



ENDANGERED SPECIES ACT SECTION 10(a)(1)(A) PERMIT
FOR IMPLEMENTATION OF THE SIERRA PACIFIC LAND AND
TIMBER COMPANY SAFE HARBOR AGREEMENT FOR
TIMBERLAND MANAGEMENT IN THE SACRAMENTO RIVER
AND TRINITY RIVER BASINS

Permit Number: 24397
Permit Type: Enhancement of Survival
Expiration Date: 50 Years from Signing Date

Permit Holder:

Sierra Pacific Land & Timber Company
P.O. Box 496014
Redding, CA 96049-6014
Phone: 530-378-8000

Responsible Party and Primary Contact:

Daniel J. Tomascheski
Vice President, Timber Resources
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I. Authorization

This authorization is subject to the provisions of the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531-1543) as amended, the National Marine Fisheries Service (NMFS) regulations governing ESA-listed species permits (50 CFR Parts 222-226), and the conditions set forth hereinafter.

Sierra Pacific Land and Timber Company (SPL&T) is hereby authorized pursuant to Section 10(a)(1)(A) of the ESA of 1973, as amended, to incidentally take¹ endangered Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*), threatened Central Valley spring-run Chinook salmon (*O. tshawytscha*), threatened Southern Oregon/Northern California Coast (SONCC) coho salmon (*O. kisutch*), and threatened California Central Valley (CCV) steelhead (*O. mykiss*) (Covered Species) on lands owned by SPL&T, as a result of otherwise lawful

¹ Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. §1532(19).

activities and in accordance with SPL&T's Safe Harbor Agreement (SHA) for Forestland Management in the Sacramento River and Trinity River Basins (SPL&T 2020).

NMFS anticipates incidental take of the Covered Species from implementing the beneficial management activities and routine forestland management activities (Covered Activities) identified in the SHA. The Amount or Extent of Take associated with Covered Activities (explained in detail below) will apply to Covered Species that are present in the SHA Action Area, once ESA-listed salmon and/or steelhead are reintroduced to historically occupied habitat within watersheds on lands owned by SPL&T. Any take that occurs as a result of a reduction in the habitat quality and/or quantity established as the Present or Elevated Baseline Conditions on the SPL&T lands described in the SHA is not authorized.

II. Background

SPL&T is the largest private forestland owner in the state of California, with ownership currently encompassing approximately 1.79 million acres of timberland throughout the northern and central portions of the state. Sierra Pacific Industries (SPI) is the authorized representative and manager of SPL&T lands. Rivers and streams on portions of SPL&T lands in the Trinity River and Sacramento River basins provide habitat for anadromous salmonids, including species listed under ESA. SPI's forestland management activities (collectively referred herein as "Covered Activities") have the potential to adversely affect fish species and their habitats that are listed or may be at risk of listing under the ESA (collectively referred to herein as "Covered Species").

SPL&T has prepared the SHA to address the potential impacts of SPI's forestland management activities on ESA-listed salmonids on SPL&T lands in the Sacramento and Trinity River basins, upstream of impassable dams where NMFS is proposing to reintroduce populations of ESA-listed salmonids.

III. Take Description and Levels Authorized

The SHA Plan Area includes all SPL&T lands in planning watersheds outside the current limits of anadromy, in which salmonid reintroductions are proposed. These watersheds are within historically occupied habitat and above currently impassable barriers to anadromy. The Amount or Extent of Take associated with Covered Activities described below will apply to Covered Species that are present in the SHA Action Area, once ESA-listed salmonids are reintroduced to historically occupied habitat within watersheds on SPL&T lands. Any take that occurs as a result of a reduction in the habitat quality and/or quantity established as the Present or Elevated Baseline Conditions on the SPL&T lands described in the SHA is not authorized.

NMFS has determined that incidental take is reasonably certain to occur as follows:

- Take in the form of harm to Covered Species from exposure to the following habitat-related impacts resulting from Covered Activities: increased suspended sediment and increased instream temperature.
- Take in the form of harm, injury, or death to Covered Species resulting from the following Covered Activities: water drafting and instream construction requiring capture, handling, and release of Covered Species during stream dewatering.

