

San Francisco Bay Water Quality Trading Program: Designing a Program for Wastewater Treatment Plants

In recent years, the San Francisco Bay has experienced an increased frequency and severity of harmful algal blooms (HABs). In July 2024, the Regional Water Quality Control Board adopted the Nutrient Watershed Permit (Nutrient Permit), establishing nitrogen discharge limits for wastewater treatment plants (WWTPs) across the San Francisco Bay. The Nutrient Permit is intended to reduce the potential for HABs by requiring a 40% reduction in total inorganic nitrogen (TIN) loading from WWTPs by 2034. Satisfying the Nutrient Permit's final limits will require costly facility upgrades—estimated at approximately \$11 billion. In response, many dischargers have expressed interest in water quality trading as a compliance option to help reduce financial and operational burdens while achieving water quality improvements.

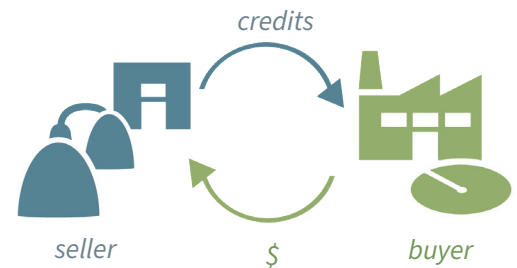
What Is Water Quality Trading?

Water quality trading (WQT) is a voluntary, market-based compliance strategy authorized under the Clean Water Act. It allows a regulated discharger to purchase credits from another source, frequently resulting in better economic and ecological outcomes than may be achieved with each discharger acting alone.

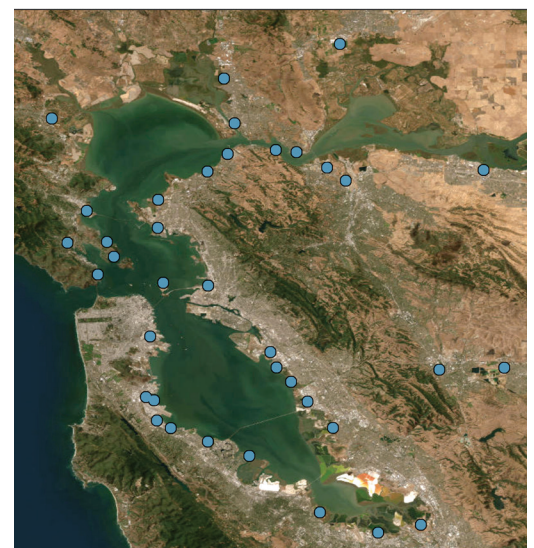
San Francisco Bay Context

In San Francisco Bay, the diversity of WWTP circumstances reflects the diversity of the Bay itself. Some facilities can reduce nitrogen loads below their permit limit more efficiently than others due to available space, existing infrastructure, or economies of scale. Facility changes are paid for from a variety of sources, including bonds, customer rate increases, loans, and grants. By allowing the Bay's regulated dischargers to look beyond an individual facility to consider nutrient reduction opportunities throughout the watershed, participants in a trading program can pursue the most efficient and cost-effective compliance strategies while reducing nutrient loading to the Bay. WQT enables collaboration between WWTPs that can ultimately benefit communities and ratepayers.

EXAMPLE CREDIT TRADE



A watershed-wide program to reduce nutrients in the San Francisco Bay could include voluntary trades between wastewater treatment plants. One regulated discharger with high permit compliance costs can purchase credits from another discharger that can achieve nutrient reductions more cost effectively.



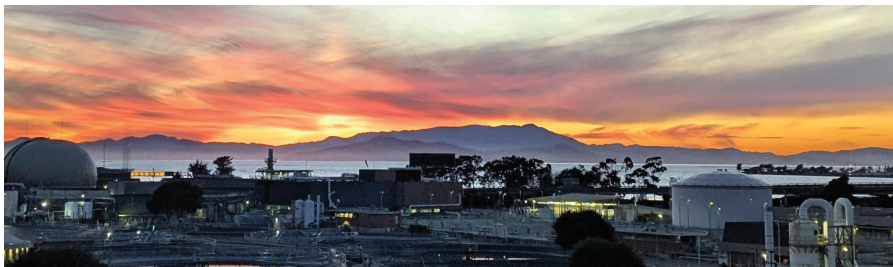
Relevant San Francisco Bay WWTPs

How Will WQT Work?

WWTPs that reduce pollutant loads below their effluent limit can sell those excess reductions (i.e., credits). Credits are generally measured in the same units as the permit and cover the same compliance period (TIN kg/day in the dry season), and therefore align with existing monitoring and reporting. A “framework” governing WQT in San Francisco Bay will provide all participants with certainty about the program requirements, restrictions, and mechanics. The governing framework will benefit from input from the WWTPs to inform the design of the program, and will ultimately need approval of the Regional Water Quality Control Board. Program design is happening now and all relevant WWTP are invited to participate.

Policy Foundations

WQT is supported by EPA policies, most notably the 2003 Water Quality Trading Policy, which EPA reaffirmed in 2019 and 2020. WQT has also been upheld by federal courts and has been endorsed by the State Water Resources Control Board. Active trading programs operate successfully across the country, including in Connecticut, Virginia, Maryland, Wisconsin, California, and Oregon, among others.



Why Consider Trading?

- **COST SAVINGS.** Trading capitalizes on differences in treatment costs across facilities, enabling the region to meet aggregate load targets without every facility independently building treatment.
- **FLEXIBILITY.** Facilities close to meeting their limits can purchase a small number of credits rather than investing in a full capital project. Smaller agencies with limited budgets, space, or ratepayer bases can achieve compliance by purchasing credits and co-funding larger treatment upgrades at other facilities.
- **COLLABORATION.** Trading encourages watershed-wide coordination, turning individual compliance challenges into shared solutions and consolidating capital investments where they make the most difference.
- **ENVIRONMENTAL BENEFIT.** Well-designed WQT programs include safeguards—trading ratios, credit reserve pools, and adaptive management—so that trading delivers water quality improvement.

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WHAT DOES WQT MEAN FOR YOUR WWTP?

Whether your facility is a potential buyer or seller, WQT provides another tool in the compliance toolbox. Facilities planning capital upgrades can evaluate whether over-treating could generate revenue through credit sales. Facilities facing difficult or expensive upgrades can evaluate whether purchasing credits is a more cost-effective path to compliance. WQT preserves future flexibility, even if you are unsure if you will be a credit buyer or seller.

ENGAGEMENT

It is important to engage early to make sure your perspectives are considered. Program design is happening in 2026 and 2027.

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The Freshwater Trust, a national expert in water quality trading, is supporting BACWA, HDR, and the Regional Water Quality Control Board. We are providing resources to support WWTPs as they consider WQT, including a workshop, credit price and availability analysis, and one-on-one consultation. The goal of this work is to establish the framework and systems necessary to facilitate nutrient credit trading.