Regional Water Quality Control Board
North Coast Region

Executive Officer's Summary Report
June 18, 2020

ITEM: 7

SUBJECT: Update on the Development and Early Implementation of the Laguna de Santa Rosa Total Maximum Daily Loads for Phosphorus, Dissolved Oxygen, Sediment, and Temperature *(Dr. Kelsey Cody)*

BOARD ACTION: This is an information item only; no action will be taken by the Board.

BACKGROUND: The Laguna de Santa Rosa (LDSR or Laguna) is a Ramsar wetland of international importance and the largest tributary of the Russian River, draining 254 square miles of watershed area in Sonoma County, California. Major streams entering the Laguna include Windsor Creek, Mark West Creek, Santa Rosa Creek, Blucher Creek, and Copeland Creek. The Laguna watershed is the urban center of the North Coast Region, encompassing the communities of Santa Rosa, Rohnert Park, Cotati, Sebastopol, and Windsor, as well as many unincorporated developments.

Contemporary land cover varies widely across the watershed, and includes high- to low-density residential and commercial developments, croplands and pastures, vineyards and orchards, rangelands, and forested area. Agricultural and urban development has caused fundamental changes in the landscape and hydrologic function of the watershed through deforestation, channel realignment, draining and filling of wetlands, and increased impervious surface area.

Over the years, these agricultural and urban development and hydrologic modifications have led to declines in ecosystem functions, assimilative capacity, and water quality. Significant landscape development and hydromodification have fundamentally altered the assimilative capacity of the Laguna de Santa Rosa for contemporary sources of sediment and Phosphorus. Importantly, the low gradient mainstem of the Laguna de Santa Rosa has captured historic loads of Phosphorus, now stored within many feet of sediment that have been directed from upland sources via flood control conduits since their construction following World War II. The shallowing of the mainstem from this sedimentation has also resulted in increases in water temperature and decreases in Dissolved Oxygen (DO).

Current conditions in the Laguna watershed do not adequately support beneficial uses of water, including Water Contact Recreation, Non-Contact Water Recreation, Cold Freshwater Habitat, and Rare, Threatened, or Endangered Species. Much of the Laguna and its tributaries are therefore listed as impaired under section 303(d) of the federal Clean Water Act due to excess sediment, Phosphorus, temperature, and reduced DO. To address these interconnected impairments, Regional Water Board staff (Staff) have been working with federal, state, and local stakeholders to develop and

implement source reduction and watershed restoration strategies since the early 1990s, including the development of Total Maximum Daily Loads (TMDLs).

Staff last updated the Regional Water Board on the Laguna Project in August 2015, when Staff and TetraTech presented first drafts of sediment and nutrient budgets, which assessed watershed sources of these pollutants. Since 2015, Staff has made considerable progress on three key tracks of Laguna de Santa Rosa recovery: 1) early implementation, 2) ongoing technical TMDL development, and 3) internal and external stakeholder coordination and outreach. The purpose of this update is to inform the Board and interested stakeholders on the progress made in these three focus areas.

DISCUSSION:

Early Implementation: Staff continues to implement the Santa Rosa Nutrient Offset Program (NOP) adopted by the Board in 2008. Through June 2019, the most recent data available, the City of Santa Rosa reported a total of 33,911 lbs of Phosphorus offsets, resulting in a net reduction of 11,473 lbs of Phosphorus loading to the Laguna. In the fall of 2019, a riparian restoration and sediment removal project on the Laguna mainstem was completed under the NOP that is estimated to have resulted in over 13,500 lbs of Phosphorus offset. Building on the NOP, in July 2018, the Board adopted the Water Quality Trading Framework for the Laguna de Santa Rosa Watershed (WQTF or Framework) (Resolution No. R1-2018-0025). The WQTF expands Phosphorus trading to include the Town of Windsor in addition to the City of Santa Rosa (Permittees) and provides clear guidelines for project development, selection, crediting, and accounting. Since the adoption of the WQTF, Staff has developed the following to implement the Framework:

1. A Pre-Qualified Practice (PQP) template;
2. A PQP for the WQTF library describing sediment removal, low flow channel creation, bank grading, and riparian planting; and
3. A publicly available WQTF accounting ledger.

Additionally, to support WQTF implementation, Staff worked together with Permittees to draft modifications to the WQTF that are proposed to be included in the Santa Rosa and Windsor wastewater discharge permits. The draft changes to the WQTF proposed are: 1) the option for direct project proposal without the use of a PQP, and 2) the extension of restoration project credit banking to be commensurate with the life of the project.