NMFS cannot precisely quantify or track the amount or number of individuals that are expected to occupy habitat SHA Action Area each year, or be incidentally taken per species and per watershed as a result of the Covered Activities. The natural variability in salmonid population parameters (*e.g.*, abundance, productivity, *etc.*) make it impractical to attribute or determine the numbers of individuals taken as a result of the Covered Activities given their scale, both temporally and spatially, and the indirect and cumulative nature of their effects on salmonids. For example:

1. It can be difficult to separate the impact on the species arising from human-induced habitat modification from the impact on the species arising from naturally-occurring, and often stochastic, watershed processes that form a wide distribution of habitat conditions.
2. Salmonids possess complex life histories, with multiple life stages that rely on a broad range of habitat conditions, both spatially and temporally.
3. Salmonids exhibit high natural mortality rates in the wild, and it is exceedingly difficult to first detect distinct instances of mortality, and then attribute mortality to specific actions affecting habitat conditions.
4. Habitat conditions vary over time and space due to natural and human-induced factors, and it is difficult to predict where and when salmonids may experience such habitat conditions and whether those conditions will lead to take. The timing and specific location of events causing potential impacts are unknown, there is no practicable way to observe or count the number of fishes affected.

The distribution and abundance of Covered Species that will occur within the SHA Action Area is expected to be affected by habitat quality, competition, predation, and the interaction of processes that influence genetic, population, and environmental characteristics. These biotic and environmental processes interact in ways that may be random or directional, and may operate across far broader temporal and spatial scales than are affected by the Covered Activities. Therefore, the distribution and abundance of fish may occur within the SHA Action Area once ESA-listed species are present, cannot be attributed entirely to habitat conditions. As such, NMFS cannot precisely predict the number of fish that are reasonably certain to be injured or killed if their habitat is modified or degraded by the Covered Activities. Additionally, NMFS knows of no device or practicable technique that would yield reliable counts of individuals that experience these impacts. However, it is possible to estimate the extent of incidental take by designating ecological surrogates, which are those elements of the project that are expected to result in incidental take. Ecological surrogates are more predictable and/or measurable and monitoring those surrogates will determine the extent to which incidental take is occurring.

Habitat-Based Ecological Surrogates and Associated Incidental Take

A surrogate monitoring strategy has been developed to evaluate water temperature and turbidity levels, as described below. The surrogate monitoring strategy includes two management response levels based on the values established for each of the surrogate indicators. A “green level” response threshold will be used when average surrogate indicator values are within the lower 50 percent of the surrogate indicator range. The green level represents surrogate values within the exceedance threshold, but otherwise requiring no immediate management actions. A “red level” response threshold will be used when average surrogate values are within the upper 50 percent of the surrogate indicator range for a consecutive three-year period. When the red level threshold is reached, SPI and NMFS will confer to identify possible adaptive management

actions to address the condition. SPI will implement the agreed upon adaptive management actions to address the condition as soon as practicable. Red level management response investigations will include review of all practicable information potentially influencing surrogate monitoring levels. This information includes, but is not limited to, air and water temperature correlations, planning watershed size and hydrologic regime, water year, SPI Covered Activities, disturbance events in applicable planning watersheds, and activities on other lands potentially influencing surrogate levels.

Water Temperature

The water temperature surrogate for indicating whether SPI exceeds exempted levels of incidental take is based on mean weekly maximum water temperatures (MWMT). A MWMT of 16.5 degrees Celsius (°C) is the level at which water temperature is considered fully protective for Chinook salmon, coho salmon, and steelhead (Carter 2005, Dunsmoor and Huntington 2006). Elevated MWMT levels between 16.5°C and 20.5°C in medium to high water years, or 16.5°C and 21.5°C in low water years, represent authorized incidental take levels. If MWMT levels occur above 20.5°C (21.5°C in low water years) at any time in any year for a three-year contiguous period, then authorized incidental take has been exceeded. This potential increase would be determined from exceedances beyond these levels in MWMT as measured at one of the five monitoring stations (Upper San Antonio Creek, Judd Creek, Hazel Creek, and the two new stations to be located in the Trinity River basin). Once established and SPI has five years of monitoring data, these thresholds will be further refined with NMFS for the Trinity Basin portion of the SHA.

