Hawthorne Timber Co. 2002 303(d) List Update Ref. # 72

Section I, General Information, North Side Smith THP

FOR ADMIN. USE ONLY Amendments-date & S or M	
1. _____	7. _____
2. _____	8. _____
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5. _____	11. _____
6. _____	12. _____

TIMBER HARVEST PLAN
STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY
AND FIRE PROTECTION
RM-63 (1-00)

THP Name: North Side Smith
This is not a Modified THP

FOR ADMIN. USE ONLY

THP No. 1-01-206 MEN
Dates Rec'd JUN 14 2001
Date Filed _____
Date Approved _____
Date Expires _____
Extensions 1) [ ] 2) [ ]

This Timber Harvesting Plan (THP) form is designed to comply with the Forest Practice Act (FPA) and Board of Forestry rules. THP form wording, items, and other information prompts appear in this font, Arial 10 point. Responses and other THP information provided by the THP submitter appear in this font: Times New Roman 12 point.

SECTION I - GENERAL INFORMATION

This THP conforms to our plan and upon approval we agree to conduct harvesting in accordance therewith. Consent is hereby given to the Director of Forestry and Fire Protection, and his or her agents and employees, to enter the premises to inspect timber operations for compliance with the Forest Practice Act and Forest Practice Rules. We have been informed of our responsibilities, in writing in item 13a below.

1. TIMBER OWNER(S) OF RECORD:
   Hawthorne Timber Company, LLC
   P.O. Box 1228
   Fort Bragg, CA 95437 (707)-961-3302

   Signature: Scott Kelly Date 6/13/2001
   Printed Name: Scott Kelly, Timber Resource Manager
   The timber owner is aware of their responsibilities for the payment of a yield taxes.

2. TIMBERLAND OWNER(S) OF RECORD:
   Same as in item 1 above.

   Signature: Scott Kelly Date 6/13/2001
   Printed Name: Scott Kelly, Timber Resource Manager

3. LICENSED TIMBER OPERATOR(S):
   HTC Log Corp. Lic. No.: A-9644
   P.O Box 1228
   Fort Bragg, CA 95437 (707)-961-3248

   Signature: Scott Kelly Date: 6/13/2001
   Printed Name: Douglas C. Mallory for Doug Mallory
   HTC Log Corp. is listed as the LTO only for the purpose of burning slash piles as required by PRC 4527. Other LTOs will be added to the THP by minor deviations prior to the commencement of operations. The specific responsibilities of each subsequent LTO shall be specified in the deviations.

RECEIVED
JUN 14 2001
COAST AREA OFFICE
RESOURCE MANAGEMENT

...wing factors were considered as per the appendix to Technical Rule Addendum Number Two (14 CCR

Watershed resources.

1. Beneficial uses. The Water Quality Control Plan for the North Coast Basin list the following beneficial uses for the Ten Mile River watershed.

   - municipal and domestic supply,
   - agricultural supply,
   - industrial service supply,
   - groundwater recharge,
   - water contact recreation,
   - non-contact water recreation,
   - ocean commercial and sport fishing,
   - cold freshwater habitat,
   - wildlife habitat,
   - fish migration,
   - fish spawning,
   - estuary,
   - aqua (sic).

   Beneficial uses within the assessment area are primarily spawning and rearing habitat for anadromous salmonids, other fish habitat, wildlife habitat, and ground water recharge.

   The THP complies with the water quality objectives set forth in the Water Quality Control Plan for the following: color, taste, odor, floating material, suspended material, oil, grease, biostimulatory substances, sediment, turbidity, pH, dissolved oxygen, bacteria, temperature, toxicity, pesticides, chemical constituents, and radioactivity.

   There are no domestic water intakes or other landowners within 1000 feet downstream of the proposed THP area.

2. Watershed effects:

   a. Sediment:

      The THP area is in the Lower South Fork Ten Mile River planning watershed that is a part of the Ten Mile River listed under section 303d of the Clean Water Act as impaired due to sediment.

