

Upper White Watershed Temperature Data Report: 1989 to 2003



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Upper White Watershed Temperature Data Report: 1989 to 2003

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Blake Smith, Puyallup Tribal Fisheries Department
Martin Fox, Muckleshoot Tribal Fisheries Department
David Adams, Tahoma Audubon
Steve Anderson, Weyerhaeuser Company
Mike Wolenak, Jones and Stokes

September 2004

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If you are viewing this document online, you may call 360-407-6270 for copies of the CD.

ABSTRACT

Extensive stream temperature data has been gathered between 1989 and 2003 in the Upper White watershed, within the Puyallup River Basin of western Washington. Mt. Baker Snoqualmie National Forest, Puyallup Tribal Fisheries Department, Muckleshoot Tribal Fisheries Department, Tahoma Audubon, Weyerhaeuser, Jones and Stokes, and Ecology have all participated in leading data collection efforts. This data has been taken for a variety of purposes and is useful for understanding current conditions of habitat for chinook (*Oncorhynchus tshawytscha*), bull trout (*Salvelinus confluentus*), and other aquatic species in this watershed. The data has been utilized for watershed analyses and for temperature TMDL work. This report provides a repository for data that Ecology gathered and for additional data that Ecology has obtained from watershed cooperators overtime.

INTRODUCTION AND DATA

In 1995, Ecology initiated stream temperature assessments in the Upper White River watershed (within the Puyallup Basin) of western Washington. This resulted from Clean Water Act (CWA) Section 303(d) listings for temperature on the Clearwater and Greenwater Rivers. The temperature assessments were accomplished in coordination with other public and private interests in the watershed, and were primarily focused on White River spring chinook (*Oncorhynchus tshawytscha*, now an ESA listed species) habitat. Beginning in 2001, data collection in known or suspected bull trout (*Salvelinus confluentus*) streams was begun, to better understand conditions that may be affecting this species. The earlier temperature data was reported in Keown and Summers (1998) and was utilized for the Clearwater/Middle White Watershed Analysis (Weyerhaeuser 1996). A cooperative approach (i.e., between land and resource managers and other interested entities) to data collection was recommended in a watershed management approach that was subsequently developed to guide TMDL and water quality restoration planning for the watershed (Upper White River Chinook TMDL Framework Team 1998). Data collected through this approach, as well as additional data collected for forest and for fish management purposes were utilized for temperature TMDL analysis (Ketcheson et al. 2003). A comprehensive analysis of Upper White watershed temperature data is found in Ketcheson et al. (2003); thus the purpose of this report is not to provide extensive analysis, but instead to provide a repository for the various data that have been collected in the area over time¹. It is also the intent of this report to provide the data in a format that can be updated in the future by Ecology or others if desired.

At this time, the applicable state water temperature standard based on WAC 173-201A for the Upper White watershed is 16 C. However, in 2003 Ecology adopted new, use-based standards that await EPA approval. When approved, the new standards will be substantially different. Bull trout and Dolly Varden spawning and early rearing waters will have a highest 7-day average of daily maximum (7-DADMax) value criterion of 12 C. Other salmonid spawning and rearing waters in the Upper White watershed will have a highest 7-DADMax criterion of 16 C.

Figure 1 provides a map that shows study site locations for the temperature data in this report. Table 1 provides an overview of the data including analysis results for cooperator collected temperature data from 1989 to 2003. The bulk of the report is in the appendices. Appendix A (on the attached CD as well as printed as part of the report), provides graphs of the temperature data for each site. The attached CD additionally includes Appendices B, C, D and E. Appendix B contains the original temperature data and analysis for each site. Appendix C contains copies of thermal reach data taken for a limited number of sites, Appendix D includes QA/QC information, and Appendix E contains the information useful for plotting station locations in a geographic information system (GIS).

If you utilize this data in a report, please cite this document and give credit to the other data cooperators. Thank you!

¹ This report includes Ecology data and data we have obtained from project cooperators in the watershed. We are aware that it is not comprehensive and that there are some additional data sources.



Figure 1. The Upper White watershed and water temperature station locations.

LITERATURE CITED

Keown, C. and J.H. Summers VII. 1998. Upper White River spring chinook habitat assessment study: Interim report on 1995 water temperatures and spawning gravel composition. Publication No. 98-304. Washington Department of Ecology. Olympia, WA. 80 p.

Ketcheson, G., P. Leinenbach, J. Schuett-Hames, T. Wiley and C. James. 2003. Mt. Baker-Snoqualmie National Forest, Upper White watershed sediment and temperature TMDL for aquatic habitat. Washington Department of Ecology, Olympia, WA. 107 p. + app.

Upper White River Chinook TMDL Framework Team. 1998. White River Spring Chinook habitat guidance: A water quality management approach for the Upper White River: Version 1.0. Washington Department of Ecology. Olympia, WA. 80 p.

Weyerhaeuser. 1996. Clearwater/Middle White River; Watershed analysis; Draft. Federal Way, WA.