The procedures for monitoring the water temperature ecological surrogate would include:

1. Hourly monitoring of water temperature at the monitoring locations defined in the monitoring plan. High, medium, and low water years will be determined from the most recent ten years of SPI's 20 permanent weather station rainfall data.
2. Data assessment relative to the surrogate level on a monthly basis.
3. Establishing the appropriate management response threshold level using the monitoring data, as described below:
 - a. A Green Level response threshold occurs when MWMT levels are between 16.5°C and 18.5°C (19.5°C in low water years); no immediate management actions are required.
 - b. The Red Level response threshold occurs when MWMT levels are between 18.5°C and 20.5°C (21.5°C in low water years). If values within this range occur at any time in any year for a three-year contiguous period, SPI and NMFS will confer to identify possible adaptive management actions to address the issue. SPI will implement the agreed upon adaptive management actions to address the condition as soon as practicable.
 - c. MWMT levels above 20.5°C (21.5°C in low water years) at any time, in any year for a three-year contiguous period, represent take exceedance. SPI will notify NMFS as soon as possible, but no later than two business days upon determining that the authorized level of incidental take has been exceeded.
4. Development of an annual report summarizing monitoring results during this time period, including discussion of each monitoring procedure, as applicable.

Turbidity

The turbidity level surrogate indicates whether the exempted level of incidental take is exceeded based on the Nephelometric Turbidity Unit (NTU) level described by Sigler *et al.* (1984). Turbidity levels as little as 25 NTU can cause growth reductions in steelhead and coho salmon. However, Sigler *et al.* (1984) also noted that these fish could survive turbidity levels up to 77 NTU. Therefore, NMFS considers this the range for determining potential effects and authorized take. Turbidity levels within the range of 64 to 77 NTU for a continuous 14-day period would be considered within the exempted incidental take levels. If turbidity levels greater than 77 NTU occur for a continuous 14-day period or if turbidity levels within the range of 64 to 77 NTU occur for a contiguous period longer than 14 days, then exempted incidental take has been exceeded. This potential increase would be determined through measurements at one of the five monitoring stations (Upper San Antonio Creek, Judd Creek, Hazel Creek, and the two new stations to be located in the Trinity River basin). Once established and SPI has five years of monitoring data, these thresholds will be further refined with NMFS for the Trinity Basin portion of the SHA.

The procedures for monitoring the turbidity ecological surrogate would include:

1. Monitoring turbidity levels at locations defined in the monitoring plan.
2. Data assessment relative to the surrogate level on a monthly basis.
3. Establishing the appropriate management response threshold level using the monitoring data, as described below:
 - a. A Green Level response threshold occurs when NTU levels are between 25 and 64; no immediate management actions are required.
 - b. The Red Level response threshold occurs if NTU levels are between 64 and 77 for a continuous 14-day period. If values within this range occur at any time in any year for a three-year contiguous period, SPI and NMFS will confer to identify possible adaptive management actions to address the issue. SPI will implement the agreed upon adaptive management actions to address the condition as soon as practicable.
 - c. Turbidity levels greater than 77 NTU for a continuous 14-day period or turbidity levels within the range of 64 to 77 NTU for a contiguous period longer than 14 days represents take exceedance. SPI will notify NMFS as soon as possible, but no later than two business days upon determining that the authorized level of incidental take has been exceeded.
4. Development of an annual report summarizing monitoring results during this time period, including discussion of each monitoring procedure, as applicable.

