP placed 60 pieces of large wood throughout lower West Fork McGarvey Creek and similar efforts will be undertaken in mainstem McGarvey Creek during summer 2008. Funds have been secured to undertake similar wood placement in Waukell Creek, with this work planned for late summer 2008 and/or summer 2009.

We have been coordinating with the Yurok Tribe Forestry, California Department of Fish and Game, Green Diamond Resource Company (GDRC), and Columbia Helicopters, Inc. (Col. Heli.) to plan for the upcoming stream and floodplain enhancement project in Tectah Creek. This summer, YTFP will use Col. Heli. services to place over 100 pieces of large wood in the channel and floodplains of Tectah Creek to increase sediment storage capacity in this critically important tributary and reduce sediment delivery to Klamath River habitats. Adding large wood to the channel will also immediately improve salmonid spawning and rearing potential by facilitating the formation of critical instream habitats, enhancing habitat complexity in existing pools, and improving spawning gravel quality. Crews identified the large wood sources required for use in this project and we are now preparing to transport that wood to central landings located in the vicinity of the project. We have been also working with GDRC to coordinate our baseline topographic surveys of the project reach. GDRC has nearly ten years of topographic data for the project reach. YTFP is working with GDRC and Yurok Land Management to ensure all previous and future surveys are tied together. Crews will begin surveying in June 2008.

Native Tree Nursery

YTFP has continued operation of our native tree nursery at the Fisheries office in Klamath. Staff are trained in seed collection and germination, cutting collection and propagation, and tree

transplanting and growing skills as we grow several thousand native deciduous and conifer trees for use in our stream restoration projects. Species cultivated and grown to date include coastal redwood, Douglas fir, Sitka spruce, western red cedar, Port Orford cedar, big-leaf maple, red alder, black cottonwood, tanoak, white oak, and bay laurel.

Figure 2. YTFP staff transplanting Sitka spruce seedlings at the Native Tree Nursery.



Restoration Planning in Waukell Creek

We have been working with several resource agencies and stakeholders to develop restoration strategies for Waukell Creek based on the non-natal salmonid use of this watershed that YTFP has documented over the last few years. As part of these efforts YTFP developed a restoration plan for the watershed (Gale 2008). Priority restoration objectives for the watershed include 1) improving hydrologic and geomorphic function to ensure protection of critical downstream habitats (i.e. Klamath River Estuary); 2) increasing juvenile salmonid rearing capacity and productivity; and 3) enhancing adult salmonid staging and spawning habitats. Restoration activities will include adding large and small wood to channel and floodplain habitats; enhancing existing wetlands and creating new, complex off-channel habitats; removing invasive plants and reestablishing native riparian species; and replacing



poorly functioning culverts. Crews will continue conducting baseline topographic surveys of the channel and floodplain habitats. We have provided the Resighini Rancheria and Laco and Associates some of this data to assist their efforts to design a road system for their facility that would include installation of improved (i.e. oversized) culverts for Waukell Creek and Junior Creek. Crews have also started identifying the wood sources required to conduct the first phases of stream and floodplain restoration of Waukell Creek. Large wood placement projects are scheduled to begin over the next few years.

Restoration Effectiveness Monitoring in McGarvey Creek

Crews continued topographic surveys in mainstem McGarvey Creek to document baseline conditions in the stream prior to restoration implementation during summer 2008. YTFP will be placing large wood in channel and floodplain habitats of McGarvey Creek to increase salmonid spawning and rearing capacity and promote the geomorphic processes that result in improved watershed integrity. The baseline topographic data will allow YTFP to quantitatively assess changes associated with implemented restoration activities. In addition, crews repeated surveys in West Fork McGarvey Creek to document stream channel changes in response to our placement of 60 pieces of large wood in the channel during summer 2007.

Geomorphic Assessment and Restoration Planning in Blue Creek

YTFP is in the process of completing a report that will 1) document historic and current channel and floodplain conditions of lower Blue Creek; 2) identify the primary factors currently limiting fish and riparian production in this reach; and 3) present site-specific restoration strategies that address identified limiting factors. Based on the data and information collected during this project, the loss of large wood in the fluvial corridor of Blue Creek resulting from land management activities in combination with large flood events occurring over the last 150 years has resulted in substantial channel and riparian dysfunction in the watershed, especially lower Blue Creek.

Field evidence collected in Blue Creek and other priority watersheds (i.e. Salt Creek, Hunter Creek, Terwer Creek, and Tectah Creek) indicate that the lower reaches of these tributaries were historically comprised of anastomosed channels with complex, interconnected wetlands and floodplains composed of fine-grained sediments that supported productive riparian forests dominated by native, old-growth conifers and cottonwood. Currently, most of the remnant fine-grained floodplain soils in these watersheds have been

eroded and replaced with coarse alluvium; anastomosed channel networks have been replaced with less productive single thread or braided channel networks; and riparian forests have been severely compromised.

