

Appendix C: Response to Comments

This appendix presents Central Valley Water Board staff responses to comments received on the March 2019 draft Staff Report supporting proposed changes to the 2018 Clean Water Act Section 303(d) list of impaired waterbodies for the Central Valley Region. One comment letter was received, from the California Department of Fish and Wildlife, during the public comment period which extended from 28 March 2019 to 28 April 2019. Related comments have been grouped together with a single staff response. Comments and review during this period were limited to the waterbody/pollutant combinations assessed in the draft Staff Report.

The full comment letter is available on the Central Valley Water Board's [Integrated Report webpage](#).

Comment 1.1: The assessment for Delta Waterways (northwestern portion) for toxicity impairments failed to use all the available data for that waterbody by only using data from Ulatis Creek at Brown Road. The data that was assessed included sediment and water toxicity monitoring that occurred from January 2011 to September 2015. However, the Regional Board's Delta Regional Monitoring Program's (DRMP) pesticide monitoring program has observed frequent toxicity at this same location since 2015, and toxic observations have persisted to the present. The intensity and frequency of toxicity observed at that location labeled Ulatis Creek as one of the two toxic hotspots identified by the DRMP as needing further investigation. Toxicity data collected by the DRMP is submitted into the California Environmental Data Exchange Network (CEDEN) within 90 days, so at a minimum, data collected up to January 2017 should have been available in CEDEN to be used for this off-cycle assessment.

Comment 1.2: The Delta Regional Monitoring Program (DRMP) has determined that monitoring a single location in the Delta is not representative of the entire Delta or subregion of the Delta. Data from a single location is not adequate to infer conditions throughout a waterbody as diverse as a Delta subregion. Due to the limitations of single location monitoring, the DRMP has modified its monitoring design to a stratified design that will be better able to infer water quality conditions across a Delta subregion.

Comment 1.3: Additional toxicity data are available for waterbodies located in the northwestern portion of the Delta, which needs to be included in the assessment. Ulatis Creek at Brown Road was last assessed for the 2014 and 2016 Clean Water Act Section 303(d) List and 305(b) Integrated Report for the Central Valley Region (2014/2016 Integrated Report) with data up to April 2009, and the decision was to list the waterbody on the 303(d) list (TMDL required list). For the time period from 2010 to January 2017, new sediment and water toxicity data are available for sites labeled: Cache Lindsey, Cache Slough at Mouth, Cache Slough Upper, Deep Water Ship Channel Lower, Liberty Island, Lindsey Slough, Lindsey Slough Lower, Ulatis Creek at Brown Road, and Ulatis Creek at Mouth. Overall, there were 136 individual site/date toxicity monitoring events, and statistically significant toxicity occurred on 17 events.

Comment 1.4: The Department's assessment of all available data from Ulatis Creek suggests that Ulatis Creek evaluated as a single waterbody is still impaired for toxicity.

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Response 1: Staff agree with the commenter. Data contained in Line of Evidence (LOE) 131383 is, on its own, only representative of the 303(d) listed waterbody *Ulatis Creek (Solano County)*. This data was incorrectly used to represent conditions in *Delta Waterways (northwestern portion)*. Staff also agree with the commenter that additional readily available toxicity data are available for *Ulatis Creek (Solano County)* and for *Delta Waterways (northwestern portion)* and that these data should have been included in Decision ID 77488. Data identified by the commenter that was not included in Decision ID 77488 indicate potentially elevated levels of toxicity in *Ulatis Creek (Solano County)*.

Staff withdraw the proposed delisting of *Delta Waterways (northwestern portion)* for toxicity. All readily available data for *Delta Waterways (northwestern portion)* and for *Ulatis Creek (Solano County)* will be evaluated during the 2020 Integrated Report cycle.

Comment 2.1: The Staff Report proposes to remove the Colusa Basin Drain from the 303(d) list (TMDL required list) using monitoring data collected from May 2005 to May 2016 at monitoring sites Colusa Basin Drain above Knights Landing, Colusa Drain near Maxwell Road, and Colusa Basin Drain @ Knights Landing Downstream. However, three of the lines of evidence were previously assessed for the 2014/2016 Integrated Report (LOE ID: 59170, 59122, and 61446).