APPENDIX A

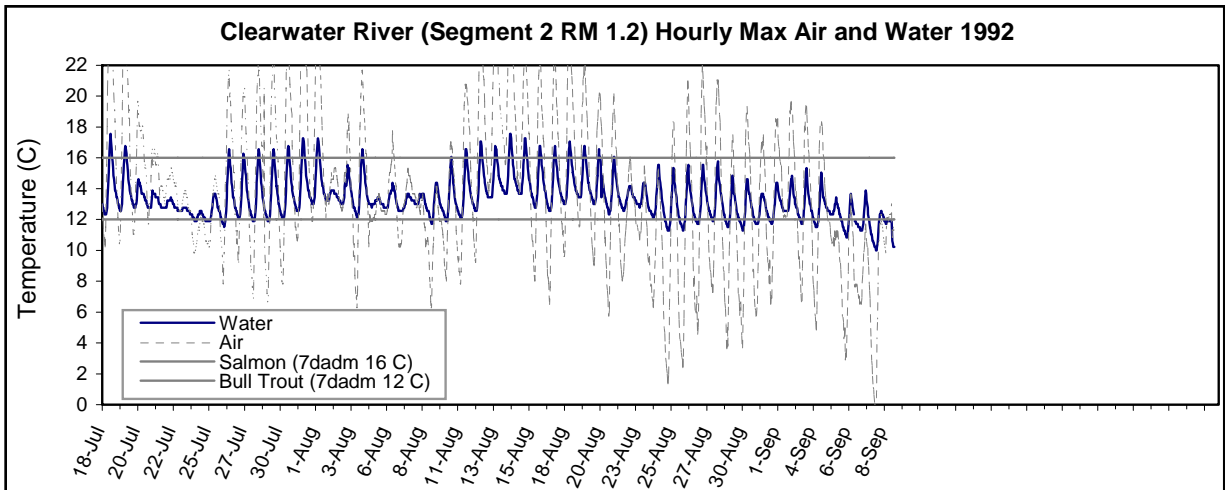
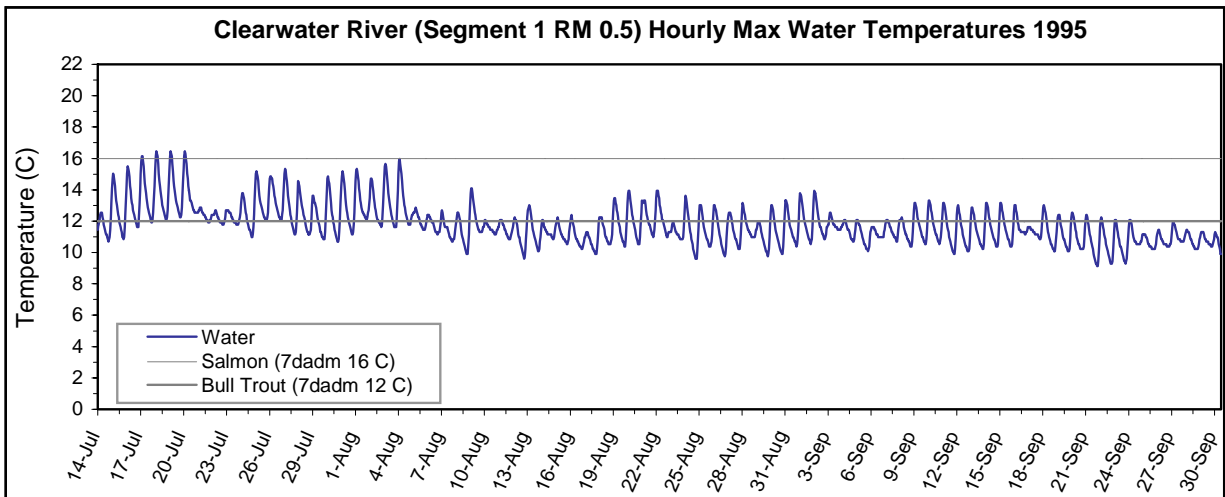
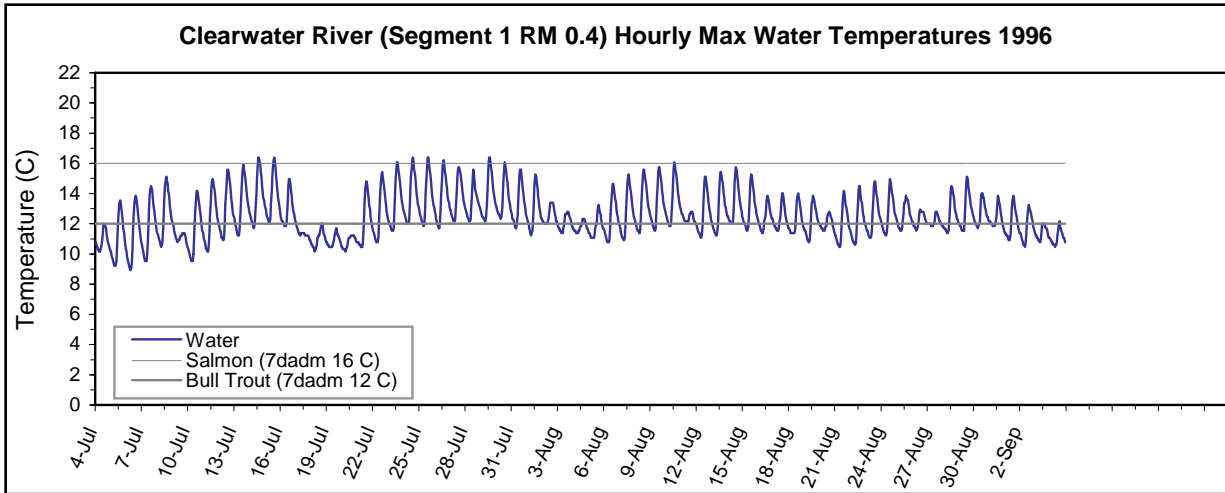
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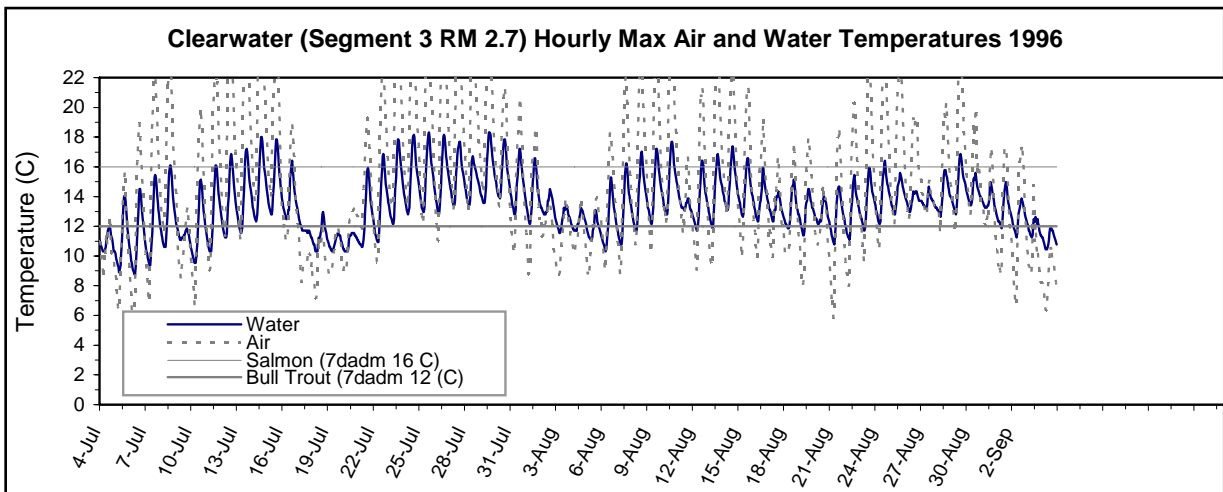
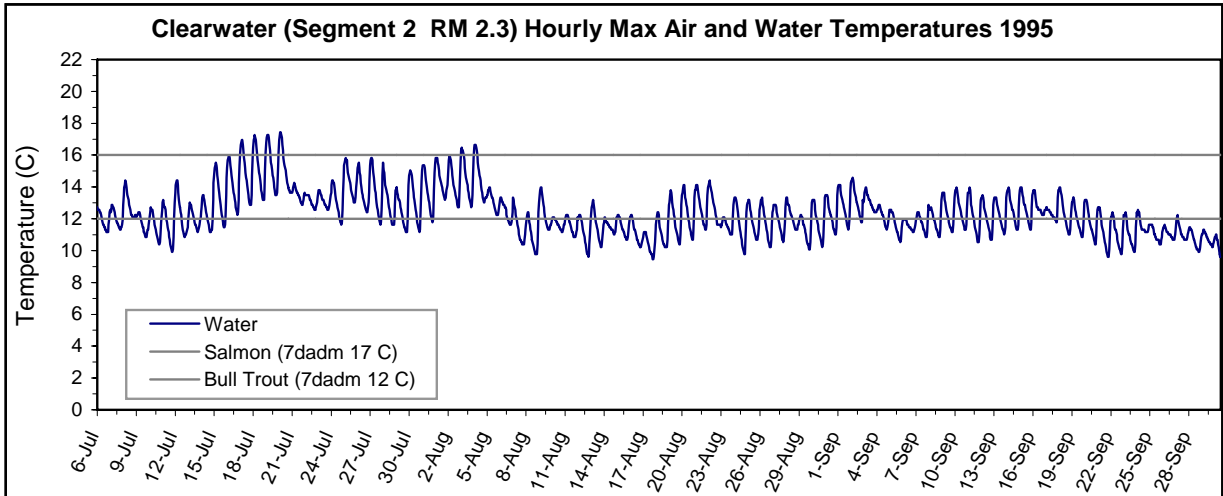
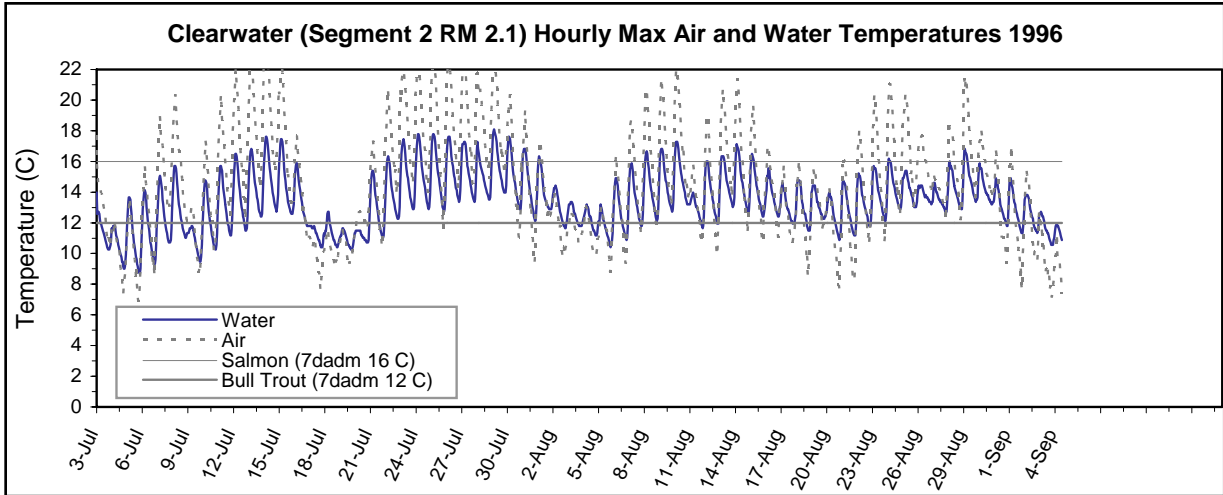
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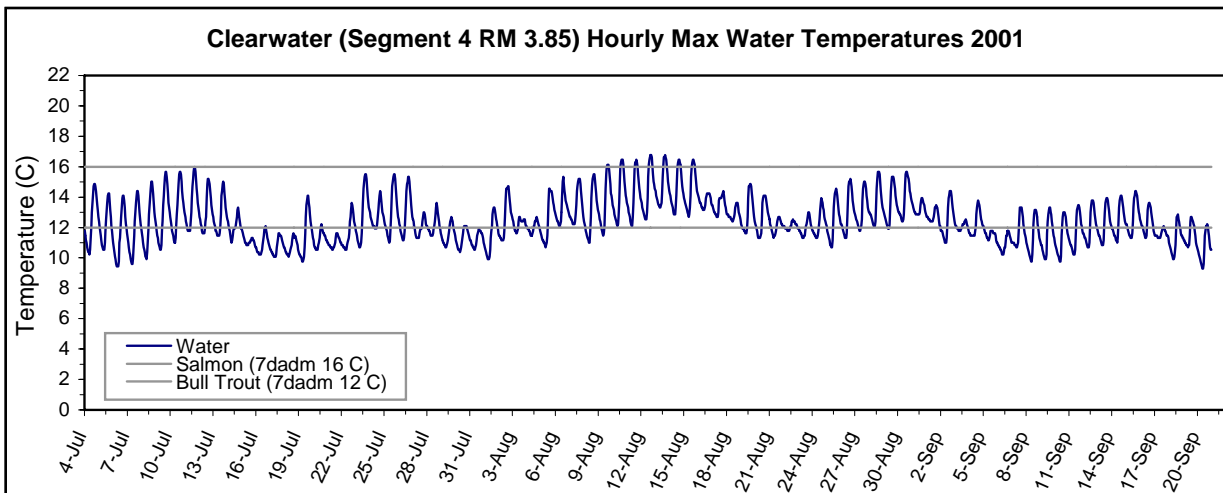
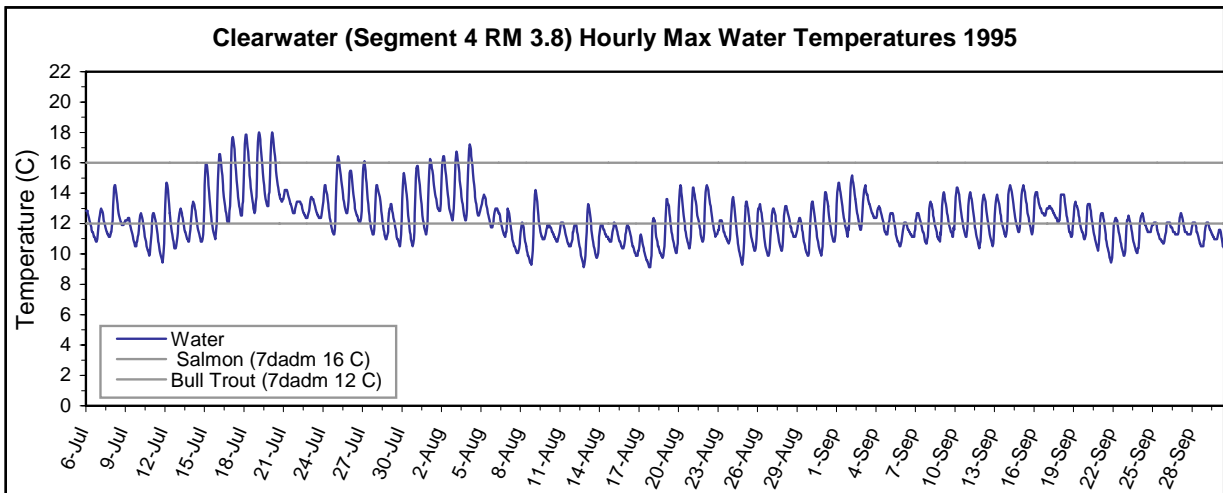
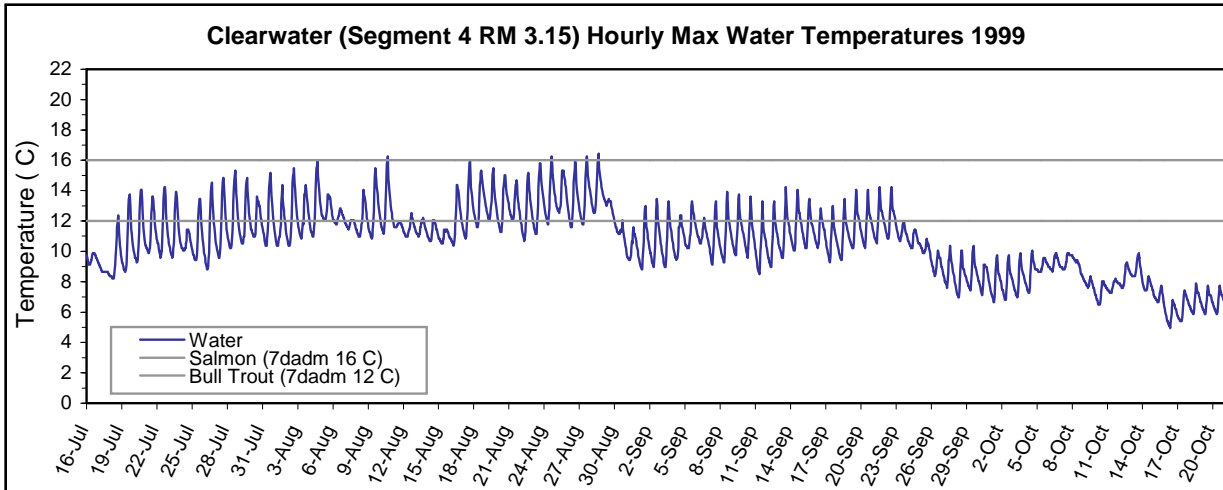
Temperature graphs are presented in the following order:

