

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 10

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To: NPDES Permit Writers in the Columbia and Snake River Basin

From: Martin Merz – EPA Region 10

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Date: Updated August 1, 2025

Subject: Accessing and Tracking Reserve Capacity and WLAs in the Columbia and Lower

Snake River TMDL for Temperature

Background

- The Columbia and Lower Snake River TMDL for temperature (EPA, 2021) assigned a reserve capacity to be accessed by existing point sources that require a higher wasteload allocation (WLA) and new facilities that require a WLA.
- The TMDL describes reasons why facilities may access the reserve capacity, including new or additional information on effluent flow and/or temperature, expanded needs due to growth that are expected to occur during the permit cycle, or new facilities that did not receive a WLA in the TMDL.
- The TMDL assigns reserve capacity to 17 individual reaches delineated by river mile. Most reaches are delineated between dams, with two additional reaches between the most downstream dam, Bonneville Dam, and the mouth of the Columbia River.
- WLAs assigned to facilities that no longer need their WLA will be returned to the reserve capacity for that reach.

This memo describes:

- Steps for permit writers on whether and how to access reserve capacity;
- Steps for permit writers on how to communicate if a facility no longer needs their WLA;
- How Oregon DEQ, Washington Department of Ecology, and EPA will work together to manage requests for reserve capacity; and
- How EPA will track the reserve capacity;
- Attachments:
 - o Reserve capacity tables
 - o E-mail template for reserve capacity requests
 - o Excerpt from the 2021 Columbia and Lower Snake Rivers Temperature TMDL

Permit Writers: Steps to Access Reserve Capacity for a Facility

- 1. Evaluate facility need for heat limit higher than the WLA.
 - a. Has the facility requested a higher heat limit? Has the permit writer determined a higher heat limit is needed? Why?
 - b. Does it meet one of the following criteria?
 - i. new or additional information on effluent flow and/or temperature
 - ii. expanded needs due to growth that are expected to occur during the permit cycle
 - iii. new facility that did not receive a WLA in the TMDL
 - c. If yes, document and move to Question 2.
- 2. Evaluate the amount of reserve capacity that is needed.
 - a. What has the facility requested for a new or increased WLA?
 - b. Are the increased flows or temperatures reasonable?
 - c. If additional capacity is needed for growth, is that occurring within the permit cycle? If yes, continue. If no, do not grant reserve capacity.
 - d. Determine the amount of reserve capacity that must be accessed.
 - i. Multiply effluent flow (MGD) x temperature (°C) X (conversion factor)
 - ii. Determine the heat load needed from the reserve capacity, by subtracting current WLA from proposed WLA. If the facility is new, the entire heat load is taken from the reserve.
- 3. Check the reserve capacity available in the reach.
 - a. See Attachment 1 of this memo to determine the reach the facility discharges to and the amount of reserve capacity available.).
 - b. Determine whether the requested reserve capacity is less than 10% of the total reserve capacity available in that reach. This threshold affects the level of interagency review (see next section).
- 4. Email the TMDL and NPDES permitting contacts at EPA, ODEQ, Ecology notifying them that you plan to access the reserve, using the template in Attachment 2.

Permit Writers: Notifying Oregon DEQ, Ecology, and EPA if a Facility Does Not Need a WLA

- 1. If a facility no longer needs their WLA (e.g., facility no longer operating or discharging), the permit writer will notify EPA and cc: Oregon DEQ and Ecology with the permit name, number, and WLA.
- 2. EPA will add the WLA back to the reserve capacity in the reach, update Attachments 1 and 2, and share the updated memo with Oregon DEQ, Ecology, and EPA in the TMDL and NPDES programs.

Oregon DEQ, Ecology and EPA Coordination

- 1. Reviewing reserve capacity requests
 - a. If the amount requested is less than 10% of the remaining reserve capacity in the reach, no further action is needed.
 - b. If the amount is greater than 10% of the remaining reserve capacity in the reach, EPA, Oregon DEQ, and Ecology will respond within 14 days of notification to approve the use of reserve capacity or elevate concerns to water program managers in each agency.
 - c. At any time, any of the agencies may request further information or a meeting to discuss any reserve allocation request.

EPA

- 1. Tracking reserve allocations and WLAs
 - a. EPA will maintain and update Attachment 1, which tracks the reserve allocations in each reach and assignments to sources (Attachment 1).
 - b. EPA will notify Oregon, Washington, and EPA in the NPDES programs within 30 days after each reserve allocation has been granted and keep documentation of the reserve allocation requests and changes to WLAs.
 - c. EPA, Oregon, and Washington NPDES programs will share information with TMDL program counterparts.
- 2. Memo updates
 - a. EPA will maintain and update the memo with any procedural changes.
 - b. EPA will post the updated memo at (https://www.epa.gov/columbiariver/tmdl-temperature-columbia-and-lower-snake-rivers).

Attachment 1

Table 1: Modified WLAs since TMDL Issuance

| Review Date | Facility Name | Permit Number | Location (RM) | Original WLA (kcal/day) | New WLA (kcal/day) | Change to Reserve (kcal/day) | Prior Reserve in Reach (kcal/day) | Remaining Reserve in Reach (kcal/day) |
|----------------|--|--------------------------------------|------------------|-------------------------------|--------------------------|------------------------------------|--|--|
| 12/30/22 | Pacific Seafood-Warrenton Facility (formerly Pacific Surimi) | OR0055002 (formerly OR0034657) | 10 | 3.54x10 ⁷ | 4.22x10 ⁷ | -0.68x10 ⁷ | 4.8x10 ⁹ (June-Sept) 4.8x10 ⁹ (Oct) | 4.8x10 ⁹ (June-Sept) 4.8x10 ⁹ (Oct) |
| 08/01/25 | Pateros POTW | WA0020559 | 524 | 8.91x10 ⁶ | 1.13x10 ⁷ | -2.43x10 ⁶ | 4.8x10 ⁹ (June-Sept) 2.0x10 ⁹ (Oct) | 4.8x10 ⁹ (June-Sept) 2.0x10 ⁹ (Oct) |

