



Oregon

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via electronic delivery

Rob Webb, Principal Engineer
Dalton, Olmsted, & Fuglevand, Inc.
1001 SW Klickitat Way, Suite 200B
Seattle, WA 98134

RE: 2022 Johnson Lake, Fish Tissue Sampling
ECSI # 2086

Dear Rob Webb:

The Oregon Department of Environmental Quality (DEQ) has reviewed the March 18, 2024 *Johnson Lake Fish Tissue Monitoring Study Monitoring Report* (hereafter referred to as “the report”) prepared by Grette Associates, LLC (Grette) on behalf of Dalton, Olmsted & Fuglevand, Inc. (DOF) and Owens Brockway Glass Container, Inc. (Owens-Brockway). The report describes 2022 fish tissue monitoring in Johnson Lake, located west of I-205 adjacent to the Owens-Brockway facility (5850 NE 92nd Drive in Portland, Oregon; ECSI# 2086). Fish tissue sampling is required as part of long-term monitoring of the remedial action implemented by Owens-Brockway as described in the *Remediation Operations and Maintenance Plan (O&M Plan)-Sediment Remedial Action* (December 20, 2012). The March 18, 2024 version of the report is a revision to the version dated February 1, 2023.

DEQ’s comments on the report as well as the associated response to comments received is presented below.

General Comments

1. DEQ appreciates the additional information that has been provided in this version of the report per our earlier comments.
2. The report is not currently acceptable, as it fails to adequately address some of DEQ’s comments on the February 1, 2023 version of the report.
3. Data presented in report tables and figures need to undergo a thorough review and quality control check. DEQ has found several obvious data errors. These are detailed in specific comments below.
4. Please use consistent terms to refer to fishing methods. Currently the report interchangeably uses “fishing tackle”, “hook and line” and “rod and reel” to refer to the same angling method.

5. Based on the report, the most successful method for collecting larger fish in Johnson Lake was the gill net (Table 3 and Appendix C, Field Datasheets). Please describe the rationale for the net placement that were concentrated in zones 1, 2, and 7 only.

Specific Comments

1. Section 1.2.1
 - a. Please fix a typo: "...water *our* scouring..." should change to "...water *or* scouring..." (emphasis added).
 - b. Please provide some indication of the location(s) of warning signs that could not be accessed during the inspection due to "homeless activity" and those that were identified as in good condition (images from Appendix M). No text or context are provided for the images in Appendix M.
2. Figure 2 – This figure was revised from the February 1, 2023 report. Please provide rationale for this change and confirm that it accurately reflects 2022 fish sampling.
3. Section 2.1
 - a. Please remove the characterization of the bass sample as a "composite". It represents only a single individual and so is distinct from other sample composites that mix individuals.
4. Section 2.2 – As noted in our earlier comments, the sentence "*All tissue samples were processed in accordance with the approved compositing plan, the approved SAP, and the Laboratory Standard Operating Procedures ("SOP"; Appendix F)*" is factually incorrect and should be clarified in Section 2.2. DEQ did not approve the mixture of different species of fish within composites, for example. We appreciate the detailed discussion in Section 4.2, but request that this issue be clarified where relevant.
5. Section 2.2.2
 - a. DEQ appreciates the addition of this section, which provides the appropriate method for calculating a whole-body tissue concentration from fillet and carcass. Note that the method actually applied used incorrect masses for fillet and carcass and should be revised to reflect the actual masses rather than the 5-gram aliquots (see Table 11) assumedly used by the lab for chemical analysis. The mass of the bass carcass was reported as 338.39 g and fillet as 230.86 g (spreadsheet, submitted 9/7/2023 by Scott Maharry). Please correct the calculated whole-body concentrations using the actual masses of fillet and carcass.
 - b. The total mass of the bass was reported as 620 g in the field report and 569.25 g in the spreadsheet referenced above. What caused this difference in reported total mass?
 - c. DEQ appreciates the revision of the lipid-normalization equation to use "fraction of lipid content" rather than a percentage. Note that the calculation of lipid-normalized tissue concentrations throughout the report need to be checked, as DEQ has observed several errors in Grette's calculations.
6. Table 5 – Please confirm and correct as needed the IDs and zones in which fish samples were collected. IDs are supposed to include the fish type, zone collected, and a unique

index value. However, many fish caught in zones 1 and 7 appear to be mismatched in this way. For example, SF-01-19 through SF-01-26 are all said to be collected in zone 7, but the ID suggests they were caught in zone 1. In Table 12, the samples noted above appear as SF-07-19 through SF-07-26. The fathead minnow SF-7-04 also appears to have been caught in zone 1, so is similarly mislabeled.

7. Tables 10 and 11

- a. These two tables report different total PCB concentrations. Please correct Table 10 to use the values reported in Table 11, which we have confirmed, and correct the lipid-normalized PCB concentrations, which should be 1,000 times greater.
- b. The estimated whole-body PCB concentrations for the largemouth bass were not correctly calculated. The sample mass of roughly 5 g for carcass and fillet is clearly not accurate to the fish, which was recorded as 620 g in the field and 569.25 g in the laboratory. Please recalculate the whole-body concentrations using the actual fillet and carcass masses rather than (assumedly) the aliquot mass used by the laboratory for chemical analysis. Using the fillet mass of 230.86 g and carcass mass of 338.39 g, a whole-body concentration for total PCBs is 136.4 ug/kg, and PCB 126 is 0.024 ug/kg.

