



State of California – Natural Resources Agency  
DEPARTMENT OF FISH AND WILDLIFE  
Northern Region  
601 Locust Street  
Redding, CA 96001  
[www.wildlife.ca.gov](http://www.wildlife.ca.gov)

**GAVIN NEWSOM, Governor**  
**CHARLTON H. BONHAM, Director**



November 25, 2024

Brenna Sullivan  
Engineering Geologist  
North Coast Regional Water Quality Control Board  
5550 Skylane Blvd Ste A  
Santa Rosa, CA 95403  
[Brenna.Sullivan@waterboards.ca.gov](mailto:Brenna.Sullivan@waterboards.ca.gov)

**SUBJECT: ADMINISTRATIVE DRAFT GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMMERCIAL LILY BULB OPERATIONS IN THE SMITH RIVER PLAIN, NOTICE OF PREPARATION (SCH# [2024100484](#))**

Dear Brenna Sullivan:

On October 11, 2024, the California Department of Fish and Wildlife (CDFW) received a Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) from the North Coast Regional Water Quality Control Board (Regional Water Board/Lead Agency) for the General Waste Discharge Requirements for Commercial Lily Bulb Operations in the Smith River Plain (Project/Order). CDFW appreciates the opportunity to provide feedback and understands the Lead Agency will accept comments through November 25, 2024.

As the Trustee Agency for the State's fish and wildlife resources, CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary to sustain their populations (Fish & G. Code, §§ 1801 & 1802). As a Responsible Agency, CDFW administers the California Endangered Species Act (CESA) and other provisions of the Fish and Game Code that conserve the State's fish and wildlife public trust resources. CDFW offers the following comments and recommendations in our role as Trustee and Responsible Agency pursuant to the California Environmental Quality Act (CEQA; Pub. Resources Code, §21000 et seq.). These comments are intended to minimize Project impacts on public trust resources.

### **Project Description**

If adopted, the Order will apply to Commercial Lily Bulb Operations in the Smith River Plain Hydrologic Subarea and coastal terraces between Pyramid Point and the Oregon border, in Del Norte County, California. Regulatory coverage would

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include all fields cultivated for lily bulbs or similar bulb crops within a sequential five-year period, as well as field roads, greenhouses, and pesticide mixing areas. Lily bulb farming activities have the potential to adversely affect surface water and groundwater, as well as associated beneficial uses. Field preparation, pesticide application, and other farming practices can discharge sediment and agricultural pollutants to surface water and groundwater, while the removal or suppression of riparian vegetation can result in increased water temperatures, reduced filtering capacity, and habitat degradation. Although farmers may voluntarily implement water quality management practices as outlined in the Smith River Plain Water Quality Management Plan (NCRWQCB 2021), the Regional Water Board does not yet regulate discharges originating from Commercial Lily Bulb Operations. The proposed Order will require enrollment and payment of fees, implementation of site-specific management practices, and monitoring and reporting.

### **Biological Significance**

The Smith River Plain and coastal terrace contain invaluable freshwater and estuarine habitat for several special status fish. It is one of two watersheds in California described as “irreplaceable” with respect to salmonid population resiliency and biodiversity (Wild Salmon Center 2012). Coho salmon (*Oncorhynchus kisutch*; ST, FT<sup>1</sup>) are listed as part of the Southern Oregon/Northern California Coast (SONCC) coho salmon Evolutionarily Significant Unit (ESU). The National Marine Fisheries Service (NMFS) has designated the Smith River population as a core, functionally independent population (NMFS 2014), meaning that it is critical to the recovery of the ESU. Coho salmon are year-round residents of the mainstem Smith River and estuary, and seasonal occupants of its coastal tributaries, which represent critical natal and non-natal rearing habitat for juvenile salmonids (Parish and Garwood 2015, Parish and Garwood 2016, Walkley and Garwood 2017). Larger tributaries like Rowdy Creek and Morrison Creek also provide spawning habitat (Parish and Garwood 2015, Parish and Garwood 2016). The Smith River population is currently at high risk of extinction and likely below the depensation threshold

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<sup>1</sup> Abbreviations: SE – State listed, endangered; ST – State listed, threatened; FT – federally listed, threatened; SSC – CDFW Species of Special Concern

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(NMFS 2014). Although most spawning occurs in the Mill Creek sub-basin (Garwood and Larson 2014, Walkley and Garwood 2017), the population is dependent on winter rearing areas in the lower watershed, where agriculture contributes significantly to ongoing habitat loss and degradation (NMFS 2014).