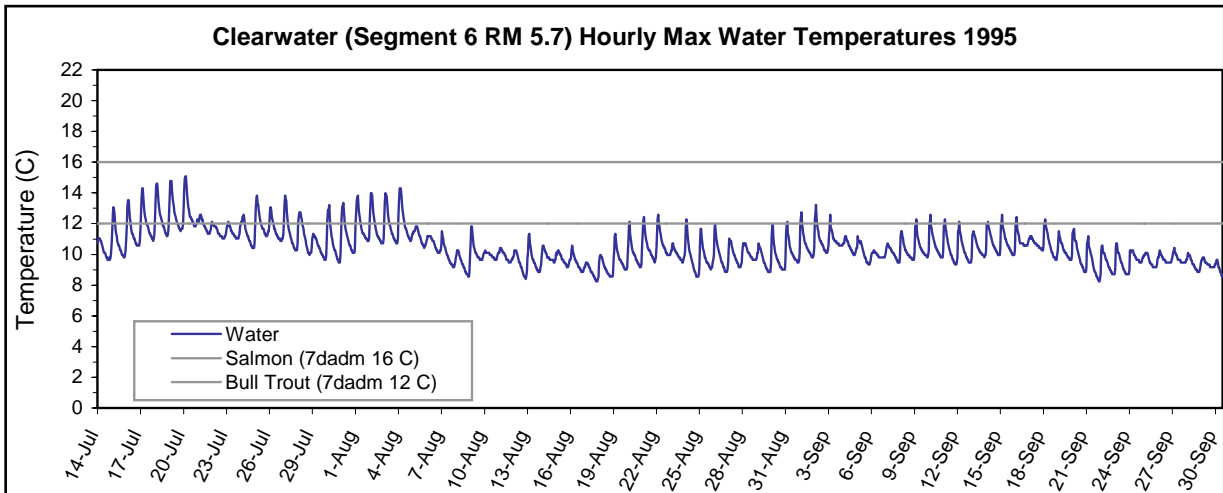
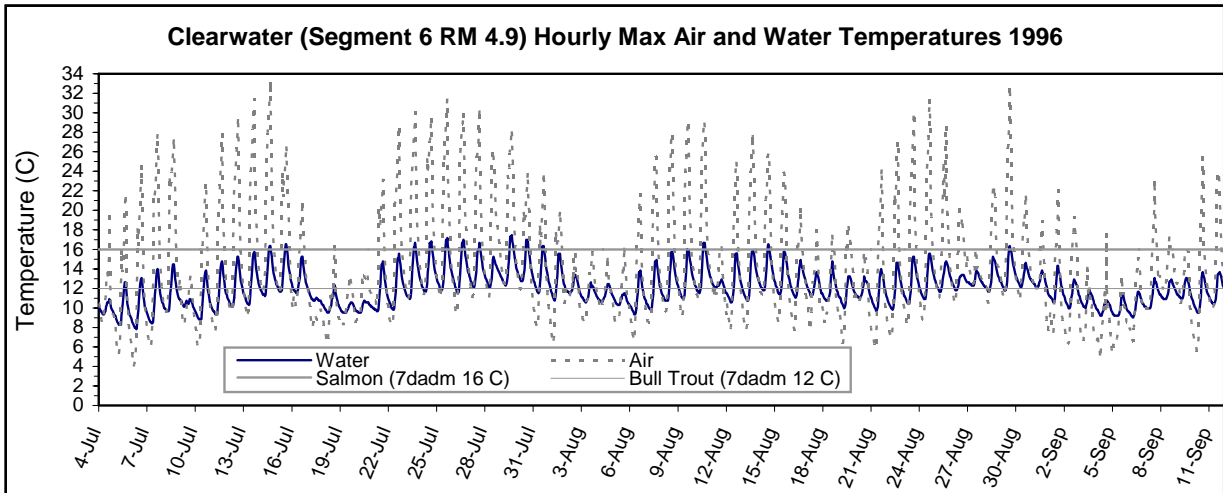
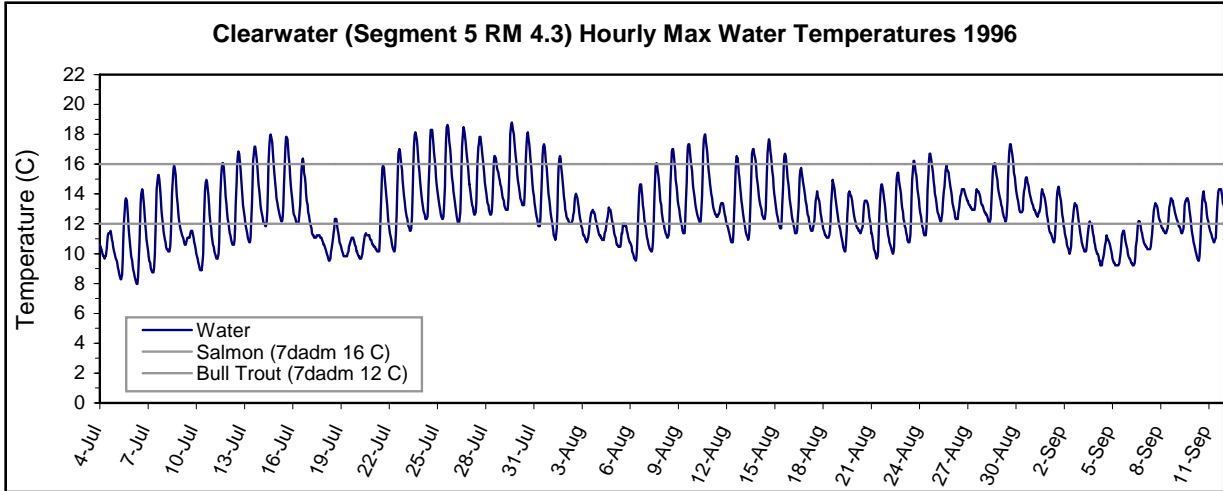
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11. Clearwater River (RM 4.9) Hourly Max Air and Water Temperatures 1996.
12. Clearwater River (Segment 6 RM 5.7) Hourly Max Water Temperatures 1995.
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14. Byron Creek (RM <0.1) Hourly Max Water Temperatures 1996.
15. Lyle Creek (RM 0.1) Hourly Max Water Temperatures 1995.
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33. Greenwater River (RM 11.7) <Hourly Max Water Temperatures 1995.
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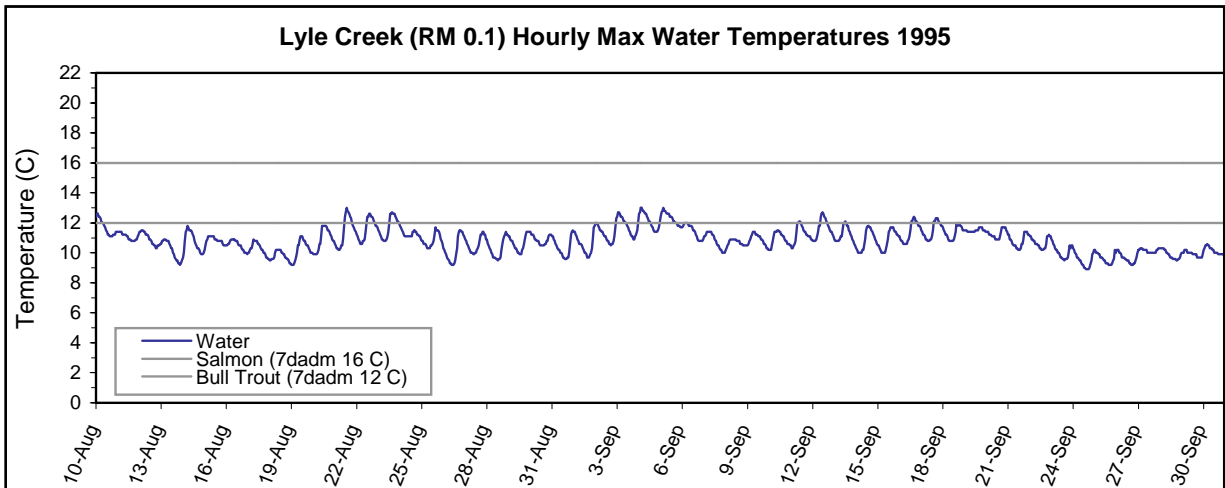
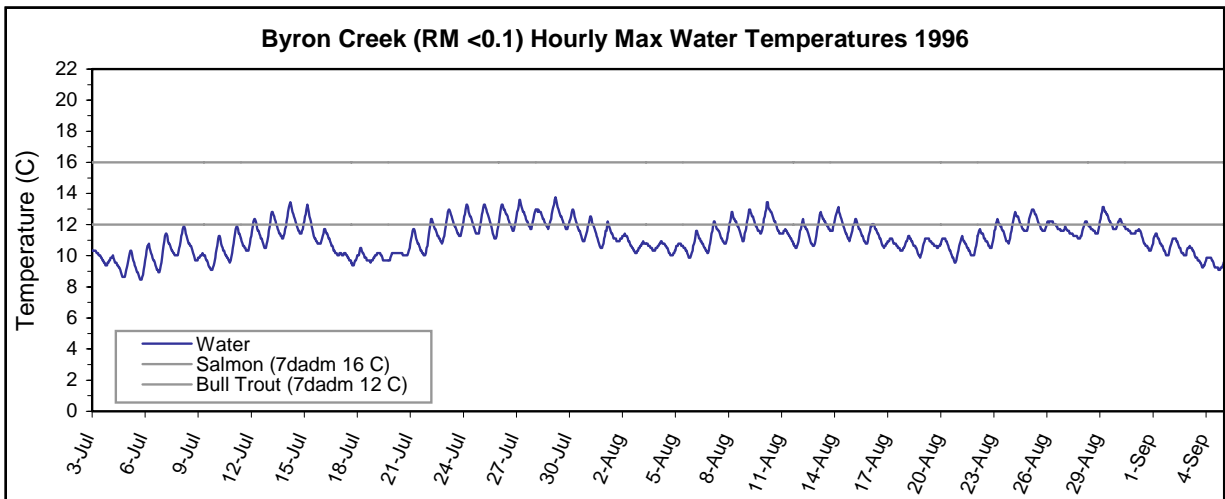
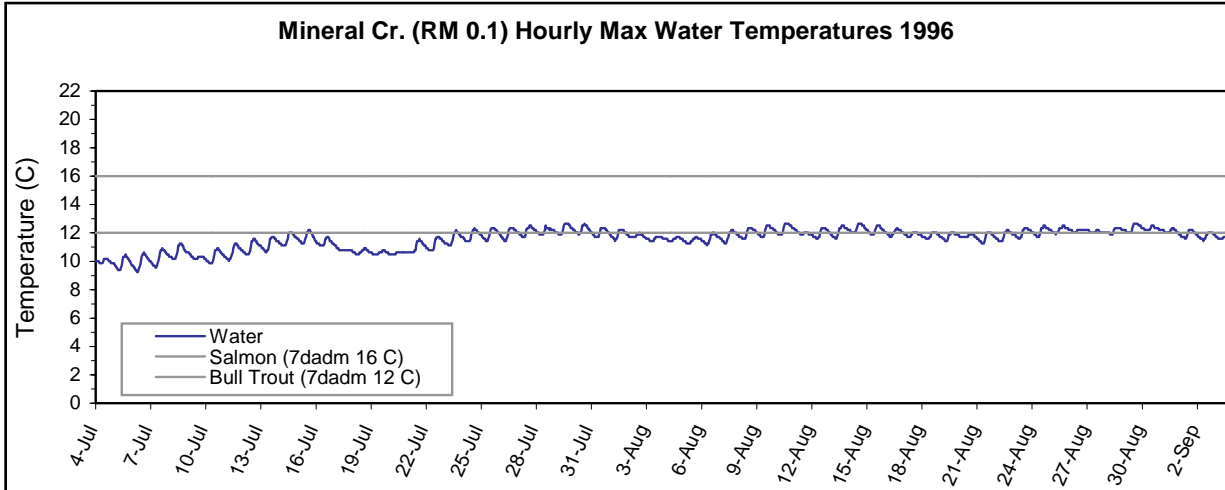
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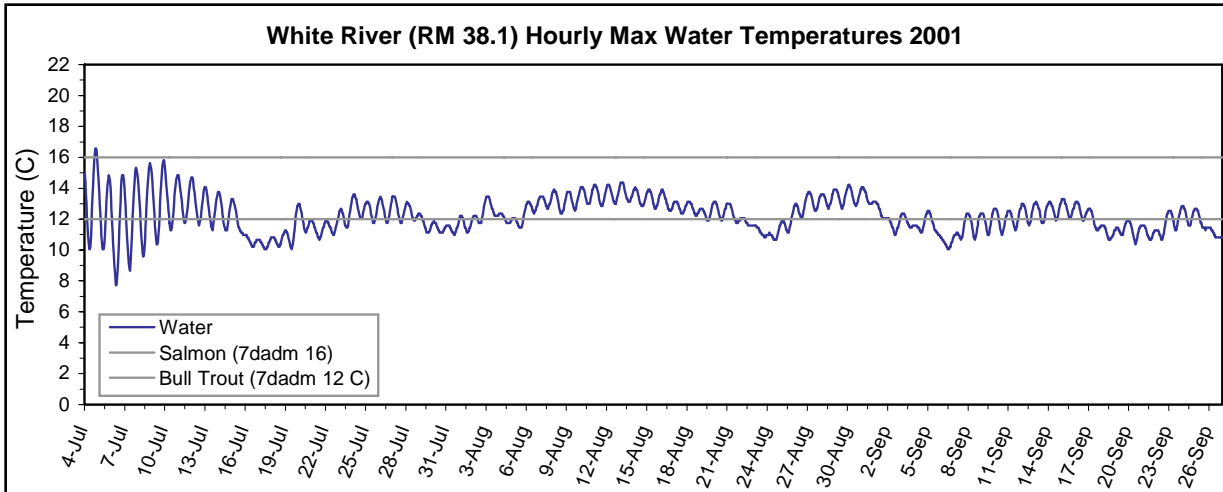
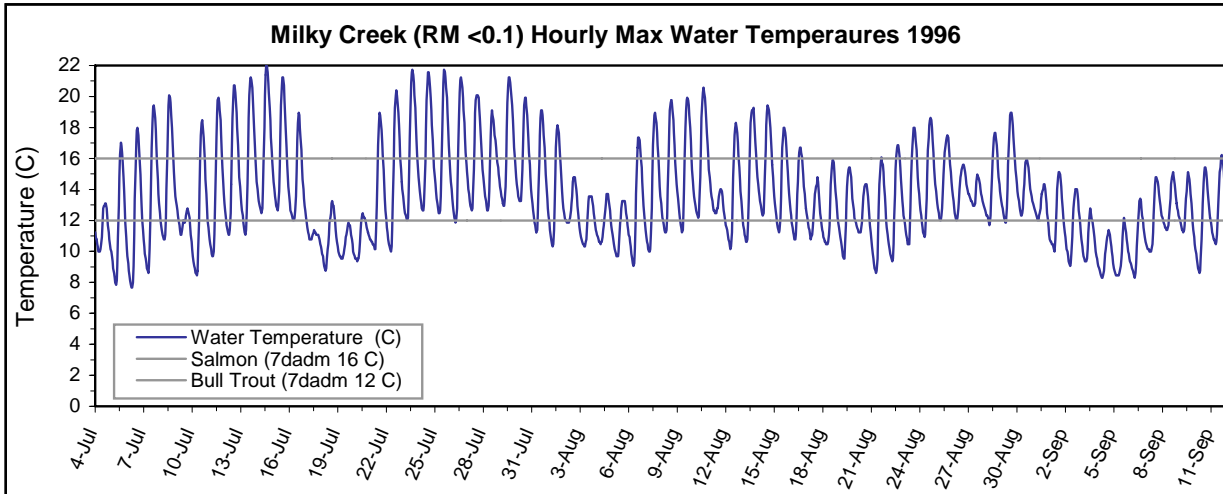
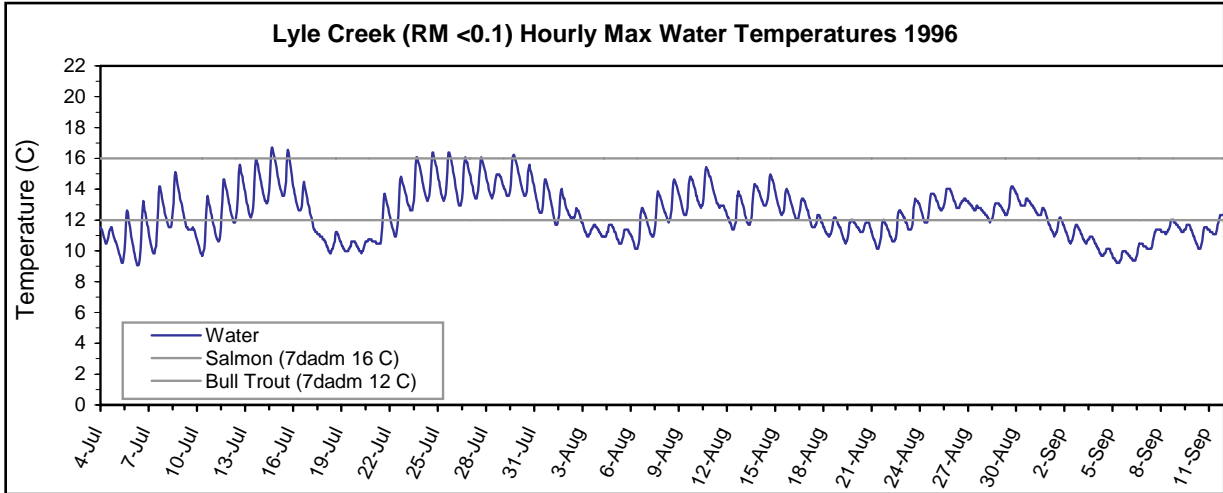