Table 2: Current Reserve Allocations

| Reserve Reach | River Miles | Initial Reserve Allocation (June – September) | Remaining Reserve Allocation (June – September) | Initial Reserve Allocation (October) | Remaining Reserve Allocation (October) |
|----------------|-------------|---|---|--|--|
| | | (kcal/day) | | (kcal/day) | |
| COLUMBIA RIVER | | | | | |
| Grand Coulee | 738-591 | 4.8x10 ⁹ | NA | 2.0x10 ⁹ | NA |
| Chief Joseph | 591-544 | 4.8x10 ⁹ | NA | 2.0x10 ⁹ | NA |
| Wells | 544-512 | 4.8x10 ⁹ | NA | 2.0x10 ⁹ | NA |
| Rocky Reach | 512-472 | 4.8x10 ⁹ | NA | 2.0x10 ⁹ | NA |
| Rock Island | 472-453 | 4.8x10 ⁹ | NA | 2.0x10 ⁹ | NA |
| Wanapum | 453-413 | 4.8x10 ⁹ | NA | 2.0x10 ⁹ | NA |
| Priest Rapids | 413-396 | 4.8x10 ⁹ | NA | 2.0x10 ⁹ | NA |
| McNary | 396-291 | 4.8x10 ⁹ | NA | 4.8x10 ⁹ | NA |
| John Day | 291-215 | 4.8x10 ⁹ | NA | 4.8x10 ⁹ | NA |

| Dalles | 215-189 | 4.8x10 ⁹ | NA | 4.8x10 ⁹ | NA |
|------------------|---------|---------------------|---------------------|---------------------|---------------------|
| Bonneville | 189-140 | 4.8x10 ⁹ | NA | 4.8x10 ⁹ | NA |
| RM42 | 140-42 | 4.8x10 ⁹ | NA | 4.8x10 ⁹ | NA |
| RM0 | 42-0 | 4.8x10 ⁹ | 4.8x10 ⁹ | 4.8x10 ⁹ | 4.8x10 ⁹ |
| SNAKE RIVER | | | | | |
| Lower Granite | 140-107 | 4.8x10 ⁹ | | 4.8x10 ⁹ | |
| Little Goose | 107-70 | 4.8x10 ⁹ | | 4.8x10 ⁹ | |
| Lower Monumental | 70-40 | 4.8x10 ⁹ | | 4.8x10 ⁹ | |
| Ice Harbor | 40-0 | 4.8x10 ⁹ | | 4.8x10 ⁹ | |

Note: River Miles are referenced to RBM10 model structure

Attachment 2

Email to: [EPA WA and OR NPDES Coordinators, ODEQ NPDES Contact, Ecology NPDES Contact] (wu.jennifer@epa.gov, basu.bilin@epa.gov, zach.loboy@deq.oregon.gov, lfri461@ecy.wa.gov)

Subject: Accessing Reserve Capacity, Columbia River Temperature TMDL, [insert permit name, permit number]

[Ecology/EPA/ODEQ] is requesting to access [insert amount in kcal/day] of the reserve capacity in [insert river reach facility is discharging to] for assignment to [insert facility name, permit number]. The facility requires a reserve capacity because [insert reason]. The amount of the reserve capacity we are requesting is [less than or greater than] 10% of the current reserve capacity in the reach. Documentation of the rationale and calculations is attached and will also be included in the permit fact sheet. [Attach document]

Attachment 3

Point Source Chapter Excerpt from Columbia and Lower Snake River Temperature TMDL

The following is copied directly from the 2021 TMDL issued by EPA

NPDES Permitted Point Sources

The NPDES point sources discharging directly to the mainstems of Columbia and lower Snake Rivers are allocated a temperature increase of 0.1°C, or one third of the 0.3°C allowable temperature increment for all sources. EPA used RBM10, with data from 2011 – 2016, to estimate the impacts of current non-stormwater point source discharges at each target site. NPDES permitted stormwater discharges are discussed separately in Section 6.5.3. Using RBM10, EPA estimates that the greatest cumulative temperature impact of these sources during the critical period of June through October, after full dilution with the receiving water, is less than 0.1°C, if current sources continue discharging their existing heat loads. Because additional heat loading from point sources can be allowed within the 0.1 °C allocation, EPA has designated relatively small loadings throughout the TMDL area as reserve allocations for new sources, future growth, and wasteload allocation adjustments based on new information. The cumulative impact of the point sources and the reserve allocations in the summer is constrained to a 90th percentile temperature increase of 0.1°C. The reserve allocations are described in detail in Section 6.5.4. As noted in Section 6.3, wasteload allocations are expressed as heat loads (kcal/day) because many point source facilities can manage effluent flow to reduce the impact of their discharge on the receiving water. In expressing the wasteload allocation as heat loads, the TMDL gives point sources the flexibility to manage temperature and/or effluent flow to achieve their wasteload allocations. The individual WLAs, used as inputs to the model and necessary to achieve the 0.1°C aggregate allocation, are provided in Table 6-11 through Table 6-13. EPA used facility-specific design flow and maximum temperature data (or temperatures representative of the industry sector if effluent data were not available) to derive wasteload allocations for each facility using the following equation:

Heat Load (kcal/day) = Flow (mgd) x Temperature (°C) x 3.78x10⁶ (Equation 6-1)

The assumptions of the modeling assessment can be considered in determining how to translate the TMDL wasteload allocations into permit limits. In the model, a point source is input as a continuous heat load; this is analogous to a source discharging continuously at its monthly average permit limit. Collectively, if all the sources discharge this load on average, the cumulative wasteload allocation for point sources will be achieved. Permit limits must be consistent with the assumptions and requirements of a TMDL [40 CFR 122.44(d)(1)(vii)(B)]. Given the modeling assumptions, permit writers may translate wasteload allocations to monthly average permit limits. WLAs apply from June 1 through October 31 to all facilities discharging to the Columbia and Snake rivers upstream of Columbia River mile 141.5. Below river mile 141.5, the WLAs apply to discharges from June 1 through September 30. Considerations for permit writers when implementing the TMDL WLAs are included in Appendix J. The appendix also includes recommendations for potential future coordination among Oregon Department of Environmental Quality, Washington Department of Ecology, and EPA regarding management of the reserve allocation and any potential point source trading.