The Smith River is an important stronghold for other salmonids, including Chinook salmon (*O. tshawytscha*; SSC) and steelhead (*O. mykiss irideus*; SSC), which migrate through the mainstem and rear in the lower estuary and coastal tributaries (Zajanc 2003, Parish and Garwood 2015, Parish and Garwood 2016). Chinook and steelhead spawning have also been documented in the upper reaches of Rowdy Creek and Morrison Creek (Larson 2004, Garwood and Larson 2014), with Chinook spawning also occurring below the Fred Haight Bridge, within the area impacted by lily bulb cultivation practices (J. Walkley, pers. comm.). The entire Smith River watershed hosts a significant population of resident coastal cutthroat trout (*O. clarkii clarkii*; SSC), which are widespread and abundant in coastal tributaries, including those within the Project area (Monroe et al. 1975, Parish and Garwood 2015, Parish and Garwood 2016). The mainstem Smith River is an important migratory corridor for green sturgeon (*Acipenser medirostris*; SSC), western brook lamprey (*Lampetra richardsoni*; SSC), and Pacific lamprey (*Lampetra tridentata*; SSC) (Monroe et al. 1975), while the estuary provides habitat for a variety of marine and estuarine fish, including tidewater goby (*Eucyclogobius newberryi*; FE) and several important forage species, such as surf smelt (*Hypomesus pefiosus*) and rockfish (*Sebastes* spp.).

Although widely recognized for its significance to salmonids, the Smith River Plain also provides important wildlife habitat and ecosystem functions. Riparian corridors serve as nesting and foraging habitat for a variety of resident and migratory birds, including little willow flycatcher (*Empidonax traillii brewsteri*; SE) and bank swallow (*Riparia riparia*; ST), as well as more common passerines and raptors. Amphibians like northern red-legged frog (*Rana aurora*; SSC) are widespread in coastal wetlands and tributaries, even those surrounded by agriculture. Riparian stream corridors also serve an essential function in attenuating floodwater, filtering sediment and pollutants, reducing erosion, and moderating water temperature. Mature riparian forests also contribute large wood to the system, providing instream habitat complexity and refugia.

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## Comments and Recommendations

CDFW commends the Regional Water Board's efforts to protect and improve water quality by regulating discharges from Commercial Lily Bulb Operations. To further that objective, CDFW offers the following comments and recommendations in our role as a Trustee and Responsible Agency pursuant to CEQA (Pub. Resources Code, §21000 et seq.).

### Scope or Range of Project Actions

CDFW supports the adoption of Streamside Management Areas, which can be an effective means of tempering adverse water quality impacts associated with adjacent land use practices. However, the efficacy of this measure will depend on how Streamside Areas are defined and implemented. Since 1994, CDFW Northern Region has recommended riparian buffers start at the top of bank or edge of riparian drip-line, *whichever is greater* (**Recommendation 1**) (CDFW 2014). This definition is protective of the stream's geomorphic channel and functional riparian habitat, whereas buffers beginning at the Ordinary High Water Mark (OHWM) capture only the active channel, omitting most of the floodplain. CDFW generally recommends buffer widths of at least 100 feet on fish-bearing streams (**Recommendation 2**), as the capacity to trap and filter sediments increases with buffer width (Castelle et al. 1992, Castelle et al. 1994, CDFW 2014). Buffer width may vary depending on context, with buffers greater than 100 feet around particularly sensitive tributaries, such as Rowdy Creek and Morrison Creek, which provide both spawning and winter rearing habitat (Larson 2004, Garwood and Larson 2014, Parish and Garwood 2015, Parish and Garwood 2016). Fields abutting the Smith River should also adhere to greater buffers given its year-round significance to numerous anadromous fish. Due to the hydrologic connectivity of the Smith River Plain, narrower buffers (e.g., 50 feet) are unlikely to be sufficient for non-fish-bearing streams and hydrologically connected ditches, which rapidly drain runoff to the Smith River. A clear distinction should also be made between artificial stormwater conveyances and channelized streams, such as portions of Mello Creek and the unnamed tributary downstream of Tillas Slough.

Although the proposed approach to Streamside Management Areas would allow for flexibility in management practices, CDFW recommends setting parameters to protect riparian function and associated water quality benefits. A standalone Vegetated Buffer may be adequate for hydrologically connected

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ditches, but the Riparian Vegetation Area component should be required for fish-bearing streams or sloughs, particularly those that support spawning and rearing (**Recommendation 3**). Where native riparian vegetation is currently lacking, CDFW recommends planting or allowing for the natural establishment of an overstory component to provide shade as well as soil stabilization and filtering. To protect riparian functions when fields are in rotation as pasture, livestock should be excluded from Riparian Vegetation Areas (**Recommendation 4**), a practice consistent with recovery actions identified in the Final SONCC Coho Recovery Plan (NMFS 2014).