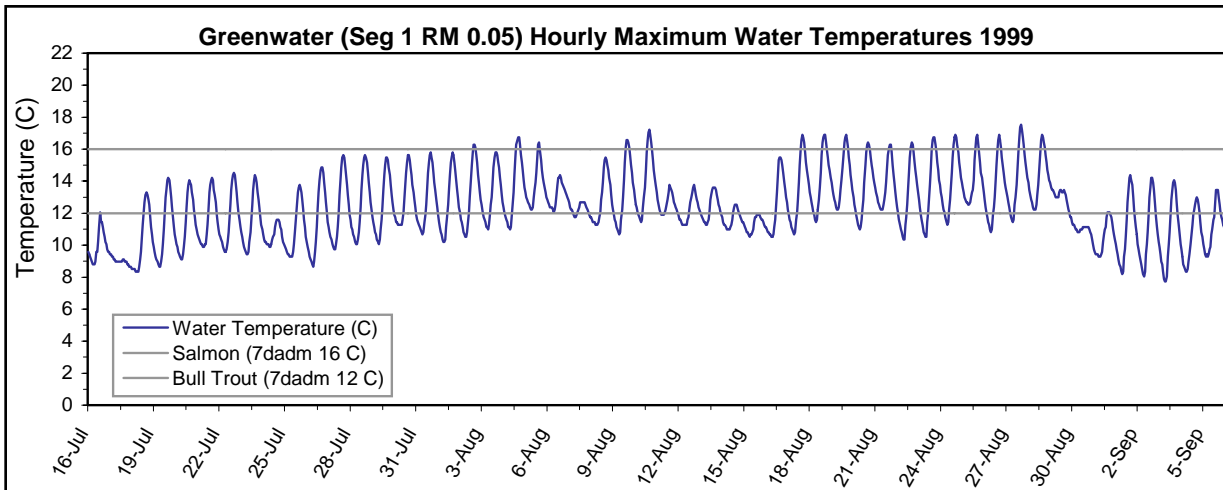
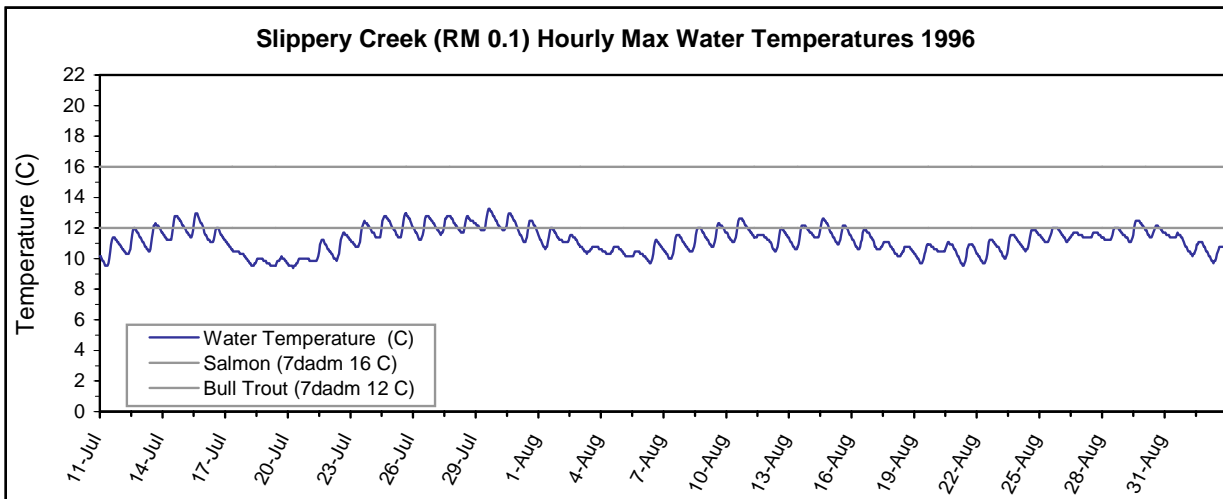
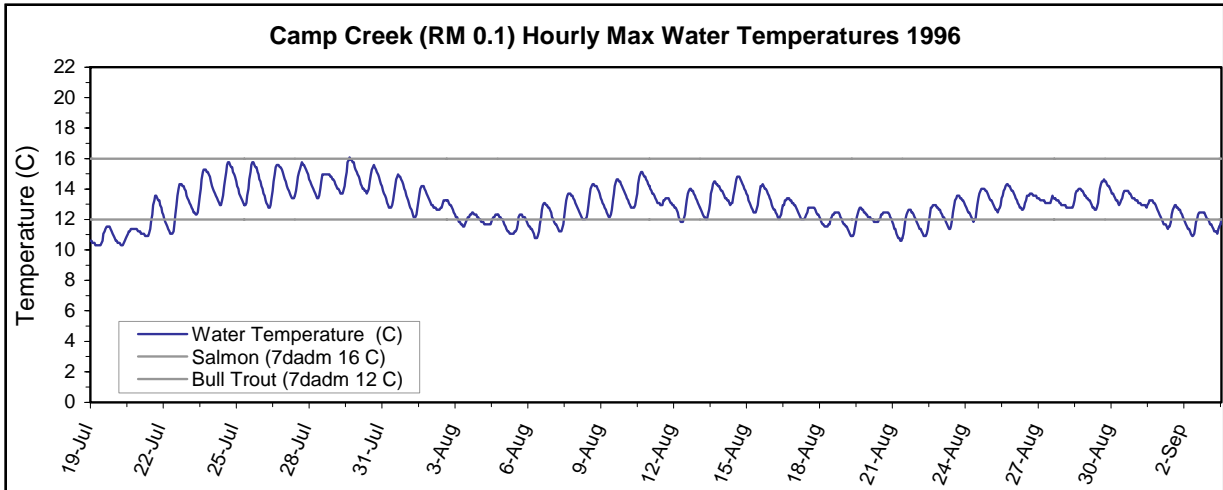