Table 1. Surrogate Indicator Monitoring Measures for Turbidity and Temperature

Monitoring Measures	Watershed Processes	Habitat Elements	Range of Surrogate Indicators for Authorized Take
Temperature monitoring	Stream temperature at designated monitoring locations	Water quality	<ul style="list-style-type: none"> • Increases in MWMT¹ from 16.5°C to 20.5°C (21.5°C in low water years). *Green Level response threshold = 16.5°C-18.5°C (19.5°C in low water years). *Red Level² response threshold = 18.5°C-20.5°C (21.5°C in low water years). • MWMT levels above 20.5°C (21.5°C in low water years) represent take exceedance.
Turbidity monitoring	Light refraction and penetration at designated monitoring locations.	Water quality	<ul style="list-style-type: none"> • Increases in turbidity at designated monitoring stations from 25 to 77 NTU for a continuous 14-day period. *Green Level response threshold = 25 NTU-64 NTU. *Red Level³ response threshold = 64 NTU-77 NTU. • Turbidity levels greater than 77 NTU for a continuous 14-day period represent take exceedance.

¹MWMT = mean weekly maximum water temperature.

²The Red Level response threshold occurs when MWMT levels are between 18.5°C and 20.5°C. If values within this range occur at any time in any year for a three-year contiguous period, SPI and NMFS will confer to identify possible adaptive management measures to address the condition.

³ The Red Level response threshold occurs if NTU levels are between 64 and 77 for a continuous 14-day period. If values within this range occur, SPI and NMFS will confer to identify possible adaptive management measures to address the condition.

Ecological Surrogates for Other Covered Activities and Associated Incidental Take

Water Drafting

In the SHA Action Area, the small number of watercourse crossings that may be used during water drafting indicates that exposure of Covered Species to these activities will be rare. The timing of water drafting would generally occur outside of peak migration timing for listed salmonids, minimizing the likelihood and numbers of fish exposed. The analysis of the effects of the Covered Activities anticipates that water drafting will be conducted in a manner that ensures continued compliance with the California Forest Practice Rules (CFPRs) [943.7(l)], NMFS Water Drafting Guidelines (NMFS 2001), and the Section 1600 Lake and Streambed Alteration

Agreement required by the California Department of Fish and Wildlife (CDFW) [F&GC 1600 *et seq.*]. These requirements are primarily for the protection of juvenile anadromous salmonids, in waters where they are known to exist. In the event that juvenile salmonids are exposed to water drafting, adherence to the requirements described above will reduce the potential for harm, injury, or death.

Therefore, the most appropriate threshold for the extent of incidental take that is expected to occur during water drafting is to use the following requirements/specifications.

All intakes are screened to minimize the likelihood of impingement of juvenile fish against the screen. The following requirements apply to screens and water drafting on Class I waters:

1. Openings in perforated plate or woven wire mesh screens do not exceed 3/32 inch (2.38 millimeters). Slot openings in wedge wire screens do not exceed 1/16 inch (1.75 millimeters).
2. The screen surface has at least 2.5 square feet of openings submerged in water.
3. The drafting operator regularly inspects, cleans, and maintains screens to ensure proper operation whenever water is drafted.
4. The approach velocity (water moving through the screen) does not exceed 0.3 feet/second.
5. The diversion rate does not exceed 350 gallons per minute.

Bypass flows for Class I watercourses are provided in volumes sufficient to avoid dewatering the watercourse and maintain aquatic life downstream, and conform to the following standards:

1. Bypass flows in the source stream during drafting are at least 2 cubic feet per second.
2. Diversion rate does not exceed 10 percent of the surface flow.
3. Pool volume reduction does not exceed 10 percent.

During water drafting activities, small salmon and steelhead may be impinged against the surface of the pump screen. Water drafting can also disrupt habitat utilization and may cause fish behavioral modifications leading to harm as described below. NMFS anticipates annual incidental take will be limited to the following forms:

- Harm, injury, or death to juvenile salmon and steelhead from impingement during water drafting. Water drafting may affect the behavior of Covered Species, including migration delay and displacement from the water drafting site, resulting in reduced fitness.