Table 6-11 through **Table 6-13** are organized according to the NPDES program designation for major¹ and minor permits (EPA 1990). For discharges to the Columbia River, major facilities are listed in **Table 6-11** and minor facilities are listed in **Table 6-12**. Discharges to the lower Snake River are listed in **Table 6-13**. The agency responsible for issuing each NPDES permit is indicated by two letters preceding the permit number (e.g., "WA0020621" was issued by Washington), except for EPA-permitted facilities, which are identified by footnotes. These tables include point sources with existing NPDES permits, as well as sources that have applied for and are expected to receive NPDES permits.

Table 6-1 WLAs for "Major facility" NPDES permitted facilities on the Columbia River

| Facility Name | Permit | Location | Flow | Temp | WLA |
|---|-----------|----------|-------|------|------------|
| 1.22 | Number | (RM) | (MGD) | (°C) | (kcal/day) |
| Wenatchee | WA0023949 | 466.6 | 5.5 | 26.2 | 5.44E+08 |
| E Wenatchee Sewage Treatment Plant (STP) | WA0020621 | 465.7 | 3.0 | 26.2 | 2.97E+08 |
| Alcoa Wenatchee | WA0000680 | 455.2 | 5.5 | 25.6 | 5.31E+08 |
| Columbia Generating Sta / Energy Northwest | WA0025151 | 351.8 | 9.4 | 35.9 | 1.27E+09 |
| Richland STP | WA0020419 | 337.1 | 11.4 | 29.4 | 1.27E+09 |
| Kennewick Wastewater Treatment Plant | WA0044784 | 328.0 | 12.2 | 27.0 | 1.24E+09 |
| Pasco | WA0044962 | 327.6 | 10.8 | 27.3 | 1.11E+09 |
| Agrium Hedges | WA0003699 | 323.3 | 0.03 | 17.2 | 1.95E+06 |
| Agrium Kennewick | WA0003671 | 322.6 | 23.4 | 30.8 | 2.72E+09 |
| Agrium Finley | WA0003727 | 321.5 | 18.9 | 27.2 | 1.94E+09 |
| Packaging Corporation of America | WA0003697 | 316.0 | 37.5 | 37.1 | 5.25E+09 |
| The Dalles STP | OR0020885 | 186.5 | 4.2 | 27.0 | 4.23E+08 |
| Hydro Extrusion USA, LLC | OR0001708 | 186.0 | 6.0 | 34.0 | 7.70E+08 |
| Hood River OR STP | OR0020788 | 165.0 | 2.0 | 27.0 | 2.04E+08 |
| Georgia Pacific / GP Consumer Operations LLC | WA0000256 | 120.0 | 76.0 | 37.7 | 1.08E+10 |
| Gresham OR Wastewater Treatment Plant (WWTP) | OR0026131 | 117.5 | 15.9 | 23.9 | 1.44E+09 |
| Marine Park / Vancouver Marine Park Reclamation Facility | WA0024368 | 109.2 | 16.1 | 25.1 | 1.53E+09 |
| Portland STP OR | OR0026905 | 105.5 | 150.0 | 24.9 | 1.41E+10 |
| Vancouver Westside STP | WA0024350 | 105.1 | 28.3 | 26.0 | 2.78E+09 |
| Salmon Creek STP | WA0023639 | 96.0 | 17.0 | 23.3 | 1.50E+09 |
| Boise/St Helens OR STP | OR0020834 | 86.0 | 12.7 | 28.5 | 1.37E+09 |
| Dyno Nobel Inc. | OR0001635 | 82.0 | 24.6 | 34.0 | 3.16E+09 |
| Emerald Kalama Chemical | WA0000281 | 74.0 | 15.0 | 34.7 | 1.97E+09 |
| Steelscape, Inc. | WA0040851 | 72.2 | 0.2 | 35.0 | 2.38E+07 |

¹ Major municipal dischargers include all facilities with design flows of greater than one million gallons per day and facilities with EPA/state-approved industrial pretreatment programs. Major industrial facilities are determined based on specific ratings criteria developed by EPA or are classified as such by EPA in conjunction with the state (EPA 1996).

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| Facility Name | Permit Number | Location (RM) | Flow (MGD) | Temp (°C) | WLA (kcal/day) |
|---------------------------------------|------------------|------------------|---------------|--------------|-------------------|
| Westrock Longview | WA0000078 | 67.4 | 57.0 | 38.4 | 8.28E+09 |
| Three Rivers Regional | WA0037788 | 66.0 | 26.0 | 32.5 | 3.19E+09 |
| Nippon Dynawave Packaging Corporation | WA0000124 | 64.0 | 79.6 | 45.0 | 1.35E+10 |
| Millenium Bulk Terminals | WA0000086 | 63.0 | 6.6 | 28.9 | 7.25E+08 |
| Port of St. Helens | OR0034231 | 53.0 | 3.3 | 32.0 | 3.99E+08 |
| GP Wauna OR Mill | OR0000795 | 42.0 | 39.6 | 35.4 | 5.29E+09 |
| Astoria OR STP | OR0027561 | 18.0 | 6.2 | 25.0 | 5.85E+08 |

WLAs for "Minor facility" NPDES permitted facilities located on the Columbia River Table 6-2