CDFW understands the impetus for allowing a Streamside Area Restoration Alternative but encourages the Regional Water Board to establish minimum non-negotiable Riparian Vegetation Areas for fish-bearing streams (**Recommendation 5**). Current management practices are inadequate to protect water quality, as evidenced by the widespread presence of pesticides, nutrients, and copper in surface waters (NCRWQCB 2018, NMFS and CDFW 2018). The filtering capacity of riparian areas is already limited due to channelization and the suppression or removal of riparian vegetation. As such, the decision to allow for mitigation should be predicated on a demonstrated ability to meet water quality objectives (**Recommendation 6**). Where appropriate, mitigation should be designed to provide maximal ecological lift within the same sub-watershed.

Monitoring and reporting requirements are essential to evaluate the effectiveness of management practices, facilitate a more targeted approach, and trigger adaptive management. To better capture baseline conditions and detect spatial trends in water quality, CDFW recommends increasing the number of surface water monitoring locations (**Recommendation 7**). Although the twelve monitoring sites identified in the Smith River Plain Water Quality Management Plan (NCRWQCB 2021) provide broad coverage of the Project area, additional sampling locations within each sub-watershed would help to distinguish among potential sources of discharge. Additional sampling would be particularly informative in Delilah Creek and other tributaries to Tillas Slough, both of which are listed as impaired for copper pursuant to Section 303(d) of the Clean Water Act. The timing and frequency of sampling should capture both significant rainfall events and the application of pesticides, with staggered sampling events throughout the wet season and additional dry season sampling

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to capture persistence as well as spring and summer applications  
**(Recommendation 8)**.

The Order's Adaptive Management Program is integral to improving water quality and complying with state and regional statutes, water quality plans, and policies. CDFW appreciates the Order's iterative approach, which would implement increasingly complex management practices in response to continued and recognized exceedance of water quality pollutant thresholds. However, rather than waiting for the results of initial monitoring, CDFW recommends that all lily bulb fields draining to Smith River tributaries be automatically entered in the first tier of adaptive management upon enrollment **(Recommendation 9)**. Surface water sampling between 2013 and 2015 has already detected the presence of 17 agricultural pesticides, five of which were at concentrations above USEPA benchmarks for the protection of aquatic life, including copper and diuron (NCRWQCB 2018). Copper is the second most heavily applied pesticide used in lily bulb production, which is of particular concern to juvenile salmonid life stages. Even at low concentrations (0.18 to 2.1 µg/L above background), copper is broadly toxic to salmonid olfactory and lateral line systems, interfering with behaviors critical to predator detection and avoidance, reproduction, navigation, and migration (Baldwin et al. 2003, NMFS 2007, Sandahl et al. 2007, McIntyre et al. 2012). Impairment of these neurobehavioral responses can affect individual survival and lifetime reproductive success, with potential implications for the productivity and intrinsic growth potential of the population (NMFS 2007). Subsequent monitoring in 2017 and 2018 documented consistent increases in copper concentrations downstream of lily bulb fields, often above levels at which sublethal, neurobehavioral effects would be expected to occur (NMFS and CDFW 2018). NMFS subsequently indicated that documented concentrations of dissolved copper may be resulting in take of coho salmon (NMFS 2018). Essentially, current management practices are falling short and require modification if water quality objectives are to be met in a meaningful time frame. Fields draining to Delilah Creek and other tributaries of Tillas Slough should be entered into a higher tier of adaptive management to address recognized copper exceedances **(Recommendation 10)**. The Morrison Creek and Mello sub-watersheds may also warrant more advanced management practices due to consistently high copper concentrations and their significance to salmonids (NMFS and CDFW 2018).

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### Reasonably Foreseeable Methods of Compliance

As a Responsible Agency, CDFW administers the incidental take provisions of CESA and activities within the purview of Fish and Game Code section 1600 et seq. Project-related activities that may result in take of CESA-listed species require authorization from CDFW through a Consistency Determination (CD) or Incidental Take Permit (ITP) pursuant to Fish and Game Code sections 2080.1 and 2081, subdivision (b) and California Code of Regulations Title 14 (14 CCR) section 783 et seq. Notification is also required for project activities that may substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel or bank of any river, stream, or lake (Fish & G. Code § 1602). CDFW therefore recommends enrollees be required to notify for any existing or proposed surface water diversions and other activities that fall within scope of CDFW's permitting authority, such as stream crossings (**Recommendation 11**).