The measures described above, per the CFPRs and the CDFW 1600 Agreement, must be implemented by the water drafting operator during water drafting activities. In Anadromous Salmonid Protection (ASP) watersheds, these standards also include implementing NMFS Water Drafting Guidelines. Water Drafting Logs are to be filed with CAL FIRE at the end of seasonal operations and are maintained with the plan record. The Water Drafting Logs from ASP watersheds for the previous seasonal operations must be provided with annual reports that are submitted to NMFS, to verify that incidental take has not been exceeded.

If the specific parameters described above are not followed during water drafting activities that are conducted in watersheds occupied by Covered Species (*e.g.*, ASP watersheds), then incidental take will be exceeded.

Instream Work during Road Reconstruction

Covered Activities that may involve instream habitat disturbance include road reconstruction and new road construction associated with THPs. SPI anticipates approximately 3-5 miles of new road construction in the SHA Plan Area annually during the first decade of the permit period, 1.5-3 miles during the following decade, then no new road construction during the final three decades. SPI will not construct any new roads in the currently identified WLPZ on anadromous stream reaches during the permit term. In most cases, instream construction will occur in order to upgrade an existing crossing structure where the crossing may fail or need replacement, while in other cases the crossing may need replacement because it has aged and is subject to failure. Reconstruction activities will occur during low flow periods when Covered Species are least likely to be present and will adhere to CFPRs limiting the extent of instream activity. The CFPRs require that road reconstruction activities that will occur in flowing water must have a Dewatering Plan in place prior to commencing instream work. Stream dewatering prior to road reconstruction activities may require the capture, handling, and relocation of Covered Species when they are present.

Effects to Covered Species resulting from physical alteration of instream habitat in the SHA Action Area are expected to occur in areas where occupied habitat intersects with road watercourse crossings. Thus, the most appropriate threshold for the extent of incidental take that is expected to occur as a result of stream dewatering and the capture, handling, and release of Covered Species is the number of road watercourse crossings that occur within habitat that is occupied by Covered Species and the frequency of instream work that will occur during crossing reconstruction.

Stream dewatering and the capture and handling of fish may cause behavioral modifications and result in increased stress, as described below. NMFS anticipates annual incidental take will be limited to the following forms:

- Harm, injury, or death to Covered Species from stream dewatering and handling during relocation activities. The primary contributing factors to stress and injury from handling are differences in water temperature between the river where the fish are captured and wherever the fish are held, dissolved oxygen conditions, the amount of time that fish are held out of the water, and physical trauma.

The number of stream crossings in the SHA Action Area ranges from 650 stream crossings within the McCloud River Hydrologic Unit, to 2,067 within the Yuba River Hydrologic Unit . Covered Species are not currently present in the SHA Action Area. However, NMFS expects that they could be present at some point over the 50-year term of the permit, in the event that ESA-listed salmonids are successfully reintroduced into historic habitat within the SHA Action Area. Therefore, when Covered Species are present in the SHA Action Area, NMFS anticipates that instream work resulting in stream dewatering and fish handling will occur at each of the road watercourse crossings, up to four times per decade. If stream dewatering and fish handling occurs during road reconstruction activities at any of the road watercourse crossings in SHA Action Area more than four times per decade once ESA-listed species are present, then incidental take will be exceeded.

During fish capture, handling, and relocation activities, we expect the total incidental mortality to be equal to or less than three percent of the total number of all fish that are captured, handled, and released. If incidental mortality greater than three percent occurs, then incidental take will be exceeded.