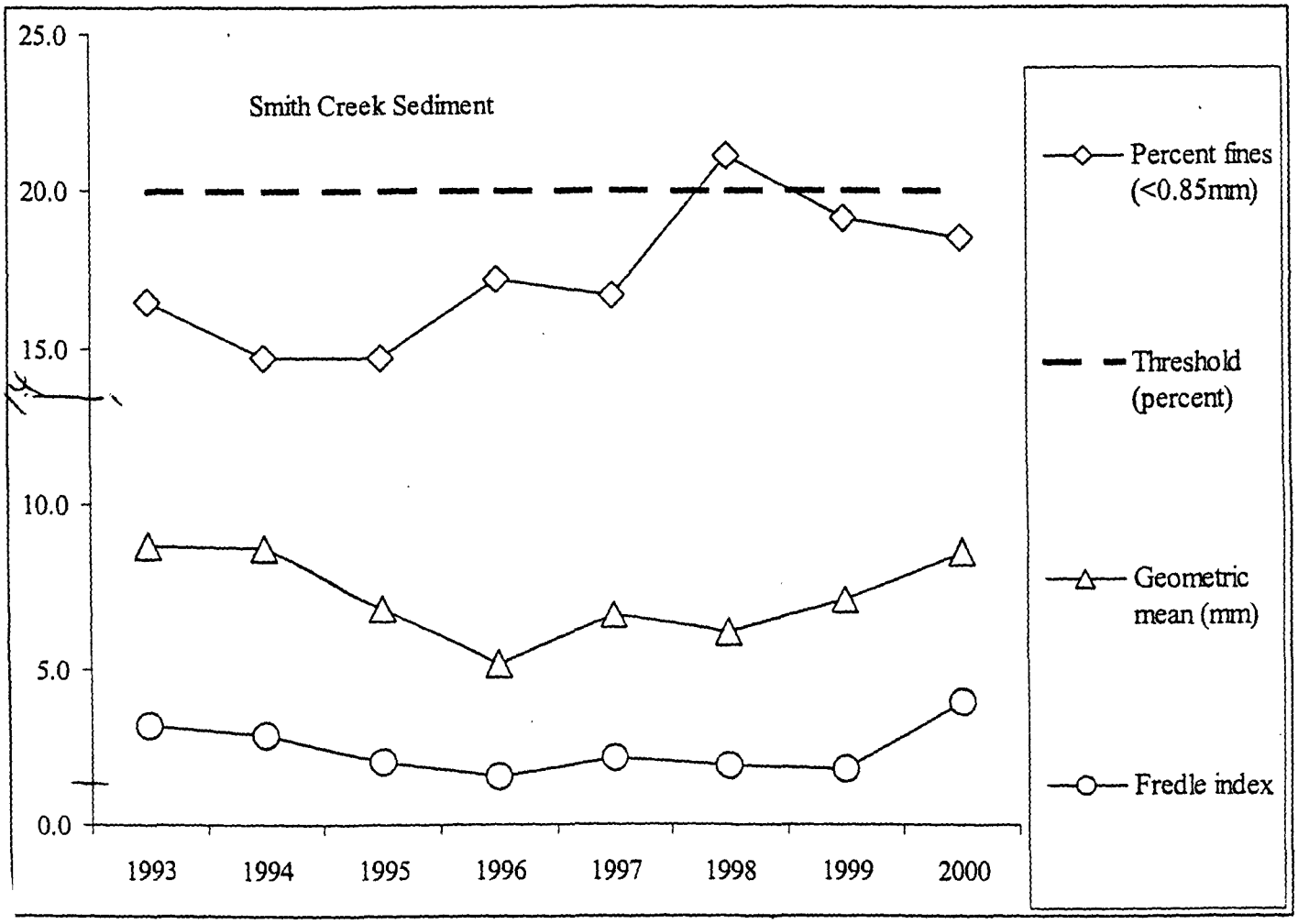
In the hill slope hazard portion of a watershed assessment of the Hawthorne Timber Compa the following percentages of Lower South Fork Ten Mile River were rated for these sediment hazards:

Erosion and mass wasting			Streamside landslides			Road related sediment		
Low	Medium	High	Low	Medium	High	Low	Medium	High
6	64	30	6	80	14	40	60	0