8. Table 12

- a. The lipid-normalized largemouth bass concentrations in Table 12 are incorrect. They should be 1,000 times greater. Please revise these values.
- b. The “LargeRough-WB-1-Dup” sample is not a duplicate but a unique sample. Table 12 shows that it contains entirely different individuals as the “LargeRough-WB-1” sample. Please rename this sample to be “LargeRough-WB-2” to avoid confusion and correct this naming convention throughout the report.

9. Table 13 – The largemouth bass lipid-normalized total PCB concentration is incorrect in this table. As in Tables 10 and 12, the concentration should be 1,000 times greater. Please revise.

10. Table 14

- a. The calculated whole-body largemouth bass concentration is incorrect in this table. It should be recalculated to reflect the actual mass of fillet and carcass.
- b. The lipid-normalized whole-body total PCB concentration for largemouth bass is currently reported in Table 14 as “--” however the value should be approximately 34,888 ug/kg lipid. Please add this value to the table.
- c. The PCB 126 concentration in largemouth bass whole-body should be 0.024 ug/kg ww, reflecting the actual mass of fillet and carcass.

11. Figures 3 and 4

- a. The use of linear trendline with bar graphs is not statistically appropriate, as the x-axis scale and ordering of bars is arbitrary. For example, rearranging the samples from low to high concentration within each year could flip the trend to be increasing. A scatterplot with x-axis as year would be more reasonable to present the spread of data over time (and vertically by tissue concentration).

- b. Even if these data are presented on a relevant axis (dates), there are currently insufficient data to show a convincing declining trend in fish tissue over time.
 - c. We calculate the lipid-normalized total PCB concentration in whole-body largemouth bass tissue to be approximately 34,888 ug/kg lipid. When plotted on this figure, the supposed decreasing trend is even less convincing. Also, it appears that rather than including no value, 0 ug/kg may have been used for the bass tissue concentration so that it would appear as an empty spot in Figure 4; if that is the case the trend line would be biased and should be corrected.
 - d. The 2017 dataset also included sculpin; please add this to the Figure 4 title.
12. Section 4.5 – This section includes recommendations that additional sampling be conducted of fish tissue within Johnson Lake and in the adjacent Whitaker Slough/Columbia Slough system. DEQ agrees that additional sampling is appropriate, as fish tissue concentrations in samples collected between 2004 and 2022 consistently exceed the PCB 126 threshold established in the Record of Decision (ROD). These results suggest that the selected remedy in Johnson Lake may have been insufficient to address human health and wildlife risks from PCBs.

While concentrations in the larger fish size categories (e.g., game fish and rough fish) have been consistently above ROD standards, one important line of evidence for monitoring is to examine concentrations in tissue for receptors lower in the food chain with smaller home ranges and shorter life spans. Three-Spine Stickleback (SB) were collected from zone 7 and split into two composites of 10 fish each (SB from zone 1 were limited and not analyzed). As adults these fish are small (2-4 grams), primarily pelagic, and feed on small invertebrates associated with aquatic vegetation. The whole-body composite concentrations of zone 7 Stickleback were above the ROD standard of 0.003 ug/kg for PCB 126, with concentrations of 0.014 and 0.0135 ug/kg. Total PCB concentrations were 48.9 and 66.2 ug/kg. These results indicate that exceedances of the ROD standard occur at the bottom of the food chain in smaller spatial scales within Johnson Lake.

Due to exceedances of the ROD threshold for all biota regardless of trophic level, DEQ requests that future sampling include the completion of passive sampling and sediment sampling to inform the distribution of contamination in sediments and localized tissue accumulation. Passive sampling would allow for estimates of bioavailability in all areas regardless of whether aquatic species are consistently available for analysis. Sampling should be conducted in a manner that does not impact the integrity of the cap, be paired at the same locations, and occur throughout the lake (i.e., in each zone). DEQ requests that passive and sediment samples be analyzed for PCB congeners and that sediment samples additionally be analyzed for organic carbon. This sampling would provide information to help evaluate whether the cap is functioning as intended without fish availability and movement confounding results. DEQ would also be happy to discuss alternative methods to evaluate cap performance.

13. Appendix H – In addition to the coordinates, please provide a map showing the locations for each, or confirm GPS locations match Figure 2 locations. Please provide points on a map from field notes illustrating collection locations for SL 12 and SL 13 that were noted to have GPS points corrupted.

Please submit a final report incorporating these comments within 30 days and also provide a work plan for additional sampling as discussed in comment #12 above. Contact me at (503) 709-8253 or sarah.vanlubt@deq.oregon.gov if you have any questions or would like to discuss.

Sincerely,

Sarah Van Glubt

Sarah Van Glubt
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Northwest Region Cleanup Section

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