| Facility Name | Permit Number | Location (RM) | Flow (MGD) | Temp (°C) | WLA (kcal/day) |
|--|------------------|------------------|---------------|--------------|-------------------|
| Avista – Kettle Falls | WA0045217 | 702.4 | 0.34 | 32.2 | 4.12E+07 |
| Coulee Dam Electric Facility (WA) ^{2,3} | WA0026867 | 596 | 178.0 | 16.8 | 1.13E+10 |
| Grand Coulee WWTP ² | WA0044857 | 596.6 | 0.3 | 24.1 | 2.73E+07 |
| City of Coulee Dam ² | WA0020281 | 596.0 | 0.5 | 23.9 | 4.51E+07 |
| Interior, Reclamation ² | WA0024163 | 596.0 | 0.018 | 24.7 | 1.68E+06 |
| Colville Confederated Tribes ² | WAG130016 | 580.0 | 4.86 | 16.8 | 3.08E+08 |
| Confederated Tribes of the Colville Reservation ² | WAG130025 | 580.0 | 25.4 | 16.8 | 1.61E+09 |
| Chief Joseph Dam ^{2,3} | WA0026891 | 545 | 92.5 | 18.2 | 6.36E+09 |
| Chelan Fruit Cooperative Pateros South Plant | WAG435265 | | 0.2 | 18.8 | 1.42E+07 |
| Wells Fish Hatchery | WAG135009 | | 36.2 | 17.7 | 2.42E+09 |
| Bridgeport STP | WA0024066 | 543.7 | 0.36 | 24.2 | 3.33E+07 |
| Brewster | WA0021008 | 529.8 | 0.61 | 26.0 | 5.99E+07 |
| Pateros STP | WA0020559 | 524.1 | 0.10 | 24.0 | 8.91E+06 |
| Wells Dam | WA0991031 | 515.5 | 28.5 | 35.4 | 3.81E+09 |
| Chelan Fruit Cooperative Beebe Plant | WAG435270 | | 0.2 | 23.7 | 1.79E+07 |
| Chelan POTW | WA0020605 | 503.5 | 2.6 | 25.0 | 2.49E+08 |
| Entiat STP | WA0051276 | 485.0 | 0.15 | 26.0 | 1.47E+07 |
| Rocky Reach Dam | WA0991033 | 473.5 | 34.3 | 27.0 | 3.50E+09 |
| Stemlit Growers Euclid | WAG435172 | | 0.1 | 26.1 | 9.87E+06 |
| Stemlit Growers Olds Station 2 | WAG435157 | | 0.1 | 21.3 | 8.05E+06 |
| Eastbank Hatchery | WAG135011 | | 29.5 | 17.5 | 1.95E+09 |
| Chelan Hatchery | WAG135006 | | 17.3 | 17.5 | 1.14E+09 |

² EPA is the NPDES permitting agency.³ The NPDES permit application has been submitted.

| Facility Name | Permit Number | Location (RM) | Flow (MGD) | Temp (°C) | WLA (kcal/day) |
|--|------------------|------------------|---------------|--------------|-------------------|
| Tree Top Inc Wenatchee | WA0051527 | 470.8 | 0.18 | 26.6 | 7.03E+07 |
| Naumes Processing / Keyes Fibre Corp | WA0051811 | 470.5 | 1.4 | 24.7 | 1.32E+08 |
| Lineage Logistics | WA0052400 | 466.8 | 1.9 | 24.7 | 1.74E+08 |
| KB Alloys/ AMG Al North Amer. | WA0002976 | 458.5 | 0.3 | 40.0 | 4.53E+07 |
| Specialty Chemical | WA0002861 | 456.3 | 0.35 | 16.1 | 2.13E+07 |
| City of Rock Island | WA0501487 | 455.9 | 0.34 | 20.5 | 2.62E+07 |
| Rock Island Dam | WA0991032 | 453.5 | 26.9 | 26.0 | 2.64E+09 |
| Crescent Bar WWTP | WA0991013 | 440 | 0.06 | 26.0 | 5.89E+06 |
| Vantage STP | WA0050474 | 420.6 | 0.09 | 26.1 | 8.57E+06 |
| Wanapum Dam | WA0991028 | 416 | 29.8 | 30.0 | 3.38E+09 |
| Priest Rapids Dam | WA0991029 | 397 | 27.8 | 29.2 | 3.07E+09 |
| Priest Rapids Hatchery | WAG137013 | 397 | 76.5 | 19.8 | 5.72E+09 |
| Twin City Foods Kennewick | WA0021768 | 328.3 | 0.01 | 24.4 | 7.37E+05 |
| Sanvik Metals | WA0003701 | 321.0 | 0.24 | 37.8 | 3.45E+07 |
| McNary Dam (OR) ³ | ODEQ | 291 | 28.8 | 26.0 | 2.83E+09 |
| Richland Water Treatment Plant | WAG645000 | | 0.8 | 23.9 | 7.23E+07 |
| Umatilla STP | OR0022306 | 285.0 | 1.1 | 26.1 | 1.08E+08 |
| Oregon Fish and Wildlife (Umatilla Hatchery) | ORG137011 | 275 | 7.1 | 17.5 | 4.71E+08 |
| Oregon Fish and Wildlife (Irrigon Hatchery) | ORG137017 | 275 | 18.1 | 16.6 | 1.13E+09 |
| Arlington STP | OR0020192 | 238.0 | 0.13 | 25.0 | 1.18E+07 |
| John Day Project (WA) ^{2,3} | WA0026832 | 214 | 51.9 | 21.4 | 4.19E+09 |
| John Day Dam (OR) ³ | ODEQ | 214 | 68.5 | 27.1 | 7.01E+09 |
| Biggs OR WWTP | OR0041246 | 205.5 | 0.039 | 26.1 | 3.79E+06 |
| Wishram POTW | WA0051292 | 200.9 | 0.10 | 23.9 | 8.75E+06 |
| The Dalles Dam (WA) ^{2,3} | WA0026701 | 190 | 39.5 | 26.9 | 4.01E+09 |
| Underwood Fruit & Warehouse | WAG435043 | | 0.0014 | 12.7 | 6.72E+04 |
| Dalles/Oregon Cherry OR | OR0000736 | 189.5 | 0.74 | 23.0 | 6.43E+07 |
| Oregon Cherry (Riverside) | OR0000116 | 189.5 | 3.24 | 24.0 | 2.94E+08 |
| Lyle POTW | WA0050482 | 183.2 | 0.098 | 23.9 | 8.84E+06 |
| Mosier OR | OR0028045 | 174.5 | 0.085 | 25.6 | 8.22E+06 |
| SDS Lumber | WA0051152 | 170.2 | 25.0 | 29.4 | 2.78E+09 |
| Bingen STP | WA0022373 | 170.2 | 0.8 | 24.0 | 7.25E+07 |
| Spring Crk Natl Fish Hatchery ² | WAG130006 | 165.0 | 5.1 | 16.8 | 3.25E+08 |
| Cascade Locks OR STP | OR0041271 | 148.2 | 0.49 | 28.0 | 5.21E+07 |