In the channel response portion of the watershed assessment, the following percentages of Lower South Fork Ten Mile River were rated for sensitivity to sediment deposition:

Low	Intermediate	High
6	49	45

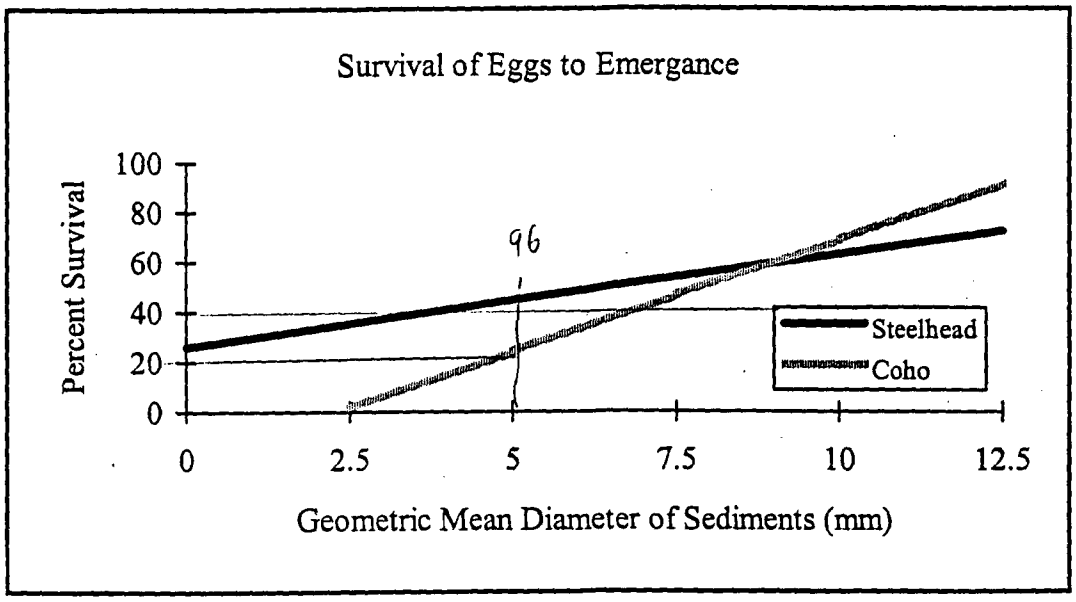
The following were derived from McNeil sediment data collected at a location on Smith Creek near the property boundary in the southeast quarter of section two, township nineteen north, range seventeen west.



One measure of the suitability of streambeds for salmonid spawning is the percent of fine sediments less than 0.85 mm in size. Lisle and Eads (1991) report a threshold of concern around twenty percent. Smith Creek fine sediments exceeded this threshold for a time in response to recent

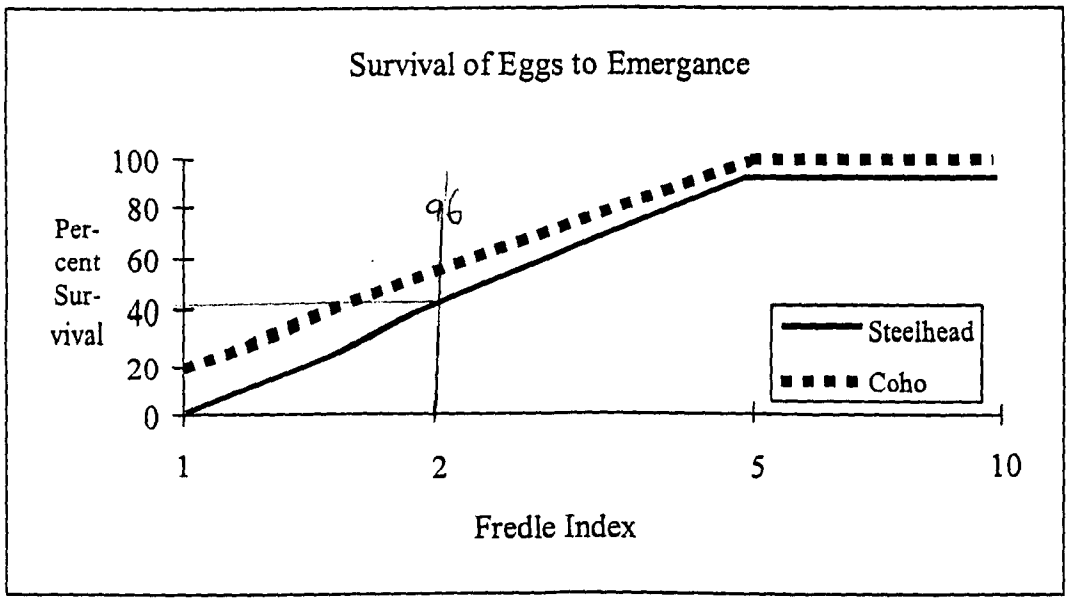
accelerated activity and now appear to be returning to the background level with more modest activity levels.