Estuary and Off-Estuary Habitat Study

YTFP completed a geomorphic assessment and restoration planning project in Salt Creek, the lower-most anadromous tributary to the Klamath River (Beesley and Fiori 2007). The document contained restoration alternatives for the High Prairie Creek and Salt Creek confluence reach that were aimed at 1) optimizing juvenile salmonid rearing capacity while improving fish passage conditions in the watershed; and 2) improving hydrologic and geomorphic function in this critically important off-estuary watershed. Since the report was completed, we have been working with the pertinent stakeholders, permitting authorities, and funding agencies to develop a final restoration design and regulatory compliance strategy for this area.

During May 2008, YTEP worked with the local Community Service District to obtain permission to collect soil and water samples from the defunct Waste Water Treatment Facility located in Salt Creek. YTFP and YTEP also met with some experts from the California Regional Water Quality Control Board regarding the history of the facility to determine the likelihood of detecting contaminants at this site. The conclusion based on this meeting was that finding contaminants at this facility was extremely low given when the facility was operational and the time that has passed since operation. We also met with a CalTrans Mitigation Specialist to discuss our proposed restoration alternatives for Salt Creek and other potential wetland enhancement/creation projects to mitigate for the US Highway 101 grade raise scheduled for Klamath in the next few years.

Over the past few years, YTFP has been compiling historic images and information on the Klamath River Estuary to document historic conditions and assess how changes to the estuary over time have affected Tribal Trust fish and wildlife habitats and estuary productivity. YTFP contracted a local company to research and compile historic maps for the Klamath River Estuary (1800s – 1940s) and develop a corresponding report (Laird 2008). The historic maps indicated the estuary was comprised of several large sloughs that received flow from the primary off-estuary watersheds (Figures X – X). YTFP is currently developing restoration strategies that will result in more extensive and complex off-estuary wetland, slough, and stream habitats to improve hydrologic and geomorphic function in the estuary and to provide highly productive rearing and staging habitats





for Klamath Basin fish populations.

YTFP has been coordinating with the Yurok Tribe Environmental Program (YTEP) to continue monitoring seasonal water quality conditions in the South Slough of the estuary and in off-estuary tributaries. YTEP has been deploying datasonde probes in specific locations to document diurnal water quality conditions present during critical salmonid migration periods (March – October). This year the monitoring efforts are being concentrated in the South Slough and Waukell Creek. In addition to the datasonde work, YTFP has deployed several water temperature recording devices in priority off-estuary tributaries to continuously document temperatures in critical habitats.

YTFP has continued conducting detailed topographic surveys in off-estuary tributaries to document baseline elevation conditions and to develop an accurate topographic model of the estuary and its associated off-estuary habitats. To improve our topographic model, YTFP contracted with Green Diamond Resource Company to obtain LiDAR for the Yurok Indian Reservation (YIR). The estuary and lower river were flown this spring and the rest of the YIR will be flown in fall or winter 2008. These flights will result in high resolution digital elevation models of the ground surface and riparian canopy. To further these efforts, YTFP and YTEP will conduct a bathymetric assessment of the estuary this summer to characterize topographic conditions of the river bottom. YTFP has also been operating stream gages in lower Hunter Creek and Salt Creek and plans to install more of these gages in the South Slough and lower Waukell Creek. These gages and the YTEP estuary gage will allow us to model hydrologic conditions in the estuary 1) to allow us to develop site-specific, geomorphically sound restoration designs in the area; and 2) improve our ability to manage the estuary over the long-term and account for large-scale restoration (i.e. Klamath River dam removal) and global climate change.

Fish Health Monitoring

We have been an active member of the Klamath Fish Health Assessment Team (KFHAT), which is geared towards preventing fish kills throughout the basin and serves as an emergency response team in the event of future fish kills. We have also coordinated with USFWS to conduct disease monitoring of emigrating juvenile chinook downstream of Blue Creek.

Water Temperature Monitoring

Stream temperature is monitoring annually in the following lower Klamath tributaries: Ah Pah Creek and two tributaries, Bear Creek, upper and lower Blue Creek and four tributaries, upper and lower Hunter Creek, McGarvey Creek, Mettah Creek, Pecwan Creek, Roaches Creek, Tectah Creek, upper and lower Terwer Creek and one tributary, Waukell Creek, and Tully Creek. This monitoring was initiated in 1995 and continues to date.

Trinity Division

Trinity River Restoration Program Participation

The mission of the Yurok Tribal Fisheries Program, Trinity River Division is ensure the protection of Yurok Tribal fishing and water rights through restoration of natural populations of tribal trust fish species of the Klamath and Trinity River. The Yurok Tribe is an active partner in the Trinity River Restoration Program (TRRP). As a partner, the Yurok Tribe participates on both policy and technical levels to best implement the 2000 Record of Decision (ROD). The TRRP is guided by the 8 member Trinity River Management Council (TMC). The Yurok Tribe is a member of the TMC and works with other TMC members to develop the policy guidance to direct the restoration actions of the TRRP. On a technical level, the Trinity River Division works cooperatively with the TRRP staff and other TRRP partners to implement and evaluate restoration actions such as ROD flow releases, channel rehabilitation and coarse sediment augmentation efforts.

Trinity River Flow Scheduling 2008

The ROD specifies annual release volumes based on five water-year classifications. Based on snow pack estimates and reservoir inflow estimates on April 1, the 2008 water year was classified as “Normal”. Under the 2000 ROD Normal-year flow releases a total volume of 646,500 acre feet (af) is available

