



Fact Sheet

Toxicity Provisions: **Improving Protection for California's Rivers, Lakes, Enclosed Bays and Estuaries**

Overview

The Toxicity Provisions propose changes to current State Water Board and Regional Water Board activities to update and improve protections for aquatic life from toxic water. The overall goal is to make current processes more effective and improve water quality. The provisions include the following:

- Consistent, statewide numeric water quality objectives for acute and chronic aquatic toxicity that are protective of California's waters from both known and unknown toxicants;
- A program of implementation to control toxicity in discharges to surface water;
- A consistent, yet flexible framework for monitoring surface waters for possible toxicity;
- A statewide statistical approach for data analysis that is transparent, enhances confidence in the findings and incentivizes valid, high quality data.

What is Aquatic Toxicity?

Aquatic toxicity is a measurement of water quality that determines whether the water is safe for aquatic organisms. It is typically assessed by having fish, aquatic insects, aquatic plants or algae live in a sample of the water of interest (e.g., wastewater effluent or river water) for a period of time, then measuring the organisms' survival, growth or reproduction, and comparing the measurements to the same types of organisms that were living in water that is safe (referred to as "control water").

The test is conducted in a laboratory and is functionally similar to having two aquariums, each with the same organisms, but with the water of interest in one aquarium and the control water in the other. If the organisms living in the water of interest perform similarly to those living in the control water, then the water of interest is considered non-toxic. If the organisms living in the water of interest do not survive, grow or reproduce as well as those in the control water, then the water of interest is considered toxic.



History of aquatic toxicity testing requirements in California

The United States Environmental Protection Agency (U.S. EPA) regulations establish specific methods for conducting aquatic toxicity tests. The method manuals include procedures for laboratory safety, quality assurance, facilities and equipment, dilution water, wastewater (effluent) sampling and holding times and temperatures, report preparation, and organism culturing and handling. *(Note that the proposed provisions do not change the U.S. EPA methods).*

The Regional Water Boards have used toxicity tests to assess the quality of treated effluent prior to its discharge into surface waters since the 1980s. Currently, most wastewater dischargers are required to conduct tests to show they are meeting their discharge permit effluent limitations and not causing toxicity in surface waters. However, existing Regional Water Board Basin Plans and statewide policies lack consistent implementation provisions for toxicity control for federal Clean Water Act National Pollutant Discharge Elimination System (NPDES) permits. As a result, the Regional Water Boards do not apply aquatic toxicity testing requirements or data analysis consistently statewide.

In the early 2000's, the State Water Board acknowledged the need to address inconsistencies in the application of effluent limitations for aquatic toxicity. The Board determined that whether numeric effluent limitations for chronic toxicity should be included in NPDES permits for publicly owned treatment works (POTWs) should be considered in a regulatory setting to allow for full public discussion and deliberation. The State Water Board directed staff to develop consistent, statewide requirements for implementing toxicity requirements in permits.

Why are the proposed Toxicity Provisions needed?

The main goal of the provisions is to provide consistent protection of aquatic life in all inland surface waters, enclosed bays and estuaries from the effects of toxicity. Testing of wastewater effluent offers a backstop measure of protection because it is infeasible to measure every possible chemical that could be causing toxicity and multiple chemicals can act together to be toxic to aquatic life. It is critical for the state to continue toxicity testing to assess water quality and develop rules that apply statewide.

Current standards for toxicity are mostly narrative and, therefore, are interpreted and implemented differently throughout the state. The provisions would establish consistent, statewide, numeric water quality standards so the presence of toxicity is evident to both the Regional Water Boards and dischargers.

Currently, there are multiple options for analyzing toxicity test data, some of which are prone to subjective interpretation. The provisions would require a statistical approach that provides a clear, transparent determination of whether a water sample is toxic or not (pass/fail), ensures

high confidence in those results and offers an incentive for dischargers to generate valid, high quality test data. The data analysis approach is known as the Test of Significant Toxicity (TST). The TST is an improvement upon previous approaches such as the no observed effect concentration (NOEC).

Proposed Use of the Aquatic Toxicity Provisions

The majority of the implementation requirements in the provisions, including numeric effluent limitations, apply to POTWs, industrial point source dischargers and other non-storm water point source dischargers with NPDES permits. Requirements to use the TST to analyze toxicity data and report their results apply to storm water, agricultural and other non-point source dischargers who are otherwise required to conduct toxicity testing.

The proposed Toxicity Provisions do not apply to ocean water and non-enclosed bays, including Monterey Bay and Santa Monica Bay. They also do not apply to groundwater. Ocean waters and non-enclosed bays have separate water quality control plan documents that include toxicity testing requirements.

Next Steps

Since 2012, various drafts of the toxicity provisions have been presented for both public and stakeholder input in over three dozen meetings throughout the state.

In December 2020, the State Water Board adopted the Toxicity Provisions. On October 5, 2021, the State Water Board adopted a resolution to confirm that the Toxicity Provisions were adopted as state policy for water quality control for all inland surface waters, enclosed bays, estuaries, and coastal lagoons of the state.

Additional Resources

More information can be found on the [State Water Board Statewide Toxicity Resource Page](#).

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