| Facility Name | Permit Number | Location (RM) | Flow (MGD) | Temp (°C) | WLA (kcal/day) |
|---|------------------|------------------|---------------|--------------|-------------------|
| Stevenson STP | WA0020672 | 150.0 | 0.45 | 27.4 | 4.66E+07 |
| Oregon Fish and Wildlife (Bonneville Fish Hatchery) | ORG130001 | 143 | 32.0 | 15.5 | 1.87E+09 |
| Tanner Creek Water Treatment Plant – USACE | OR0022624 | 146.1 | 0.1 | 22.0 | 8.31E+06 |
| North Bonneville STP | WA0023388 | 144.0 | 0.25 | 20.1 | 1.90E+07 |
| Bonneville Dam (OR) ³ | OR0034355 | 141.5 | 28.5 | 24.1 | 2.59E+09 |
| Bonneville Project (WA) ^{2,3} | WA0026778 | 141.5 | 25.1 | 24.4 | 2.31E+09 |
| Multnomah Falls OR Lodge STP | OR0040410 | 135.9 | 0.5 | 31.6 | 5.97E+07 |
| Washougal STP | WA0037427 | 123.5 | 2.2 | 24.1 | 2.04E+08 |
| Camas STP | WA0020249 | 121.2 | 6.1 | 25.5 | 5.87E+08 |
| Toyo Tanso USA OR | OR0034916 | 118.1 | 0.2 | 25.3 | 1.91E+07 |
| Port of Portland | OR0000060 | 116.9 | 3.0 | 20.0 | 2.27E+08 |
| Knife River Corporation – NW | OR0044652 | 116.7 | 9.0 | 25.0 | 8.50E+08 |
| Sundial Marine Construction & Repair, Inc. | OR0044601 | 116.7 | 0.022 | 24.7 | 2.01E+06 |
| Portland Water Bureau | OR0031135 | 115.0 | 4.2 | 20.0 | 3.13E+08 |
| River Road Generating Plant | WA0040932 | 103.2 | 0.7 | 38.5 | 9.45E+07 |
| Columbia River Carbonates | WA0039721 | 83.5 | 0.31 | 14.1 | 1.67E+07 |
| Kalama STP | WA0020320 | 75.0 | 0.8 | 23.9 | 7.22E+07 |
| Port of Kalama | WA0040843 | 72.2 | 0.02 | 24.7 | 1.86E+06 |
| Riverwood OR Mobile Home Park / Magar E Mager | OR0031143 | 70.6 | 0.013 | 24.0 | 1.18E+06 |
| Rainier OR STP | OR0020389 | 67.0 | 1.0 | 25.0 | 9.35E+07 |
| Stella STP | WA0039152 | 56.4 | 0.0035 | 23.9 | 3.16E+05 |
| PGE Beaver OR | OR0027430 | 53.0 | 1.4 | 35.0 | 1.90E+08 |
| Cathlamet STP | WA0022667 | 32.0 | 0.38 | 24.0 | 3.47E+07 |
| Bio-Oregon Protein | OR0000612 | 10.8 | 0.52 | 28.0 | 5.50E+07 |
| Pacific Surimi Co., Inc. | OR0034657 | 10.0 | 0.38 | 24.7 | 3.54E+07 |
| Fort Columbia State Park | WA0038709 | 10.0 | 0.005 | 20.5 | 3.87E+05 |
| Warrenton WWTP | OR0020087 | 7.8 | 1.0 | 24.2 | 9.14E+07 |
| Point Adams Packing Co. / California Shellfish Co. | OR0000868 | 6.6 | 0.68 | 12.8 | 3.31E+07 |
| Bell Buoy Crab Co. (Now South Bend Products LLC) | WA0000159 | 6.0 | 0.2 | 18.4 | 1.39E+07 |
| Ilwaco STP | WA0023159 | 2.0 | 1.0 | 23.0 | 8.77E+07 |
| Jessies Ilwaco Fish Co. | WA0000361 | 2.0 | 0.75 | 18.3 | 5.18E+07 |

| Table 6-3 | WLAs for "Minor facility" NPDES permitted facilities located on the lower Snake River |
|-----------|---|
|-----------|---|

| Facility Name | Permit Number | Location (RM) | Flow (MGD) | Temp (°C) | WLA (kcal/day) |
|---|------------------|------------------|---------------|--------------|-------------------|
| Clarkston STP | WA0021113 | 138.0 | 2.2 | 27.4 | 2.28E+08 |
| Lower Granite Dam and Locks (WA) ^{2,3} | WA0026794 | 106 | 27.6 | 21.6 | 2.25E+09 |
| Little Goose Lock and Dam (WA) ^{2,3} | WA0026786 | 69 | 40.7 | 21.0 | 3.23E+09 |
| Lyon's Ferry (hatchery) | WAG137006 | 59.1 | 91.9 | 16.8 | 5.84E+09 |
| Lower Monumental Lock and Dam (WA) ^{2,3} | WA0026808 | 41 | 26.9 | 21.8 | 2.21E+09 |
| Ice Harbor Lock and Dam (WA) 2,3 | WA0026816 | 9 | 39.2 | 23.8 | 3.52E+09 |

There are no major NPDES facilities on the lower Snake River within the TMDL study area. Two major facilities are located just upstream of the TMDL study area: Clearwater Paper and the City of Lewiston. One minor facility, the City of Asotin, is also located upstream. Loading assumptions for these facilities are included in the model scenarios for estimation of point source impact and allocation (0.1°C gross impact) to ensure that the boundary conditions account for these nearby sources (*Table 6-14*). The future NPDES permit conditions for these facilities should be consistent with these assumptions; future permit conditions should also apply relevant temperature standards and mixing zone requirements at the point of discharge. This TMDL does not preclude future assessment approaches and decisions by the NPDES permitting program.

Table 6-4 Modeled point sources located outside TMDL study area not receiving WLAs

| Facility Name | Permit Number | Location RM | Flow (MGD) | Temp (°C) |
|------------------|---------------|-------------|------------|-----------|
| Clearwater Paper | ID0001163 | 139.3 | 44.7 | 33.0 |
| City of Lewiston | ID0022055 | 140.1 | 5.7 | 23.6 |
| City of Asotin | WA0020818 | 145.0 | 0.16 | 23.8 |

Table 6-15 identifies NPDES facilities in the study area that are not assigned a WLA. EPA believes these facilities either do not discharge heat during the critical season, or there is inadequate information to determine a WLA. This list includes some facilities authorized to discharge into the TMDL study area under an industrial general permit. Examples of industrial general permits include Confined Animal Feeding Operations (CAFOs), in-stream placer mining, pesticide discharge, fruit packer, seafood processing, net pen aquaculture, fish hatchery permits, 500J boiler boildown, 1700A washwater, 400J log ponds, and 1500A petroleum hydrocarbon cleanup permits. In the future, if it is determined that these facilities are a heat load source of concern, the permitting authorities will work with the permittees to access a portion of the reserve allocation (if available) to receive a WLA (Appendix J).