IV. Terms and Conditions:

- A. All applicable sections of Title 50 *Code of Federal Regulations, Part 222*, NMFS regulations governing ESA permits (50 CFR Parts 222.301-222.309), are conditions of this permit. If any such regulations are modified, any future action taken with respect to this permit shall be in accordance with such regulations in existence at the time such action is taken except as specifically otherwise provided for by law.
- B. The authorization granted by this Permit is subject to full and complete compliance with the SPL&T Safe Harbor Agreement for Forestland Management in the Sacramento River and Trinity River basins, California, which is hereby incorporated by reference into this Permit. Implementation of the SHA will be a condition of the Permit, and failure to perform obligations under the SHA may be grounds for suspension or revocation of the Permit.
- C. The Permit Holder shall be responsible for ensuring compliance with the SHA by any Cooperator, authorized officer, employee, contractor, agent while conducting Covered Activities. All applicable provisions of this Permit must be presented and clearly explained to all authorized Cooperators conducting Covered Activities.
- D. The duration of the Permit is 50 years from the signing date.
- E. SPL&T must notify NMFS within 60 days of the intent to make a change in Covered Activities, such that SPL&T reasonably anticipates that take of the Covered Species on the enrolled property will occur, including a return of the habitat areas to the Elevated Baseline Conditions. SPL&T must provide NMFS with the opportunity to capture and relocate any potentially affected individuals.
- F. SPL&T must notify NMFS in advance of any plan to return habitat to the Elevated Baseline Conditions. SPL&T will request that NMFS develop recommendations outlining best management practices for the Covered Species when carrying out such plans.
- G. SPL&T shall notify NMFS prior to any new ground-disturbing activity that has the potential to adversely affect cultural resources that are not covered by an existing California Environmental Quality Act (CEQA) process (including, but not limited to: development of small rock pits; fuel break construction in non-timbered brush fields; and conversion of non-timbered brush fields to forest cover). Upon receiving such notification, NMFS will initiate consultation under Section 106 of the National Historic Preservation Act with the State Historic Preservation Officer for such a project. SPI shall cooperate and incorporate the results of that consultation before commencing such a project.
- H. SPL&T will provide NMFS with an annual report, by June 30 of each year, summarizing the actions undertaken pursuant to the SHA, during the preceding calendar year. Once

Covered Species are reintroduced to historic habitat and are present in watersheds within the SHA Plan Area, the annual report will also include the following information to confirm that the take exemption for Covered Activities is not exceeded:

1. Data assessment relative to the temperature and turbidity habitat-based ecological surrogate levels, identified in Table 1 above, shall occur on a monthly basis and shall be summarized as part of the annual report.
2. Copies of all completed Water Drafting Logs for ASP watersheds filed with CAL FIRE at the end of seasonal operations.
3. A summary of the instream work conducted during road construction or road reconstruction within ASP watersheds, including documentation of any stream dewatering, and fish capture, handling, and relocation activities.
4. A summary of the THP Completion Reports submitted to CAL FIRE, including any responses received from CAL FIRE.
5. A summary of any third-party audits through certification by the Sustainable Forestry Initiative.

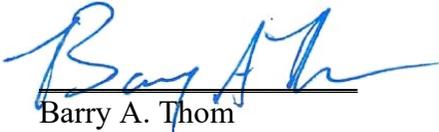
A summary of any Covered Activities conducted by SPI that are not subject to THP approval by CAL FIRE or other CEQA Review processes. The summary should include a description of the Covered Activity, the timing, and the location.

All reports should be sent to:

- a. Assistant Regional Administrator
NMFS Central Valley Office
650 Capitol Mall, Suite 5-100
Sacramento, California 95814
Phone: (916) 930-3600
Fax: (916) 930-3629
Email: ccvo.consultationrequests@noaa.gov, with the subject line:
Sierra Pacific Industries HCP/SHA

- I. SPL&T shall notify NMFS of any transfer of ownership of the enrolled property which is subject to the SHA, so that NMFS can attempt to contact the new owner, explain the Baseline responsibilities applicable to the enrolled property, and seek to interest the new owner in signing the existing SHA or a new one to benefit ESA-listed species on the enrolled property.

National Marine Fisheries Service:



Barry A. Thom
Regional Administrator
National Marine Fisheries Service

September 29, 2021
Date

Acceptance of the permit serves as evidence that the permittee agrees to abide by all conditions stated.

Permittee:



Dan Tomascheski
Vice President, Timber Resources
Sierra Pacific Industries
For Sierra Pacific Land & Timber Company

October 4, 2021
Date