Burned Area Emergency Response
Front Country Fires
Fisheries Assessment

Prepared by: Donald Ratcliff[1] and Will Young[2] – USDA Forest Service
[1] Fisheries Biologist, Shasta-Trinity National Forest
[2] Fisheries Biologist, Bighorn National Forest

01 August 2008

GENERAL BACKGROUND

- Assessment area - "Front Country Fires", includes six fires in Tehama, Trinity and Shasta Counties. These include the Noble, Telephone, Deerlick, Deadshot, Moon and Motion fires.
- Public (USFS and BLM administered) and private lands are included in this assessment.

I. OBJECTIVES

- Assess immediate impacts of the Front Country Fires on fisheries and aquatic resources within and directly downstream of the burned areas.
- Inventory and evaluate future impacts caused or enhanced by the Front Country Fires on fisheries within and downstream of the burned areas and determine what emergency response is necessary.

II. ISSUES

- Anadromous fisheries and aquatic habitat in Cottonwood and Salt creek watersheds.
- Recreational fisheries in Keswick and Whiskeytown reservoirs.

III. OBSERVATIONS

Background

a. Cottonwood Creek Watershed (Portions of the Noble, Deerlick, Deadshot and Moon fires)

– Spring-run Chinook salmon – Cottonwood Creek is the largest undammed tributary in the northern Central Valley. Approximately 130 miles of anadromous fish habitat provide important spawning and rearing areas for listed species including spring-run Chinook salmon (*Oncorhynchus tshawytscha*, federal and state listed as Threatened), Central Valley steelhead (*O. mykiss*, federally listed as Threatened), as well as fall- and late-fall run Chinook salmon (federally listed as Species of Concern). According to the CALFED Ecosystem Restoration Program, Cottonwood Creek is the primary source of spawning gravel for the Sacramento River, providing almost 85% of the gravel introduced between Redding and Red Bluff (Brenda Olson, personal communication). Although exact timing of entry by adult spring-run Chinook salmon into Cottonwood Creek is unknown, observations from other area watersheds suggest that adult fish enter in late April/early May. In Cottonwood Creek, adult fish over-summer in the

Beegum Gorge and spawn in late September/early October. Summer surveys have been consistently done to determine number of adults holding in Beegum Creek since 1998. Table 1 displays the numbers observed during those surveys (data from Brenda Olson, USFWS Grandtab database).

Table 1. Numbers of Observed Adult Spring-run Chinook Salmon in Beegum Creek.

Year	Adults observed
1998	477
1999	102
2000	122
2001	245
2002	125
2003	73
2004	17
2005	47
2006	55
2007	34

- Fall-run and late fall-run Chinook salmon – An estimated 1,250 fall-run Chinook returned to Cottonwood Creek to spawn in 2007. Compared to historic survey data from Cottonwood Creek and other local watersheds, this was a relatively low return. Even with this low return, it is estimated that Cottonwood Creek contributed 1.3% of the total escapement of fall-run Chinook to California's Central Valley in 2007. In 2007, fall –run Chinook entered Cottonwood Creek in early October when temperature and flows permitted. By mid-November the run into Cottonwood Creek was finished. Spawning is usually completed by late November. The timing of this run and the subsequent emergence of their offspring does make them vulnerable to possible fire-related increased in sediment during precipitation events.

- Steelhead – Little is known regarding the steelhead population or distribution in Cottonwood Creek; however we do know there is spawning and rearing in the upper watershed. Steelhead have been observed in the mainstem, South Fork, North Fork, Middle Fork, and Beegum Creek. Adults typically enter Cottonwood Creek beginning in November. Spawning can last from January through April.

b. Salt Creek Watershed (Telephone fire)

- The following is a fisheries summary based on the Salt Project Biological Assessment/Evaluation (USFS, 2007). Documented Southern Oregon/Northern California Coastal coho salmon occupied habitat is approximately 32 miles downstream of the Salt Creek confluence with Hayfork Creek. Salt Creek, above its confluence with Hayfork Creek supports a limited run of Klamath Mountain Province (KMP) steelhead. Upper Hayfork Creek (above the confluence with Salt Creek) currently supports anadromous runs of KMP steelhead (*O. mykiss*) and a remnant run

of Upper Klamath Trinity River Chinook salmon (*O. tshawytscha*). Historically, spring Chinook salmon utilized the lower reaches of Salt Creek, Big Creek, Tule Creek, and East Fork Hayfork Creek (PWA, 1994), but no appreciable number of Chinook are believed to use Salt Creek currently. A limited resident rainbow trout fishery is present in Salt Creek along the 13 dips road.

c. Keswick and Whiskeytown Reservoirs / Sacramento River (Motion fire)

– Keswick and Whiskeytown dams represent complete barriers to anadromous fish. The section of clear creek below Whiskeytown dam does support a run of spring-run Chinnok salmon, but no impact from the Motion fire is expected as all fire-related sediment will be retained by the reservoir. Keswick reservoir supports a limited rainbow trout fishery. Whiskeytown reservoir and Whiskey creek about the reservoir support an important kokanee salmon fishery.

Reconnaissance Method

All reconnaissance was completed by vehicle and foot access. No fisheries biologists were present on helicopter flights. The following list includes the date(s) that each fire was visited. Areas of high and moderate burn severity were the priority for field survey work.

- Noble – 07/28 and 07/30
- Moon – 07/29
- Motion – 07/29 and 07/31
- Deerlick – 07/30
- Telephone – 07/31
- Deadshot – No fisheries concerns were identified in this fire.