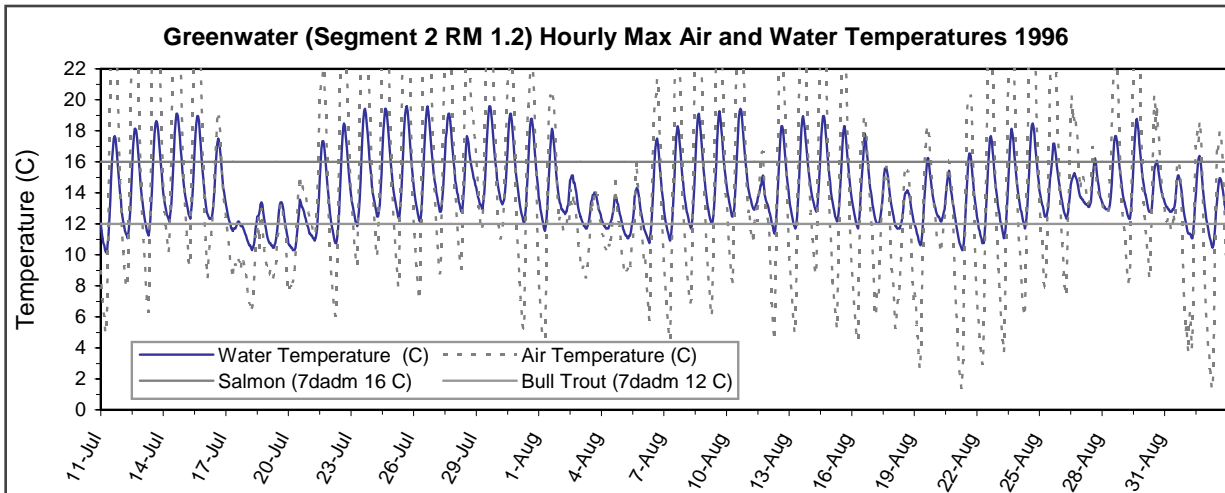
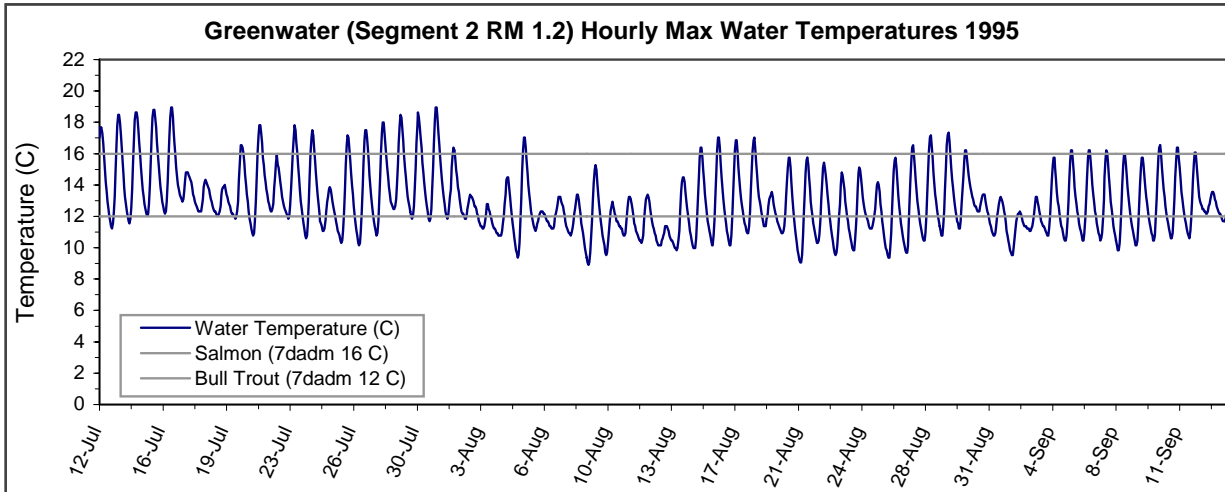
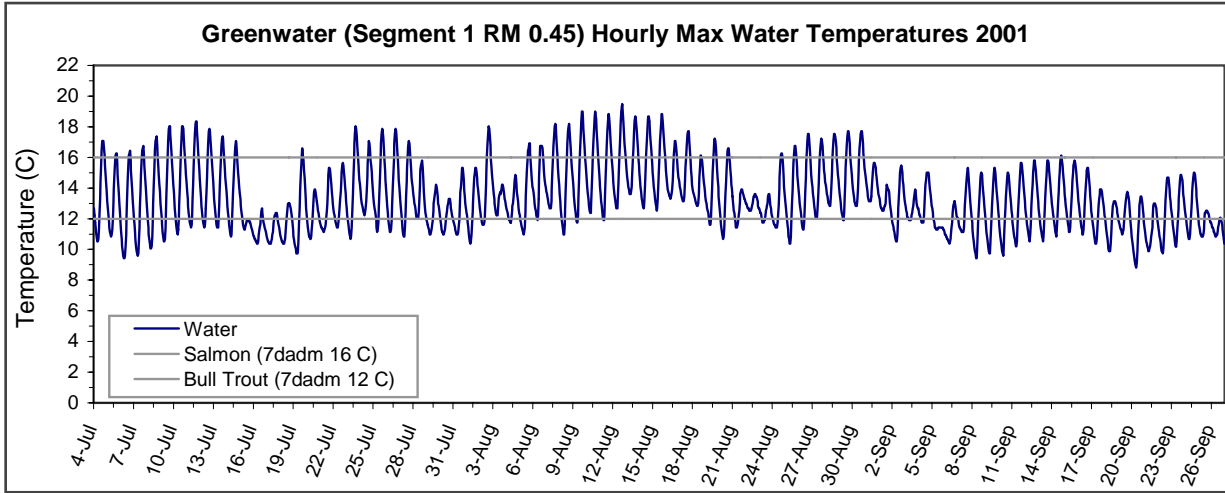