Similar relationships between the geometric mean diameter of sediments and the survival of eggs to emergence appear in Koski (1966) for coho and by Tappel and Bjornn (1983) for steelhead (in: Chapman, 1988).



The geometric mean size of sediments in Smith Creek shows a similar recent rebound in this relationship.

A similar relationship has been shown for survival of these species with respect to the Fredle index as shown below.



The Fredle index of sediments in Smith Creek can be seen to a similar pattern.

See also gravel embeddedness in section A 3 a below.

Most standards such as these relating percent fines, geometric means, Fredle indices, and embeddedness to habitat quality are based on actual spawning environments. These samples were collected "as is" from the pool tail-outs during low flow, summer periods. These data do not include correction factors for water retention or the flushing action of spawning. As such, these figures probably are a "worst case" representation. Considerable flushing of the finer sediments occurs during the winter with higher flows and in the making of redds. The conditions in the actual redds can be expected to be no worse at least, than the samples, and so actual survival would likely be better than indicated.

Mitigations to potential sediment effects include standards as specified in the forest practice rules including those directly pertaining to sediment such as watercourse and lake protection (14 CCR 916), harvesting practices and erosion control (14 CCR 914), site preparation (14 CCR 915), wildlife protection (14 CCR 919), and logging roads and landings (14 CCR 923). The rules serve as the functional equivalent of the Calif. Environmental Quality Act and are expected to minimize impacts to watercourses to a level of less than significant.

Mitigations to potential sediment effects in this and other projects in the watershed also include the following best management practices that exceed forest practice rule standards:

- harvesting in the WLPZs will be avoided with the exception of ten trees from a three hundred foot long section of class II WLPZ in stand D.
- hay bales or sediment fences will be installed at all relief culvert inlets within WLPZs,
- disturbed areas adjacent to class III watercourse crossings will be seeded and mulched,
- harvest operations will be suspended during wet weather and saturated conditions,
- waterbars and rolling dips will be spaced more frequently than required by the forest practice rules (except on flat terrain),
- outside road edge berms will be breached,
- private roads will be gated to minimize use,
- culverts too small to accommodate floods with a recurrence period of less than hundred years will be replaced with ~~oversized~~ culverts, adequately sized
- slash with potential to block culverts will be removed within twenty-five feet of the inlets,
- rock will be installed at inlets and outlets of culverts larger than thirty-six inches,
- excavators will be used to install culverts with diameters thirty-six inches and larger,
- culvert outfalls will be fitted with downspouts or energy dissipaters if necessary,
- areas disturbed by culvert installation will be seeded and mulched,
- the use of tractors will be avoided on all slopes over fifty percent, except on the upper third of hill slopes or where skyline yarding is not feasible, and
- skyline yarding will be used to minimize road construction and tractor related ground disturbance where feasible.

Special practices with respect to sediment as follows are also to be applied in selected watersheds including the Lower South Fork Ten Mile River.