Table 6-5 NPDES permitted facilities not receiving WLAs

| Facility Name | Permit Number | Additional Information |
|--|---------------|---|
| Pacific Aquaculture Incorporated ² | WA0026328 | Net pen aquaculture general permit; Assumed to not discharge heat |
| Pacific Aquaculture Incorporated ² | WA0026336 | Net pen aquaculture general permit; Assumed to not discharge heat |
| Faith Frontier Ministries ² | WA0026379 | Net pen aquaculture general permit; Assumed to not discharge heat |
| Pacific Aquaculture Incorporated ² | WA0026719 | Net pen aquaculture general permit; Assumed to not discharge heat |
| Piezometer Installation and Hyporheic Studies, U.S. Department of Energy ² | WA0026859 | Assumed to not discharge heat |
| Pacific Aquaculture Incorporated ² | WAG130027 | Net pen aquaculture general permit; Assumed to not discharge heat |

| Facility Name | Permit Number | Additional Information |
|---|---------------|--|
| PCL Construction Services ² | WAR12AO9I | Assumed not to discharge heat |
| Chelan Fruit Cooperative Chelan Station | WAG435269 | Fruit packer general permit; Have not been discharging |
| Gee Whiz II, LLX Orondo Plant | WAG435162 | Fruit packer general permit; Have not been discharging |
| Chelan Falls Rearing Facility Hatchery | WAG137019 | Upland fish hatchery general permit; Operates in Mid-Winter to mid-April during non-critical time period |
| Oregon Parks and Recreation Department | ORG387007 | Filter backwash permit; No flow information |
| City of Dalles | ORG387005 | Filter backwash permit; No flow information |
| Pacific Coast Seafoods Company LLC | ORG520001 | Seafood processing general permit; No flow information |
| Astoria Pacific Seafoods LLC | ORG520007 | Seafood processing general permit; No flow information |
| Fishhawk Fisheries, Incorporated | ORG520011 | Seafood processing general permit; No flow information |
| Bornstein Seafoods, Incorporated | ORG520014 | Seafood processing general permit; No flow information |
| Flint Group Packaging Inks North America LLC | ORG250003 | Cooling water permit; No flow information |

1.1.1 NPDES Permitted Stormwater

Stormwater discharges designated as point sources to the Columbia and lower Snake Rivers are regulated by the NPDES programs at ODEQ, Ecology, and EPA. Each of these three agencies has issued NPDES general stormwater permits for municipal, industrial, and construction stormwater discharges. Temperature TMDLs developed by ODEQ and Ecology have not considered stormwater discharges a significant source of heat load during the summer critical period, primarily because of minimal precipitation in most of the Pacific Northwest - including the TMDL area - during the summer and early fall. For example, in the Klamath River temperature TMDL, ODEQ estimated that stormwater discharge from one industrial facility results in a change in temperature of 0.0001°C or less (ODEQ 2019).

EPA estimated impacts from stormwater to confirm that stormwater discharges are negligible. A summary of results is provided below, and details of the analysis are provided in Appendix D.

Because the estimated temperature impacts from these sources are negligible, as explained below, EPA has not assigned a WLA to point source stormwater discharges in this TMDL and has determined that no heat limits are needed in stormwater permits. The permits and number of facilities covered by each general permit, summarized in *Table 6-16* and *Table 6-17*, fall into the following categories:

- <u>Municipal Separate Storm Sewer System (MS4) Permits</u>. Municipalities that need to obtain an MS4 permit
 are classified as either "Phase I" or "Phase II." Phase I MS4s cover areas with populations greater than
 100,000 and regulated Phase II (or "small") MS4s typically serve populations less than 100,000. There are
 multiple MS4 permits within the TMDL area that discharge directly to the Columbia and lower Snake
 Rivers. (see *Table 6-16*).
- <u>Industrial stormwater permits</u> are used to authorize stormwater discharges from specific industrial activities. There are approximately 334 industrial stormwater permittees in the TMDL area that discharge directly to the Columbia and lower Snake Rivers.
- <u>Construction stormwater permits</u> are used to authorize stormwater discharges for construction projects that disturb one or more acres. Because construction projects are transitory, the number and location of

construction stormwater permittees varies from year to year. The issuing agency and number of open permits (as of January 2020) are listed in *Table 6-17*. Please refer to the following databases for current permit information:

ODEQ: www.deq.state.or.us/wq/sisdata/sisdata.asp
Ecology: apps.ecology.wa.gov/paris/PermitLookup.aspx