Finally, Staff continues to develop the Russian River Regional Monitoring Program (R3MP), which will ultimately provide integrated monitoring of parameters relevant for the TMDLs within the Russian River watershed, including the Laguna. The R3MP website contains a full program history and progress to date.

Technical TMDL Development: Following completion of the 2015 sediment and nutrient budgets for the LDSR, Staff executed a contract with TetraTech in 2019 to generate a rigorous technical basis for the development of a plan to control contemporary pollutant sources and expand assimilative capacity of the Laguna through ecosystem restoration. Contract deliverables include:

1. Updated sediment and nutrient budgets and linkage analyses for impairments,
2. Numeric targets, Waste Load Allocations (for point source discharges), and Load Allocations (for nonpoint source discharges) for nutrient and sediment TMDLs,
3. Surrogate measures to support water quality trading,
4. Implementation recommendations for a Laguna TMDL Action Plan, and
5. Monitoring recommendations to support adaptive management.

Thus far, TetraTech has completed updated sediment and nutrient budgets and linkage analyses, connecting sources to loads. Despite new monitoring data, some of which was generously provided by the City of Santa Rosa, the results differ little between the 2015 and 2020 analyses, indicating robust findings. By the end of July 2020, TetraTech will deliver a final internal memorandum detailing proposed Load Allocations and Waste Load Allocations and a draft internal memorandum describing potential surrogate measures for use in the LDSR to support water quality trading.

Analyses performed thus far continue to show that the LDSR recovery plan will need active restoration in addition to traditional TMDL source controls. Therefore, in its final form, a recovery plan will likely include source control requirements and contemplate mechanisms to restore ecosystem function. Such a plan is considered by USEPA as a TMDL Alternative. TMDL Alternatives go beyond a traditional TMDL where source control alone will not result in supporting conditions for beneficial uses and, in this case, includes a watershed recovery plan to increase assimilative capacity.[1]

To compliment sediment and nutrient analyses, Staff is developing a riparian shade model that will address temperature. The model estimates solar irradiance as it changes through the day at selected points along each stream within the watershed using surface elevation, vegetation height, canopy density data, and the points' geographic locations. Once final, the model will aid implementation of the Regional Water Board's Temperature Policy in the LDSR through the calculation of Load Allocations.

Stakeholder Coordination and Outreach. Planning Staff has met with other Regional Water Board Staff to discuss how to achieve LDSR recovery using existing Regional Water Board programs to the extent feasible. Additionally, State Board and USEPA have been kept apace of Staff's LDSR activities and plans through phone calls and online meetings. Local public agencies, the private sector, and the non-profit community have also been involved through the appropriate Lyris lists and other electronic outreach efforts. Staff continuously incorporates all feedback into the strategy for recovery of the Laguna.

In July 2019 Staff began hosting monthly conference calls with Sonoma Water, the Laguna de Santa Rosa Foundation, TetraTech, and the Aquatic Science Center to discuss Sonoma Water's Laguna de Santa Rosa Master Restoration Vision and Plan and their interface with the development of the LDSR TMDL Alternative. The Master Restoration Vision and Plan are two separate documents being developed under a single CDFW Proposition 1 grant to produce an integrated approach for the restoration

[1] For more information, see the US EPA memo "Information Concerning 2016 Clean Water Act Sections 303(d), 305(b) and 314 Integrated Reporting and Listing Decisions".

of the LDSR mainstem's 100-year floodplain. These monthly conversations are intended to ensure scientific compatibility between the TMDL Alternative and the Restoration Vision and Plan.

Next Steps: Future work for the remainder of 2020 includes three main activities. One, Staff will continue coordinating with US EPA and State Board TMDL staff to develop agreement on the contents of a TMDL Alternative that both satisfies regulatory requirements and establishes a science-based, meaningful approach to source control and ecosystem recovery. Two, Staff will continue to assemble the existing science associated with sediment, nutrient, temperature, and DO conditions in the Laguna de Santa Rosa watershed into a technical report to submit for scientific peer review. Three, Staff will coordinate with key watershed partners to develop the first in what may be a series of Laguna Recovery Workshops through which a consensus-based recovery strategy can be built. Staff will further update the Regional Board on the(se) workshops as they are developed and scheduled.

RECOMMENDATIONS: Not applicable; this is an informational item only.

SUPPORTING DOCUMENTS:

Laguna de Santa Rosa TMDLs webpage
Pre-Qualified Practice (PQP) template
Sediment removal, low flow channel creation, bank grading, and riparian planting PQP

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