Comment 2.2: CEDEN has available toxicity data from 2002 to 2016, which appear not to have not been assessed for any updates to the 303(d) list thus far, from monitoring sites labeled Colusa Basin Drain #5, Colusa Basin Drain above KL, Colusa Basin Drain at Rd 99, Colusa Basin Drain @ Knights Landing Upstream, and additional sampling dates for the monitoring sites already assessed in the Staff Report for this update.

Comment 2.3: Colusa Basin Drain should remain on the list of impaired waterbodies for toxicity.

Response 2: The commenter is incorrect in suggesting that data in LOE ID 59170, 59122 and 61446 were not considered as part of Decision ID 71982 proposing delisting of *Colusa Basin Drain* for toxicity. However, the commenter is correct that there is additional, readily available toxicity data for *Colusa Basin Drain* that was not considered as part of Decision ID 71982.

Staff agree that additional data cited by the commenter that was not included in Decision ID 71982 indicate potentially elevated levels of toxicity in *Colusa Basin Drain*. Staff withdraw the proposed delisting of *Colusa Basin Drain* for toxicity. All readily available data for *Colusa Basin Drain* will be evaluated during the 2020 Integrated Report cycle.

Comment 3.1: Acute toxicity tests using mortality as an endpoint will underestimate adverse impacts to necessary biological functions. Acute toxicity tests are used for "identifying effluents and receiving waters containing toxic materials in acutely toxic concentrations." (USEPA 2002a). Acute toxicity tests are short duration (96 hours or less) and assess mortality (or inversely survival) as an endpoint only (USEPA 2002a). Acute toxicity tests lack the sensitivity to measure endpoints necessary to represent the conditions that will permit normal propagation and protection of fish and other aquatic life in receiving waters. The use of mortality endpoints

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only as a measure for the protection of aquatic-life beneficial uses suggests that reproduction, growth, behavior, locomotor activity, etc. are unnecessary for aquatic-life population success. The Department has emphasized the lack of acute toxicity endpoints' ability to measure important chronic and sub-lethal effects in the past (Louie et al. 2016; CDFW 2017).

Comment 3.2: The ratio of chronic to acute effects is consistent with acute-to-chronic ratios (ACR) for pesticides (e.g., chlorpyrifos and diazinon approximately ACR 3 (CVRWQCB 2013) and pyrethroids ACR 4.7-12 (CVRWQCB 2017)). However, chronic to acute effects ratios have been found to be much larger in fish species using longer term studies (e.g., 4,200 for a 30-day test, Brander et al. 2016 as cited in CDFW 2017). Even the short-term 7- day tests may underestimate long-term chronic toxicity in fish species.

Comment 3.3: Short-term methods for estimating chronic toxicity for endpoints such as reproduction and growth are readily available (USEPA 2002b). Even though these endpoints are not always the most sensitive (e.g., fish olfaction, Moore and Waring 2001 as cited in CDFW 2017), the tests are relatively short (7 days), cost effective, and usually adequately sensitive for measuring adverse impacts to aquatic life. In addition, additional species tests can be developed or used, if regional species or endpoint specific assessments are desired.

Comment 3.4: Acute toxicity testing is useful in some situations, for example in a highly polluted waterbody or when monitoring is designed to answer if a discharge or pollutant spill is acutely toxic to aquatic life or if mortality frequently occurs in a waterbody. In these situations, acute toxicity tests can be much more cost effective. However, if the monitoring is designed to provide information on the support or attainment of aquatic-life beneficial uses, then the use of mortality only endpoints will likely underestimate toxicity and adverse impacts to aquatic life. Reproduction, growth, etc. are essential for the proliferation and persistence of aquatic populations and, therefore, the Department recommends the Water Board must consider chronic toxicity endpoints in making toxicity evaluations.

Response 3: Staff agree with the commenter that acute toxicity testing can underestimate adverse impacts to aquatic life and that toxicity testing that utilizes non-lethal endpoints is better able to characterize conditions that will permit normal propagation and protection of fish and other aquatic life in receiving waters. Staff have withdrawn proposed delistings of *Delta Waterways (northwest portion)* and *Colusa Basin Drain* for toxicity in response to comments 1 and 2 by the commenter. Additional toxicity data cited by the commenter, including toxicity testing that utilizes non-lethal endpoints where available, will be assessed for these waterbodies as part of the 2020 Integrated Report. Results from acute toxicity testing will continue to be utilized along with all other readily available data to determine beneficial use support of waterbodies in the Central Valley Region.