Table 6-6 MS4 NPDES permits on the Columbia and lower Snake River

| City | Permittee | Туре | Permit Number |
|--------------------|--------------------------------------|--|---------------|
| | Columbia Riv | er | |
| Pasco, WA | Pasco City | Municipal SW Phase II Eastern WA General Permit (GP) | WAR046503 |
| Kennewick, WA | Kennewick City | Phase II Eastern WA GP | WAR046005 |
| | City of Richland | Phase II Eastern WA GP | WAR046006 |
| Diabland MA | Port of Benton | Phase II Eastern WA GP | WAR046203 |
| Richland, WA | WSU Tri Cities | Phase II Eastern WA GP | WAR046207 |
| | West Richland City | Phase II Eastern WA GP | WAR046007 |
| | Chelan County | Phase II Eastern WA GP | WAR046002 |
| \\/ | Chelan County PUD No 1 | Phase II Eastern WA GP | WAR046208 |
| Wenatchee, WA | Wenatchee City | Phase II Eastern WA GP | WAR046011 |
| | Wenatchee Valley College | Phase II Eastern WA GP | WAR303571 |
| | East Wenatchee City | Phase II Eastern WA GP | WAR046012 |
| East Wenatchee, WA | Eastmont Metropolitan Park District | Phase II Eastern WA GP | WAR046200 |
| Machaugal MA | Clark County | Phase I GP | WAR044001 |
| Washougal, WA | Washougal City | Phase II Western WA GP | WAR045023 |
| Compa MAA | Clark County | Phase I GP | WAR044001 |
| Camas, WA | Camas City | Phase II Western WA GP | WAR045004 |
| | Clark County | Phase I GP | WAR044001 |
| | Clark College | Phase II Western WA GP | WAR045212 |
| Vancouver, WA | Port of Vancouver | Phase II Western WA GP | WAR045201 |
| | Vancouver City | Phase II Western WA GP | WAR045022 |
| | WSU Vancouver | Phase II Western WA GP | WAR045716 |
| | Cowlitz County Consolidated Diking 1 | Phase II Western WA GP | WAR045204 |
| Longview, WA | Longview City | Phase II Western WA GP | WAR046208 |
| | Longview School District | Phase II Western WA GP | WAR046012 |
| | Lower Columbia College | Phase II Western WA GP | WAR046200 |
| Portland, OR | Portland, City of | Individual Phase I MS4 | ORS108015 |
| Fairvious OP | Multnomah County | Individual Phase I MS4 | ORS120542 |
| Fairview, OR | Gresham, City of; Fairview, City of | Individual Phase I MS4 | ORS108013 |
| Gresham, OR | Gresham, City of; Fairview, City of | Individual Phase I MS4 | ORS108013 |
| Travitdala OD | Multnomah County | Individual Phase I MS4 | ORS120542 |
| Troutdale, OR | Troutdale, City of | Phase II GP | ORS110793 |
| Mand Village OD | Multnomah County | Individual Phase I MS4 | ORS120542 |
| Wood Village, OR | Wood Village, City of | Phase II GP | ORS098909 |

| City | Permittee | Туре | Permit Number | | | | | |
|---------------|----------------|------------------------|---------------|--|--|--|--|--|
| Snake River | | | | | | | | |
| Clarkston, WA | Clarkston City | Phase II Eastern WA GP | WAR046502 | | | | | |

Table 6-7 Construction and industrial stormwater NPDES permits on the Columbia and lower Snake Rivers

| Agency Issuing Permit | Permit Name & Description | Approximate Number of Permittees within TMDL area |
|-----------------------------|--|---|
| EPA | Construction General Permit (as modified June 2019) covers Indian Country within Washington (WAR10I000) and Oregon (ORR10I000); and areas in Washington subject to construction activity by a Federal Operator (WAR10F000) | 16 |
| Oregon | Construction General Permits covers activity on Oregon lands (1200-C, 1200-CA, and 1200-C(AGENT)) | 232 |
| Washington | Construction General Permit covers activity on Washington lands, excluding activity by a Federal Operator (WAR300000) | 17 |
| Oregon | Industrial Stormwater Permits (1200-Z and 1200-A) | 298 |
| Washington | Industrial Stormwater Permit (WAR1200000) | 36 |

Temperature data collection is not typically required by general stormwater permits, so it was not possible for EPA to characterize the potential temperature impacts from stormwater discharges by assessing existing data as EPA did for the individual NPDES permits discussed in Section 6.5.2. Consequently, EPA evaluated impacts from stormwater on heat using analyses similar to those conducted for other temperature TMDLS in the Pacific Northwest (e.g., ODEQ's Upper Klamath and Lost Subbasins Temperature TMDLs, 2019).

As discussed in Appendix D, EPA estimated the heat loading from stormwater for each of the reaches in the TMDL area. The most urbanized portions of the TMDL are in and around the Tri-Cities (between Priest Rapids and the lower Snake River confluence) and Portland (Bonneville to the coast). EPA estimated the potential impact of stormwater in these two reaches to be a maximum increase in the temperature of the Columbia River of 0.0066°C (July) and 0.0045°C (August) from Priest Rapids to the Snake River confluence (Tri-Cities); and 0.0072°C (July) and 0.0088°C (August) from Bonneville to the coast (Portland). In the remainder of the reaches, the estimated temperature increases are significantly less, ranging from 0°C to 0.0003°C. Because the estimated temperature impacts from these sources are negligible and intermittent, EPA has not assigned a WLA to stormwater sources in this TMDL. It is assumed that stormwater discharges will continue at current levels and that no heat limit is necessary for stormwater permits.

If additional data indicate that any of the various sources of stormwater are a significant source of thermal loading, then the States or EPA may access a portion of the reserve allocation within the appropriate reach to explicitly account for continued discharge from stormwater facilities.

1.1.2 Reserve Allocations

A reserve allocation is a portion of the loading capacity that is reserved for future use. EPA used RBM10, with data from 2011 to 2016, to determine the reserve allocation at each target site. The initial model scenario for the existing NPDES facilities with no reserve allocation estimated a maximum temperature impact of approximately 0.08°C at the critical location (RM 42). EPA is reserving the remainder of the 0.1°C point source allocation for future use for the following purposes:

- Future growth;
- New point source dischargers of heat;

- Adjustments to the calculated WLAs if, for example, the data that EPA considered during TMDL development are not representative of the existing discharge; and
- All other nonpoint sources on the mainstems that were not considered during TMDL development.

To calculate the reserve allocation, a heat load was inserted in the model at the midpoint of each TMDL reach/impoundment and two additional reaches in the lower Columbia River that bracket the location of maximum impact (RM42 for existing discharges for most of the summer/fall).

The model was then run iteratively, increasing the reserve heat load until the maximum cumulative impact equaled 0.1°C. The resulting reserve load for each reach is 4.8x10⁹ kcal/day. This loading is equivalent to a 49 mgd discharge at 26°C and similar to the heat load discharged by the largest individual point sources in the study area. The three critical locations for impact from the full allocated loading (existing discharges plus the reserve loading in each reach) are the Priest Rapids and McNary target sites and the RM42 assessment location. All of the Snake River target sites approach the allowable 0.1°C impact in September with application of the uniform reserve loading. There is an exception to the application of a uniform reserve loading over the assessment period. In October, the reserve heat loading must be lower (2.0x10⁹ kcal/day) in the reaches of the Columbia River upstream of the Priest Rapids target site to meet the allowable 0.1°C impact.