- chip seal or rock selected roads in the WLPZs that receive heavy use during the winter,
- avoid constructing new landings in the WLPZs,
- avoid constructing and opening new roads in the WLPZs,

- use skyline yarding in WLPZs where topography and ownership boundaries permit,
- exclude or limit the use of heavy equipment within twenty-five feet of class III watercourse, except at predetermined crossings,
- minimize reopening old roads and the construction of new roads on slopes over fifty percent, and
- install waterbars on roads above or crossing unstable areas to direct water away from the unstable areas.

b. Water temperature:

It has been suggested that heat inputs are translated downstream as cumulative effects (Beschta and Taylor 1988, Gregory et al. 1991) and express themselves as temperature increases. Timber harvest activity in the riparian zone is typically described as potentially leading to increases in direct radiation and therefore stream temperature (Hatten and Conrad 1995), with the result that wide buffers are proposed to protect the water from excessive heat gain.

However, a study of fourteen low-elevation western Oregon streams demonstrated that all streams have a tendency to warm with downstream direction even under full forest cover (Zwieniecki and Newton 1999). Each stream is hypothesized to have such a temperature signature. Timber harvests with forest buffers from thirty to one hundred feet were followed by little direct local effect on water temperature. The streams studied showed very similar patterns despite their substantially varying environments and discharge rates. After a modest degree of warming in the harvested areas, stream temperatures decreased within the first 150 meters downstream. There was a statistically clear low probability that a persistent net warming had occurred in the harvest units. The net changes in temperature within the harvest units were not associated significantly with buffer width, cover, length of harvested unit, or depth, gradient, or width of the stream when analyzed either singly or together in multiple regressions.

These findings do not support the presumption that warming trends from timber harvests are strictly cumulative or more than very localized. Although there is a minor warming trend within harvest units with very narrow tree buffers, the increases are not significantly different from the background temperature increases. Shortly downstream, temperatures merge with those of the closed-canopy signature trend. There appears to be no basis for a cumulative effect on temperature from multiple harvest units interspersed with forested stream sections.

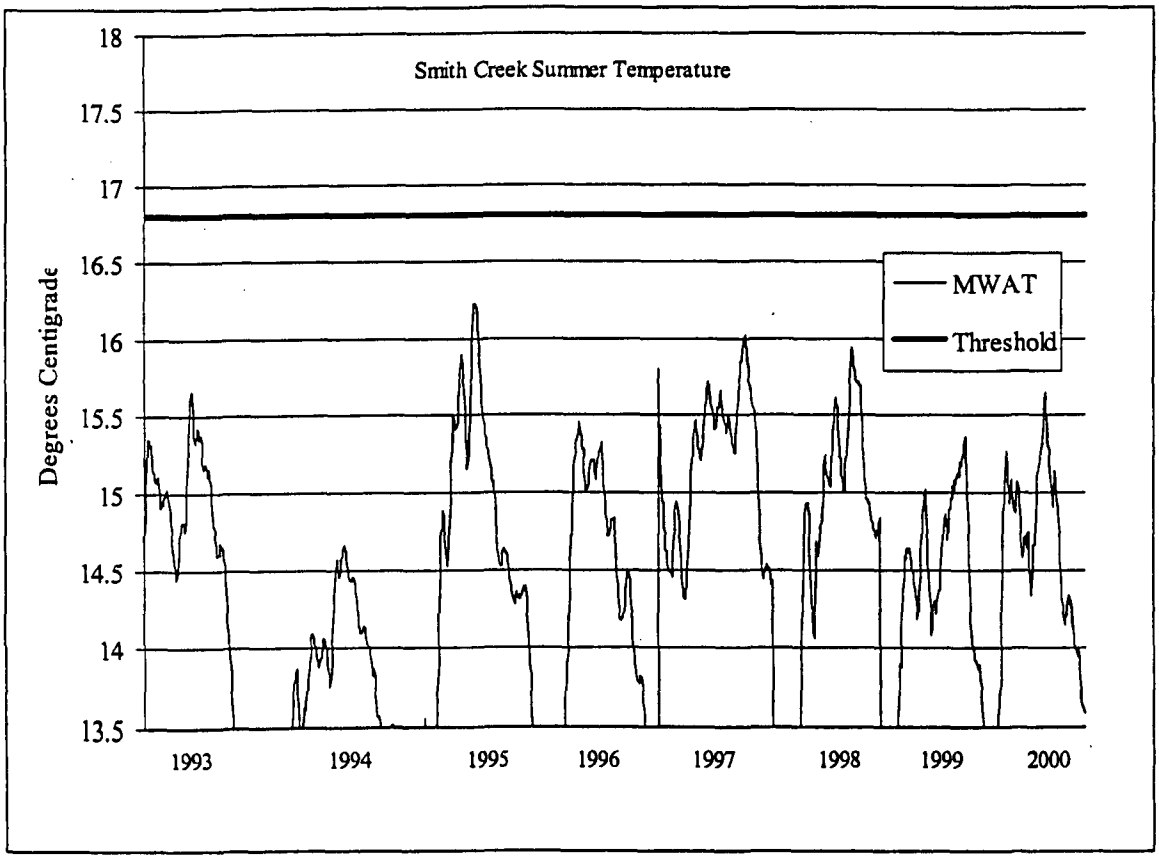
In the stream habitat analysis portion of the watershed assessment, the following percentages of the Lower South Fork Ten Mile River were rated for the quality of the shade:

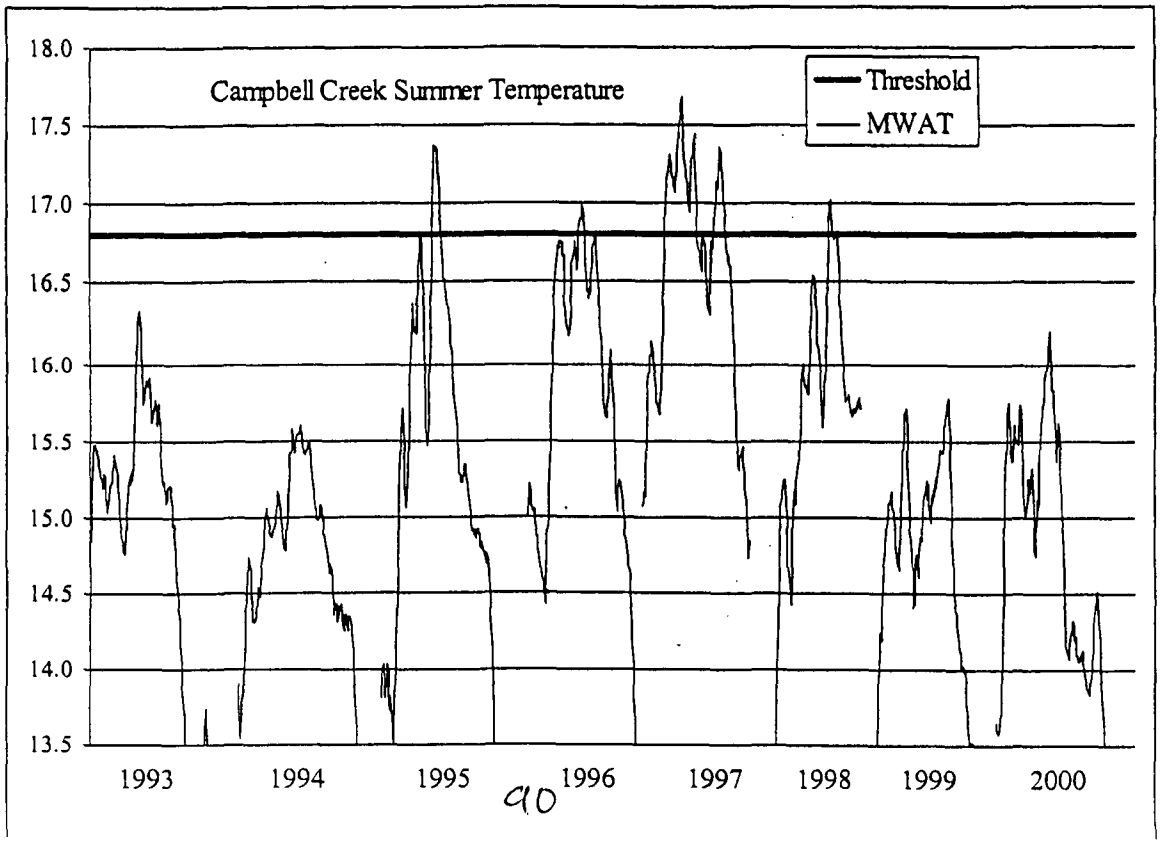
High	Medium	Low
65	35	0

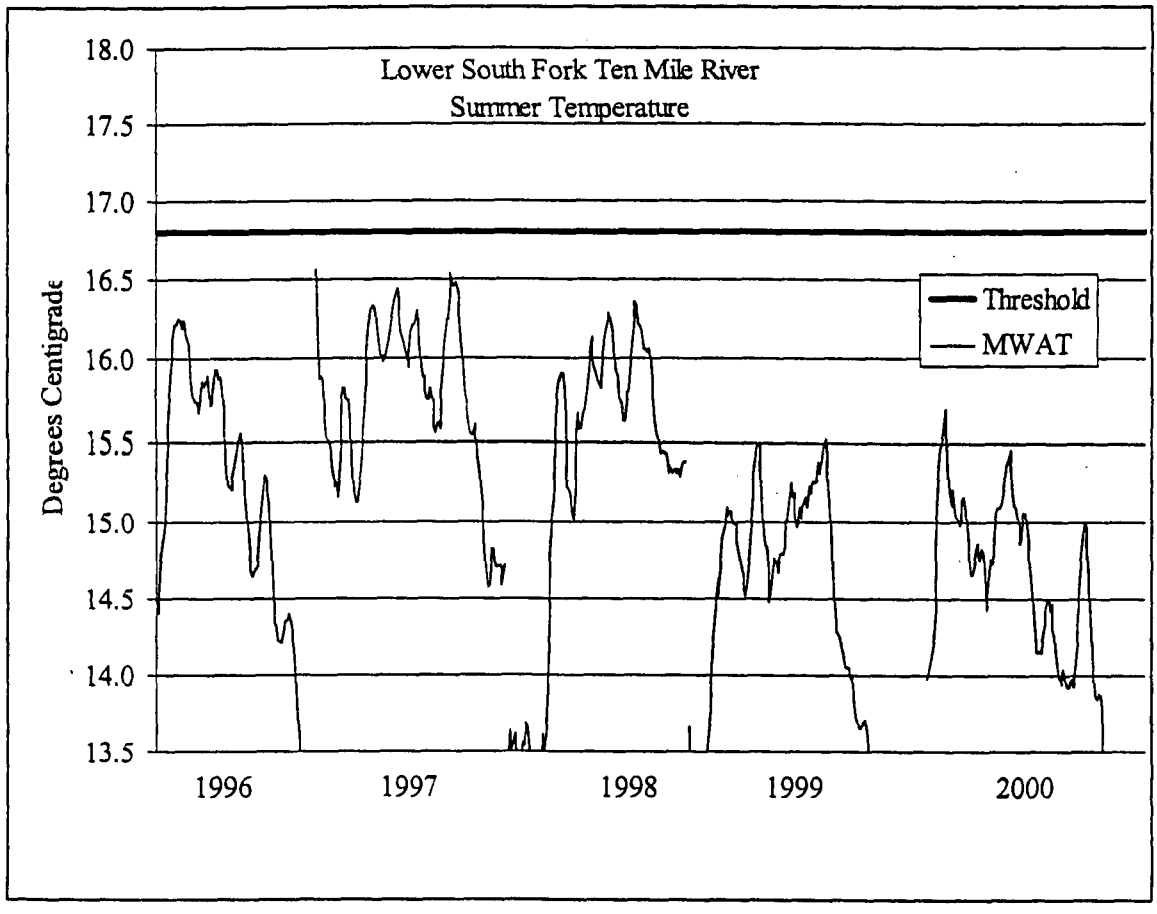
The 1994 stream habitat survey showed a mean canopy cover of sixty two percent for the Lower South Fork Ten Mile River (the part within this planning watershed), eighty-three percent for Smith Creek, and eighty-three percent as well for the Campbell Creek. A canopy cover of eighty percent is considered optimum.