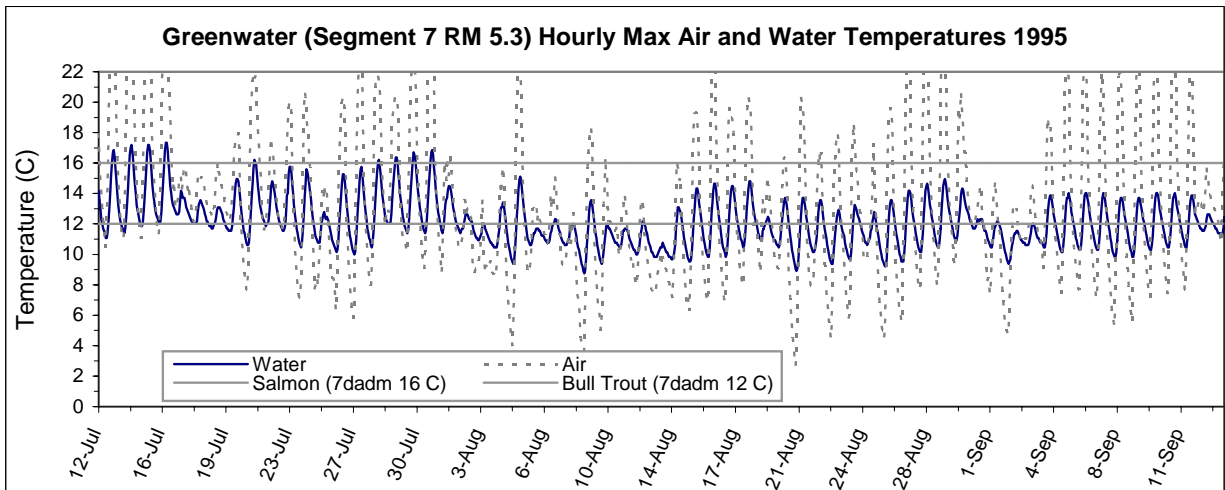
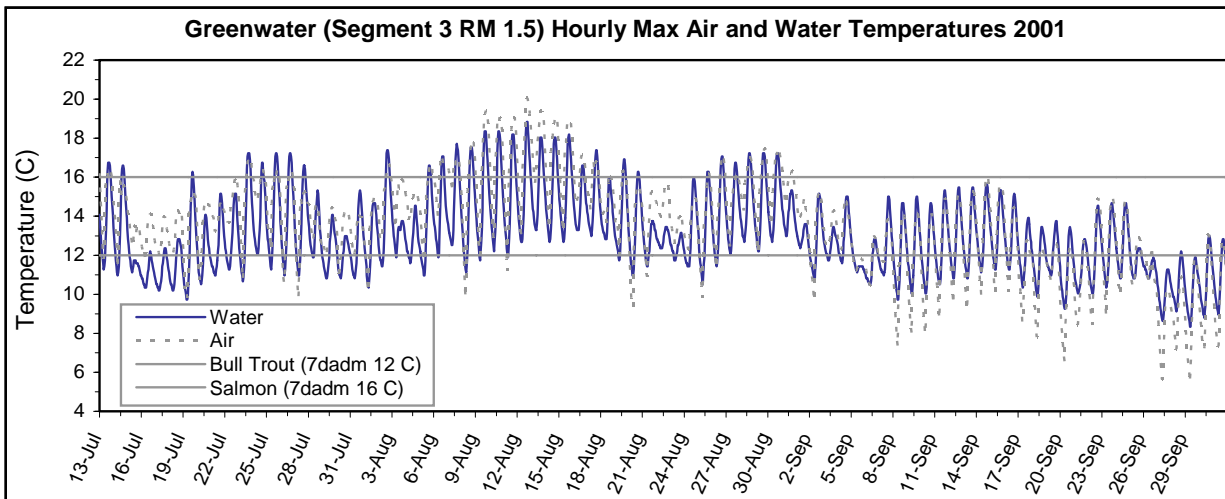
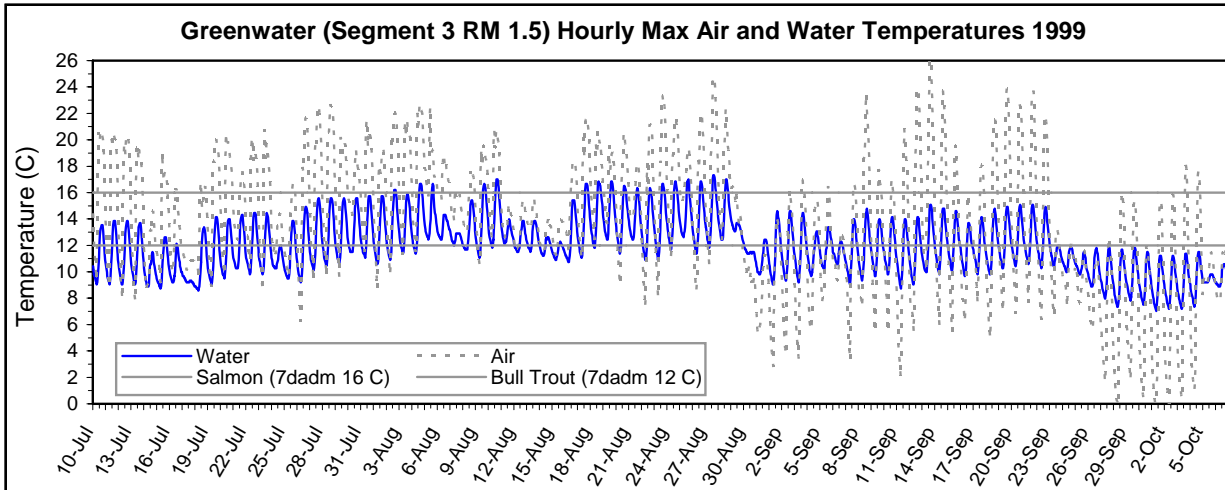