Comment 4.1: The data for Colusa Basin Drain and Delta Waterways support the lack of sensitivity of acute mortality endpoints. Table 1 [see [comments submitted by Stephen Louie, California Department of Fish and Wildlife, 26 April 2019](#)] shows the occurrences of statistically significant toxicity in the waterbodies, including to which species and at which endpoints. Out of the 30 occurrences of toxicity, only 5 of the examples included statistically significant mortality in

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the ambient samples. Therefore, sub-lethal endpoints (e.g., reproduction and growth) are likely 6-fold more sensitive at observing toxicity than mortality endpoints. Furthermore, the chronic tests for *Ceriodaphnia* and *Pimephales* are 7-day tests, which are likely more sensitive for mortality endpoints than the shorter 4-day acute tests that were primarily assessed in the Staff Report. The *Hyalella* toxicity tests had a variety of test durations, but the tests that included the sub-lethal endpoint were 4-day tests. The algal species *Selenastrum* exhibited some toxicity using the chronic tests for these waterbodies; however, there is no analogous acute testing method for comparison (USEPA 2002a), so algal tests are not included in this comparison.

Response 4: Staff agree with the commenter. Staff have withdrawn proposed delistings of *Delta Waterways (northwest portion)* and *Colusa Basin Drain* for toxicity in response to comments 1 and 2 by the commenter. See Response 3.

Comment 5.1: The Staff Report contains five lines of evidence for Mormon Slough (from the Stockton Diverting Canal to Bellota Weir - Calaveras River) containing various water and sediment toxicity testing data. There appears to be 57 samples of toxicity test events, and statistically significant toxicity occurred on 11 events. The maximum number of exceedances allowed by the Listing Policy to remove a water segment from the 303(d) list for toxicants for a sample size of 57 is 5. This suggests the waterbody should be on the Do Not Delist from 303(d) list (TMDL required list).

Response 5: Staff agrees that the number of toxicity exceedances for *Mormon Slough (from the Stockton Diverting Canal to Bellota Weir – Calaveras River)* is higher than the allowable number of exceedances for toxicants per Table 4.1 of the Listing Policy. However, the Listing Policy does allow for a weight of evidence approach to list or delist a waterbody/pollutant combination. At this time, staff has withdrawn the proposed delisting of *Mormon Slough (from the Stockton Diverting Canal to Bellota Weir – Calaveras River)* for toxicity. During the 2020 Integrated Report cycle, Central Valley Water Board staff will determine if a weight of evidence approach is appropriate for this waterbody/pollutant combination.

Comment 6.1: Table 2 [see [comments submitted by Stephen Louie, California Department of Fish and Wildlife; 26 April 2019](#)] displays examples of data that should have been available from CEDEN during the solicitation period and were not evaluated during this off-cycle's assessment. Nearly all the lines of evidence used in the assessment appear to have not incorporated all the available data. Like the Colusa Basin Drain, Ultatis Creek, and the Delta Waterways (northwestern portion) discussed above, there are additional monitoring location data that should be assessed to provide the best information from available data.

Response 6: Comment noted. The commenter cites readily available data that should have been included in the proposed delisting of *Delta Waterways (central portion)* for the pesticide chlorpyrifos (Decision ID 74813). As part of staff review of proposed changes the 2018 303(d) list of impaired waterbodies for the Central Valley Region this proposed change was withdrawn. Data cited by the commenter will be considered as part of the 2020 Integrated Report.

The commenter also identifies data for the pesticides chlorpyrifos and diazinon that should have been included in assessments for *Delta Waterways (export portion)* (Decision ID 75814, 70471),

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Mokelumne River, Lower (in Delta Waterways, eastern portion) (Decision ID 93184), *San Joaquin River (Mendota Pool to Bear Creek)* (Decision ID 69546, 69489), and *San Joaquin River (Merced river to Tuolumne River)* (Decision ID 73118). The commenter references data that was collected during the years 2016-2017. These data were not included in the data solicitation for the 2018 Integrated Report cycle as they were not available in the California Environmental Data Exchange Network (CEDEN) database at the time of the solicitation period closing (3 May 2017). These data will be considered as part of the 2020 Integrated Report.