The following in-stream temperature data are from three locations in the Lower South Fork Ten Mile River planning watershed. The Smith Creek location is in the southeast of section two, township nineteen north, range seventeen west, where Smith Creek leaves the property, about two and a half

miles below this THP area. The Campbell Creek location is in the northwest of section th township nineteen north, range seventeen west. The lower South Fork Ten Mile River locat the crossing in the north east of section ten, township nineteen north, range seventeen west, se hundred feet below the confluence with Smith Creek. Multiple measurements were made each The data is shown in the chart below in the form of the maximum weekly average temperature, MWAT; that is to say, the maximum temperature in each day is averaged over running seven day periods.







An MWAT threshold of 18.3 °C, the MWAT that should not be exceeded has been determined for the juvenile rearing stage of coho salmon by biologist Jon Ambrose. The calculation was made using the formula from Armour (1991) as follows:

MWAT* = OT + (UUILT) - OT)/3

where:

MWAT* is the threshold MWAT.
OT is the optimal temperature for the particular life stage and species, here 15 °C, from USDI (1970).
UUILT is the ultimate upper incipient lethal temperature, where tolerance to increasing temperature does not increase with increasing acclimation temperatures, here 25 °C, from Brett (1952).

Campbell Timber Management biologists have also tested an alternative threshold of 16.8° C. This was done using our local fish population and temperature monitoring data, actual temperature conditions in which coho exist, providing a more objective basis for the establishment of the MWAT threshold. They found that coho sites exceeded thresholds ranging from 15° C to 18.3° C significantly less often than did non-coho sites. The most pronounced difference between coho and non-coho sites was seen at the 16.8° C threshold. These results suggest that when streams reach or exceed temperatures within this range, they are less likely to support coho populations. These results are based on where coho were and were not observed in the field and may be a better reflection of

how temperatures affect this species rather than an upper limit, as is the MWAT threshold or absence as a response variable however, may overlook effects on growth and health. There evidence to suggest that temperatures as low as 15.9 ° C may adversely affect the presence of

The temperature pattern of the Lower South Fork Ten Mile River as a measure of the watershed as whole lies below the 16.8 coho presence threshold. The relative minor change in WLPZ canopy in this THP (ten trees in three hundred feet of class II WLPZ in stand D) will not significantly change the temperature pattern of Smith Creek lying below this threshold. This THP will not impact the temperature pattern of Campbell Creek whatsoever. The temperatures in Campbell Creek are likely to moderate toward that of Smith Creek as canopy in stream side areas develops following recent harvests.

Mitigations to potential temperature effects include standards as specified in the forest practice rules under watercourse and lake protection (14 CCR 916).

Mitigations to potential temperature effects also include the following best management practices that exceed forest practice rule standards:

- canopy retention exceeding the minimums of the forest practice rules, and
- harvesting in the WLPZs is minimized

c. Organic debris:

Large woody debris is a significant part of habitat complexity. In the stream habitat analysis portion of the watershed assessment, the following percentages of Lower South Fork Ten Mile River were rated for the quality of instream habitat complexity:

High	Medium	Low
0	69	31

The 1994 stream habitat survey shows that twenty-six percent of pools in the Lower South Fork Ten Mile River were formed by large woody debris, fifty-four percent in Smith Creek, and fifty-one percent in Campbell. This analysis included only those pools formed by logs or root wads as described by Flosi and Reynolds (1994). Other pools containing large woody debris were not included. In this way, total large woody debris present may be more. Whether these numbers are high or low relative to the needs of salmonids is difficult to know since the optimum amount of large woody debris in streams has not been specified. However the only coho found in a 1995 aquatic vertebrate study of the Ten Mile River as a whole, were in stream reaches where approximately fifty percent of pools were formed by large woody debris.

Standard forest practice rules with regard to tree felling in WLPZs and bark, slash, and sawdust in surface waters will serve to mitigate potential adverse effects from small organic debris.

The effects of broadcast burning on soil properties, organic material, and rates of erosion have been studied repeatedly. One item that is consistently reported is that effects of individual fires have tremendous variation depending on the conditions present at the time of ignition. Fuel moisture, soil moisture, air temperature, aspect, relative humidity and time of year are only a few of the factors that control the degree of combustion on a given acre or tract.