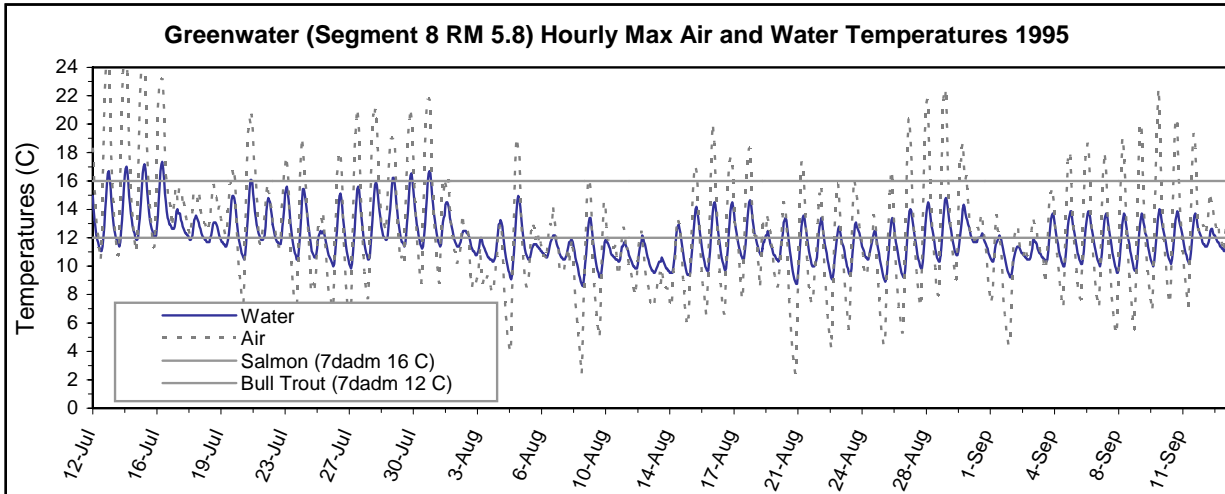
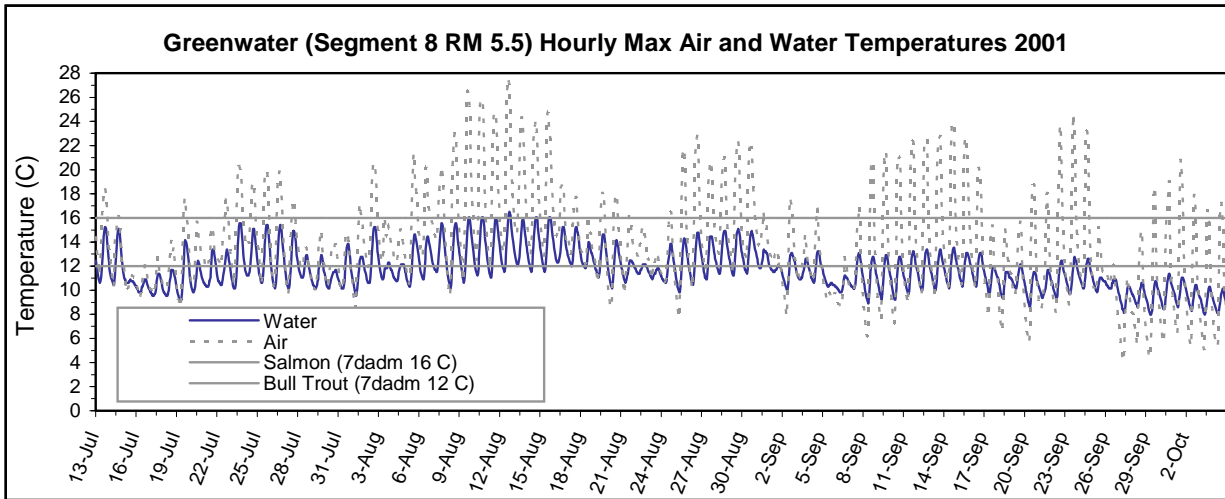
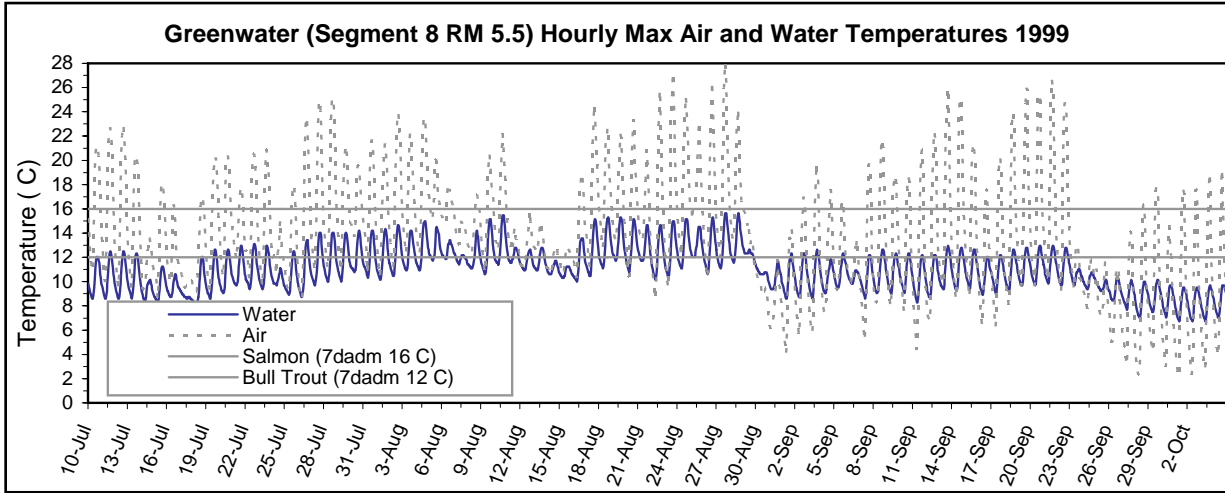


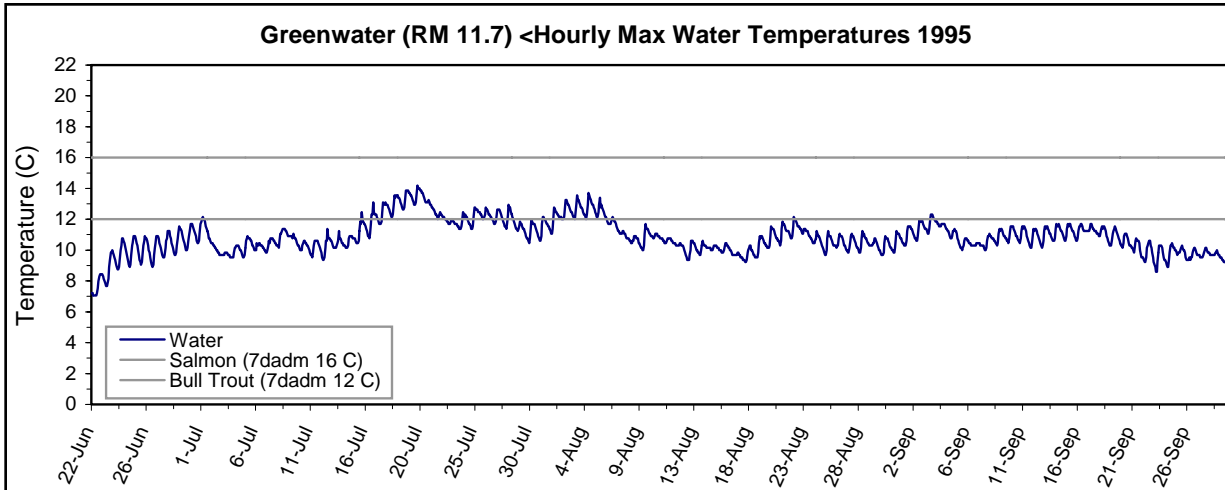
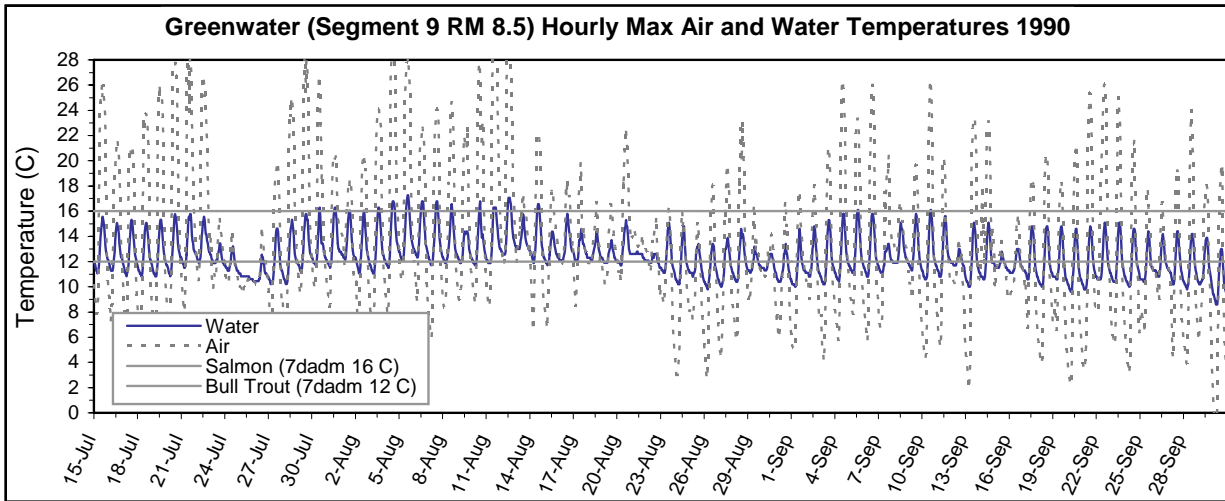
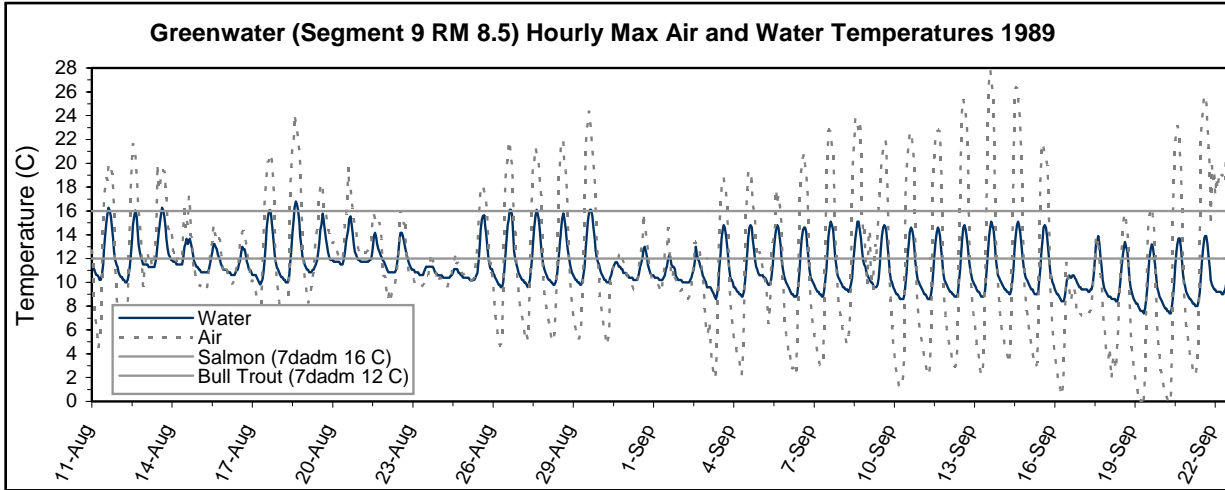