The reserve allocations are provided in *Table 6-18*, and model results showing the combined temperature impacts of the wasteload allocations and reserve allocations are provided in *Table 6-19* and *Table 6-20*.

Table 6-8 Reserve Allocations

| Reserve Reach | River Miles | Reserve Allocation (June – September) | Reserve Allocation (October) |
|----------------|----------------|--|---------------------------------|
| | | (kcal/day) | (kcal/day) |
| COLUMBIA RIVER | | | |
| Grand Coulee | 738-591 | 4.8x10 ⁹ | 2.0x10 ⁹ |
| Chief Joseph | 591-544 | 4.8x10 ⁹ | 2.0x10 ⁹ |
| Wells | 544-512 | 4.8x10 ⁹ | 2.0x10 ⁹ |
| Rocky Reach | 512-472 | 4.8x10 ⁹ | 2.0x10 ⁹ |
| Rock Island | 472-453 | 4.8x10 ⁹ | 2.0x10 ⁹ |
| Wanapum | 453-413 | 4.8x10 ⁹ | 2.0x10 ⁹ |
| Priest Rapids | 413-396 | 4.8x10 ⁹ | 2.0x10 ⁹ |
| McNary | 396-291 | 4.8x10 ⁹ | 4.8x10 ⁹ |
| John Day | 291-215 | 4.8x10 ⁹ | 4.8x10 ⁹ |
| Dalles | 215-189 | 4.8x10 ⁹ | 4.8x10 ⁹ |
| Bonneville | 189-140 | 4.8x10 ⁹ | 4.8x10 ⁹ |
| RM42 | 140-42 | 4.8x10 ⁹ | 4.8x10 ⁹ |
| RM0 | 42-0 | 4.8x10 ⁹ | 4.8x10 ⁹ |
| SNAKE RIVER | | | |
| Lower Granite | 140-107 | 4.8x10 ⁹ | 4.8x10 ⁹ |
| Little Goose | 107-70 | 4.8x10 ⁹ | 4.8x10 ⁹ |

| Lower Monumental | 70-40 | 4.8x10 ⁹ | 4.8x10 ⁹ |
|------------------|-------|---------------------|---------------------|
| Ice Harbor | 40-0 | 4.8x10 ⁹ | 4.8x10 ⁹ |

Note: River Miles are referenced to RBM10 model structure

Table 6-9 Estimated impacts of point source wasteload allocations and reserve allocations to the Columbia River (2011 – 2016)

| | | | | | 14761 (26 | 711 201 | | | | | |
|-------------------|-----|--|------|------|-----------|---------|------|-----------------------------|------|------|------|
| | | Estimated Increase in Temperature (°C) | | | | | | | | | |
| | | Mean | | | | | | 90 th Percentile | | | |
| Location | RM | June | July | Aug | Sept | Oct | June | July | Aug | Sept | Oct |
| Lake Roosevelt | 639 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 |
| Grand Coulee | 595 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 | 0.01 |
| Chief Joseph | 546 | NA | 0.01 | 0.01 | 0.01 | 0.01 | NA | 0.02 | 0.01 | 0.02 | 0.02 |
| Wells | 515 | NA | 0.03 | 0.02 | 0.03 | 0.03 | NA | 0.04 | 0.03 | 0.05 | 0.05 |
| Rocky Reach | 474 | 0.04 | 0.03 | 0.02 | 0.03 | 0.03 | 0.06 | 0.04 | 0.03 | 0.05 | 0.04 |
| Rock Island | 453 | 0.05 | 0.04 | 0.04 | 0.05 | 0.05 | 0.08 | 0.06 | 0.05 | 0.08 | 0.07 |
| Wanapum | 416 | 0.06 | 0.05 | 0.04 | 0.06 | 0.05 | 0.08 | 0.06 | 0.06 | 0.08 | 0.08 |
| Priest Rapids | 397 | 0.07 | 0.05 | 0.05 | 0.07 | 0.07 | 0.10 | 0.07 | 0.06 | 0.10 | 0.10 |
| McNary | 291 | 0.08 | 0.06 | 0.05 | 0.07 | NA | 0.10 | 0.07 | 0.06 | 0.09 | NA |
| John Day | 216 | 0.07 | 0.05 | 0.04 | 0.04 | NA | 0.08 | 0.06 | 0.05 | 0.05 | NA |
| Dalles | 192 | 0.07 | 0.05 | 0.04 | 0.05 | NA | 0.08 | 0.06 | 0.05 | 0.06 | NA |
| Bonneville | 146 | 0.07 | 0.05 | 0.04 | 0.05 | 0.07 | 0.08 | 0.06 | 0.05 | 0.06 | 0.08 |
| RM 42 | 42 | 0.08 | 0.07 | 0.06 | 0.08 | NA | 0.09 | 0.08 | 0.07 | 0.09 | NA |
| RM 21 | 21 | 0.08 | 0.07 | 0.06 | 0.08 | NA | 0.09 | 0.08 | 0.06 | 0.09 | NA |

NA – Not applicable. River is not impaired at this target site/month

Table 6-10 Estimated impacts of point source wasteload allocations and reserve allocations to the Snake River (2011 – 2016)

| | | Estimated Increase in Temperature (°C) | | | | | | | |
|------------------|-----|--|------|------|------|-----------------------------|------|------|------|
| Location | RM | Mean | | | | 90 th Percentile | | | |
| | | June | July | Aug | Sept | June | July | Aug | Sept |
| Lower Granite | 107 | 0.03 | 0.03 | 0.05 | 0.06 | 0.04 | 0.05 | 0.06 | 0.08 |
| Little Goose | 70 | 0.04 | 0.04 | 0.04 | 0.06 | 0.05 | 0.05 | 0.05 | 0.08 |
| Lower Monumental | 41 | 0.05 | 0.03 | 0.03 | 0.05 | 0.06 | 0.05 | 0.04 | 0.07 |
| Ice Harbor | 6 | 0.06 | 0.04 | 0.04 | 0.06 | 0.08 | 0.07 | 0.05 | 0.08 |

The reserve will be managed by the three permitting authorities (EPA, Washington, and Oregon) during implementation, which will include establishing a process for granting a portion of the reserve to individual point sources and maintaining a system to track its usage over time.