Findings/Description of Emergency

Cottonwood Creek Watershed – The primary area of emergency concern identified by our field visits was Beegum Creek, above Highway 36. We observed several areas of moderate to high severity burn within direct proximity of Beegum Creek and primary tributary drainages. We also observed steep slopes, historic hillslope instability and undersized culverts and drainage features along the Beegum Gorge Road in this area. The area of Beegum Gorge from the Highway 36 bridge to the confluence of South Fork Beegum Creek and the mainstem generally showed moderate burn severity in the upper tributaries with large sections of unburned or lightly burned vegetation in the lower 50% of watercourses. The section of Beegum Creek upstream of the South Fork confluence showed generally moderate to high burn severity from the upper watersheds continuing in many areas all the way to their confluences with Beegum Creek. This upper section shows a high potential to deliver sediment directly to Beegum Creek, this would likely negatively impact resident and anadromous fish and their habitat. Anadromous areas of Cottonwood Creek, other than Beegum Creek, are generally utilized by fall- and late fall-run Chinnok salmon and Steelhead, these areas are expected to be distant enough from burned areas that no measurable effects to these fisheries are expected within the immediate future. Any treatments proposed by other resource specialists in these areas are expected to further reduce any possible impacts to fish.

Salt Creek Watershed – No areas of concern were identified due to the burn pattern in this area and the relatively distant proximity of anadromous fisheries. Threats to the resident rainbow trout fishery are closely tied to historic road drainage and function issues, additional fire-related road impacts have been identified and will be addressed by the appropriate specialists (see roads/engineering report for specific recommendations for 13 dips road).

Keswick and Whiskeytown Reservoirs / Sacramento River – No areas of concern were identified due to the presence of impassable dams downstream of burnt areas. Limited amounts of sediment are expected to reach each reservoir, but not be transmitted downstream beyond each dam. Any treatments proposed by other resource specialists in these areas are expected to further reduce any possible impacts to fish related to sediment transport to these areas.

IV. TREATMENT RECOMMENDATIONS

a. Management Treatments

Cottonwood Creek Watershed – Forest Road 29N06 – Beegum Gorge Road (including BLM and USFS sections) poses an immediate threat to fisheries and aquatic habitat in Beegum Creek. This road intercepts and directs overland flow directly to the creek. The following generalized treatments are proposed to minimize impacts to fisheries and aquatic resources at a larger scale. Individual treatments for specific road sections will need to be designed and proposed by the proper resource specialists (i.e. hydrology, soils and engineering). A range of generalized treatments that would minimize impacts to aquatic resources follows: 1) temporarily close road for first wet season, 2) provide adequate road drainage features (i.e. rolling dips, critical dips, armoring, outsloping, appropriately sized culverts, removal of berm on outside/downhill side of road), 3) storm patrol during precipitation events for 1-3 seasons following the fire, 4) proper signage of road indicating closure or, hazards if road is not completely closed and, 5) mulch identified areas of appropriate slope. These proposed treatments are not meant to be mutually exclusive, rather they are meant to provide a range of alternative treatment combinations with differing levels of protection for aquatic resources. We feel that the most protective option will include specific elements of all the points listed above, at appropriate locations.

A possible straw mulching treatment area was identified in two tributary watersheds on the north side of Beegum Creek, directly upstream from the South Fork confluence. This area is mainly on lands administered by BLM. This treatment was developed by the soils specialist and fisheries concerns were incorporated into the design (see Soils specialist report for specific treatment proposal). It is recommended that the BLM immediately consider funding this proposed treatment to address the concerns of increased sediment impacts to spring-run Chinook salmon in Beegum Creek.

Salt Creek Watershed – Based on field review and assessment, no immediate fisheries related treatments are proposed in this area. Any treatments proposed by other resource specialists in these areas are expected to sufficiently limit possible impacts to fish and aquatic habitat.

Keswick and Whiskeytown Reservoirs / Sacramento River – Based on field review and assessment, no immediate fisheries related treatments are proposed in this area. Any treatments proposed by other resource specialists in these areas are expected to sufficiently limit possible

impacts to fish and aquatic habitat (See Soils and Hydrology specialist reports for proposed treatments in this area).

b. Monitoring

Cottonwood Creek Watershed – No specific monitoring is proposed at this time. However, this will be reevaluated based on results from ongoing long-term monitoring.

Salt Creek Watershed – Based on field review and assessment, no immediate fisheries related monitoring is proposed in this area.

Keswick and Whiskeytown Reservoirs / Sacramento River – Based on field review and assessment, no immediate fisheries related monitoring is proposed in this area.

c. Long-term project proposals / NFP

Cottonwood Creek Watershed – Support the continuation of long-term monitoring projects conducted by all federal, state and private groups. At this time we do not anticipate requesting any fisheries-specific funding, but we do support the possibility of seeking funds to permanently close or, reduce the type and amount of vehicle traffic on Forest Road 29N06 (Beegum Gorge Road).

Salt Creek Watershed – Based on field review and assessment, no requests for long-term fisheries related proposals are anticipated in this area.

Keswick and Whiskeytown Reservoirs / Sacramento River – Based on field review and assessment, no requests for long-term fisheries related proposals are anticipated in this area.

V. CONSULTATION

At this time, no formal consultation has been initiated, as it is not required by an assessment team. However, informal consultation did occur between U.S. Fish and Wildlife Service and the interagency BAER assessment team. Future activities (including BAER implementation) may require further consultation.

VI. REFERENCS

Brenda Olson. Personal Communication. 2007. U.S. Fish and Wildlife Service, Fisheries Biologist.

USFS. 2007. Salt Project, Fisheries Biological Assessment/Evaluation. Shasta-Trinity National Forest (author – D. Ratcliff).