### Mitigation Measures to Reduce Environmental Impacts

Management practices for surface water protection may include the construction of features intended to prevent or minimize discharge to surface waters, ranging from vegetated swales and filter strips to more advanced treatments, such as retention basins. Maintenance activities may include everything from inspections and repairs to vegetation management and the removal of accumulated sediment. CDFW supports the use of additional measures to treat and infiltrate runoff and encourages the Regional Water Board to establish criteria to ensure their function. Features should be designed and routinely maintained to minimize the spread and propagation of invasive species, such as reed canary grass (*Phalaris arundinacea*), which poses a serious threat to streams, wetlands, and riparian areas (**Recommendation 12**). In addition to suppressing native riparian plants (Tu et al. 2004), it degrades salmonid habitat by reducing dissolved oxygen levels, simplifying instream habitat, and hindering fish passage (Love 2006, NMFS 2014, Parish and Garwood 2015). The Final SONCC Coho Recovery Plan (NMFS 2014) underscores the threat of reed canary grass to the Smith River population and recommends implementing an invasive species management plan. Finally, to avoid inadvertent contamination of surface waters, groundwater, and sensitive habitats, CDFW recommends requiring testing of accumulated sediments in

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control features prior to removal, with disposal at an appropriate facility, if warranted (**Recommendation 13**).

### **Summary of Recommendations**

- 1) Streamside Management Area buffers should start at the top of bank or edge of riparian drip-line, *whichever is greater*.
- 2) Streamside Management Area widths should be at least 100 feet on fish-bearing streams.
- 3) The Riparian Vegetation Area component of Streamside Management Areas should be required for fish-bearing streams or sloughs, particularly those that support spawning and rearing.
- 4) To protect riparian functions when fields are in rotation as pasture, livestock should be excluded from Riparian Vegetation Areas.
- 5) The Order should establish minimum Riparian Vegetation Areas for fish-bearing streams that are non-negotiable through mitigation.
- 6) The decision to allow for mitigation should be predicated on a demonstrated ability to meet water quality objectives.
- 7) To better capture baseline conditions and detect spatial trends in water quality, CDFW recommends increasing the number of surface water monitoring locations.
- 8) The timing and frequency of water sampling should capture both significant rainfall events and the application of pesticides, with staggered sampling events throughout the wet season and additional dry season sampling to capture persistence as well as spring and summer applications.
- 9) Rather than waiting for the results of initial monitoring, CDFW recommends that all lily bulb fields draining to Smith River tributaries be automatically entered in the first tier of adaptive management upon enrollment.
- 10) Fields draining to Delilah Creek and other tributaries of Tillas Slough should be entered into a higher tier of adaptive management to address recognized copper exceedances. The Morrison Creek and Mello sub-watersheds may also warrant more advanced management practices



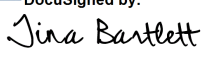
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due to consistently high copper concentrations and their significance to salmonids.

- 11) Enrollees should be required to notify CDFW for any existing or proposed surface water diversions and other activities that fall within scope of CDFW's permitting authority, such as stream crossings.
- 12) Runoff management features should be designed and routinely maintained to minimize the spread and propagation of invasive species, such as reed canary grass (*Phalaris arundinacea*).
- 13) To avoid inadvertent contamination of surface waters, groundwater, and sensitive habitats, CDFW recommends requiring testing of accumulated sediments in control features prior to removal, with disposal at an appropriate facility, if warranted.

Thank you for the opportunity to comment on this NOP. CDFW staff are happy to consult with the Regional Water Board and look forward to providing our biological expertise to the Technical Advisory Group (TAG). Please contact [Kathryn Rian](#), Environmental Scientist, with any questions or comments.

Sincerely,

DocuSigned by:  
  
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Tina Bartlett, Regional Manager  
Northern Region

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cc: State Clearinghouse, Office of Planning and Research  
[State.Clearinghouse@opr.ca.gov](mailto:State.Clearinghouse@opr.ca.gov)

Justin Ly, Dan Free  
NOAA Fisheries  
[Justin.Ly@noaa.gov](mailto:Justin.Ly@noaa.gov), [Dan.Free@noaa.gov](mailto:Dan.Free@noaa.gov)

Lauren Garske-Garcia, Hollie Hall  
California Coastal Commission  
[Lauren.Garske-Garcia@coastal.ca.gov](mailto:Lauren.Garske-Garcia@coastal.ca.gov), [Hollie.Hall@coastal.ca.gov](mailto:Hollie.Hall@coastal.ca.gov)

Rebecca Garwood, Michael van Hattem, Seth Ricker, James Ray, Jolyon Walkley, Kathryn Rian  
California Department of Fish and Wildlife

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