

## Appendix C. Regression Equations Used to Estimate Water Temperature for Each Surface-Water Source of the Roza–Prosser Reach, Washington.

**Table C1.** Regression equations used to estimate water temperature for each surface-water source of the Roza–Prosser Reach, Washington.

[Abbreviations: NA, Water temperature is not assigned to diversions;  $T_w$ , daily mean water temperature in degrees Celsius;  $m^3/s$ , cubic meter per second]

| Location  | Water temperature calculation   |
|---|---|
| Yakima River below Roza Dam, near Roza  | $T_w = 4.0 + 0.2991*(45\text{-day moving average of daily mean air temperature}) + 0.3448*(\text{daily mean average of air temperature})$   |
| Selah-Moxee Canal   | NA  |
| Selah Creek at Canyon Road Crossing, near Pomona                                  | $T_w = T_w$ at Wide Hollow Creek near mouth   |
| Wenas Creek near mouth on Reclamation land, near Selah                            | $T_w = T_w$ at Wide Hollow Creek near mouth   |
| Taylor Ditch at Harrison Road Bridge, near Selah                                  | $T_w = T_w$ at Wide Hollow Creek near mouth   |
| Golf Course and Selah Sewage Outflow Creek near Selah                             | $T_w = T_w$ at Wide Hollow Creek near mouth   |
| Naches River near North Yakima, near mouth at Reclamation gaging station 12499900 | $T_w = 2.4 + 0.4635*(45\text{-day moving average of daily mean air temperature}) + 0.2992*(\text{daily mean average of air temperature}) - 0.002*(\text{flow } (m^3/s) \text{ at the Naches River at Yakima gaging station})$ |
| Moxee Canal   | NA  |
| Hubbard Canal   | NA  |
| Union Gap Canal   | NA  |
| Richartz Ditch  | $T_w = T_w$ at Wide Hollow Creek near Mouth   |
| Roza Wasteway No. 2 (at Reclamation)  | $T_w = T_w$ at Wide Hollow Creek near Mouth   |
| Moxee Drain at Thrope Road  | $T_w = T_w$ at Wide Hollow Creek near Mouth   |
| Wide Hollow Creek near mouth  | $T_w = (0.5768*\text{daily mean air temperature}) + 20.8$   |
| Ahtanum Creek at Union Gap, Station No. 12502500                                  | $T_w = T_w$ at Wide Hollow Creek near Mouth   |
| Union Gap Canal Wasteway  | $T_w = T_w$ at Wide Hollow Creek near Mouth   |
| New Reservation Canal Headworks (Wapato Canal)                                    | NA  |
| Sunnyside Canal near Parker   | NA  |
| Yakima River at Parker, Station No. 1250500                                       | NA  |
| Roza Canal Wasteway No. 3   | $T_w = T_w$ at Lateral 1 near the Donald-Wapato Road near Wapato  |
| Snipes and Allen Ditch Diversion  | NA  |
| Lateral 1 near the Donald-Wapato Road, near Wapato                                | $T_w = (1.1037*\text{daily mean air temperature}) + 26.4$   |
| Roza Canal Wasteway No. 4   | $T_w = T_w$ at Lateral 1 near the Donald-Wapato Road near Wapato  |
| Roza-Sunnyside Joint Drain 19.9   | $T_w = T_w$ at Lateral 1 near the Donald-Wapato Road near Wapato  |
| Roza-Sunnyside Joint Drain 20.8   | $T_w = T_w$ at Lateral 1 near the Donald-Wapato Road near Wapato  |
| East Toppenish Drain at Wilson Road, Station No 12505350                          | $T_w = (0.5567*\text{daily mean air temperature}) + 20.6$   |
| DID Drain 27 at mouth   | $T_w = T_w$ at Sub-Drain No. 35 at Parton Road, Station No. 12505410  |
| Sub-Drain No. 35 at Parton Road, Station No. 12505410                             | $T_w = (0.5074*\text{daily mean air temperature}) + 20.1$   |
| Granger Drain at Sheep Barns, Station No. 12505460                                | $T_w = T_w$ at Sub-Drain No. 35 at Parton Road, Station No. 12505410  |
| Marion Drain at Indian Church Road, at Granger, Station No. 12505510              | $T_w = (0.7477*\text{daily mean air temperature}) + 23.1$   |
| Coulee Drain near Satus Road Crossing   | $T_w = (0.7312*\text{daily mean air temperature}) + 22.8$   |
| Toppenish Creek at Indian Church Road, Station 12507508                           | $T_w = (1.0704*\text{daily mean air temperature}) + 22.0$   |
| DID 16 Drain  | $T_w = T_w$ at Coulee Drain near Satus Road Crossing  |
| Satus Creek at Satus (at gage), Station No. 12508620                              | $T_w = (0.8225*\text{daily mean air temperature}) + 23.4$   |
| South Drain near Satus, Station No. 12508630                                      | $T_w = (0.915*\text{daily mean air temperature}) + 24.5$  |
| Satus No. 2 Drain   | $T_w = T_w$ at South Drain near Satus, Station No. 12508630   |
| DID No. 7 Drain   | $T_w = (0.9929*\text{daily mean air temperature}) + 24.3$   |
| Satus No. 3 Drain   | $T_w = T_w$ at DID No. 7 Drain  |
| Sulphur Creek Wasteway  | $T_w = T_w$ at DID No. 7 Drain  |
| Satus Drain 303 + Mabton West Wasteway at Highway 22                              | $T_w = (1.1977*\text{daily mean air temperature}) + 27.5$   |
| DID Drain 31 (Frazier Drain at Chase-Frasier Road)                                | $T_w = T_w$ at Satus Drain 303 + Mabton West Wasteway at Highway 22   |
| Joint DID 2 Drain   | $T_w = T_w$ at Satus Drain 303 + Mabton West Wasteway at Highway 22   |
| Outlet for DID No. 10   | $T_w = T_w$ at Satus Drain 303 + Mabton West Wasteway at Highway 22   |
| Drain near Grandview-Prosser Highway 8/24-2B                                      | $T_w = T_w$ at Satus Drain 303 + Mabton West Wasteway at Highway 22   |
| Roza-Sunnyside Joint Drain  | $T_w = T_w$ at Satus Drain 303 + Mabton West Wasteway at Highway 22   |
| Chandler Canal at Prosser Dam, Station No. 12509499                               | NA  |
| Yakima River at Prosser   | NA  |