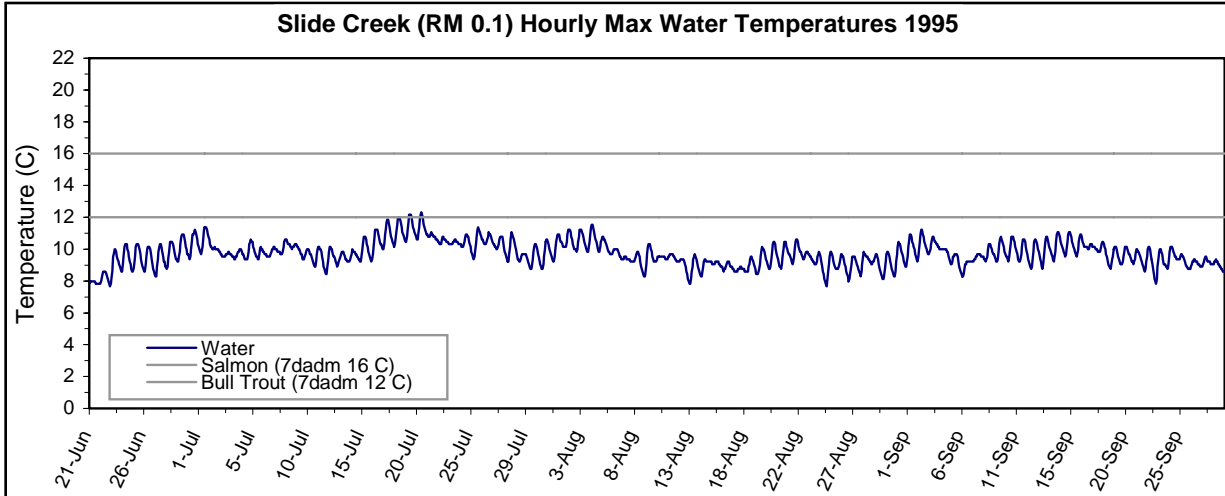
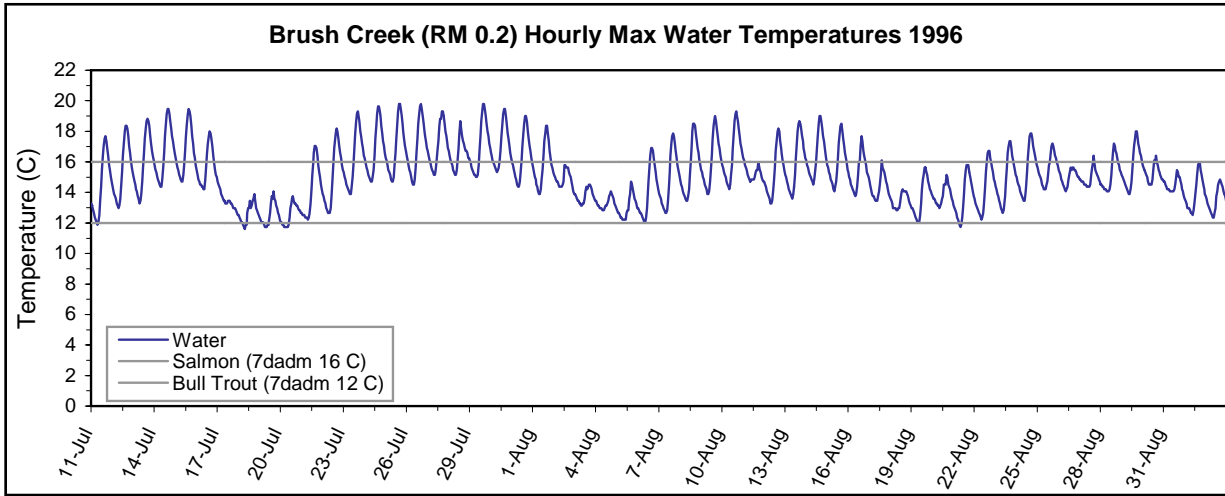
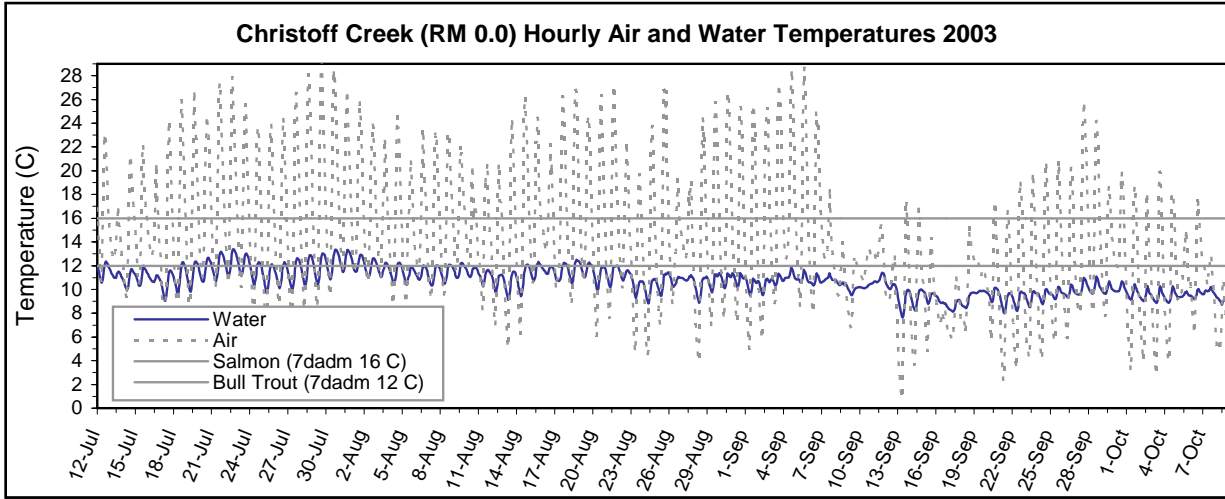


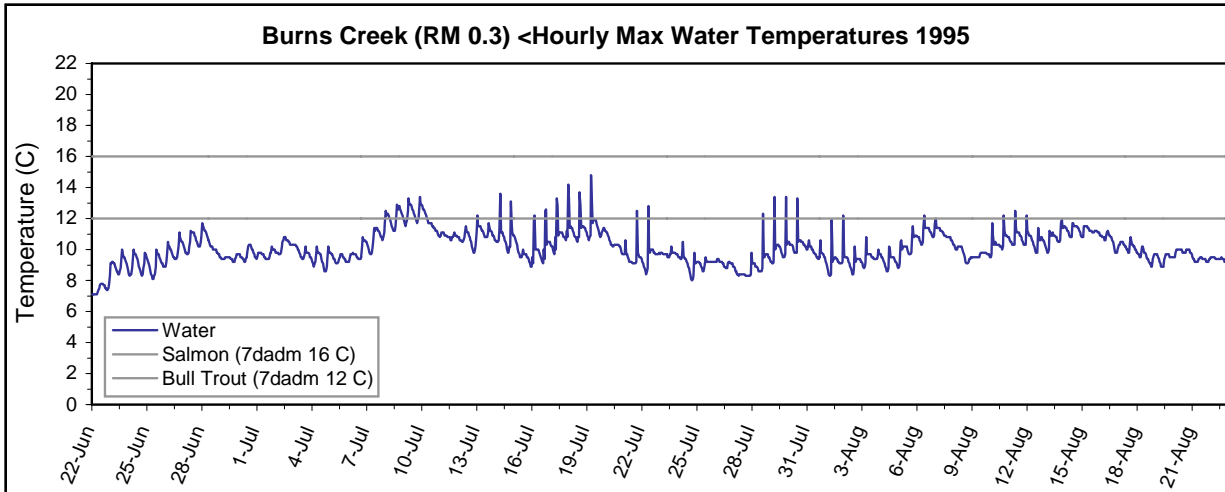
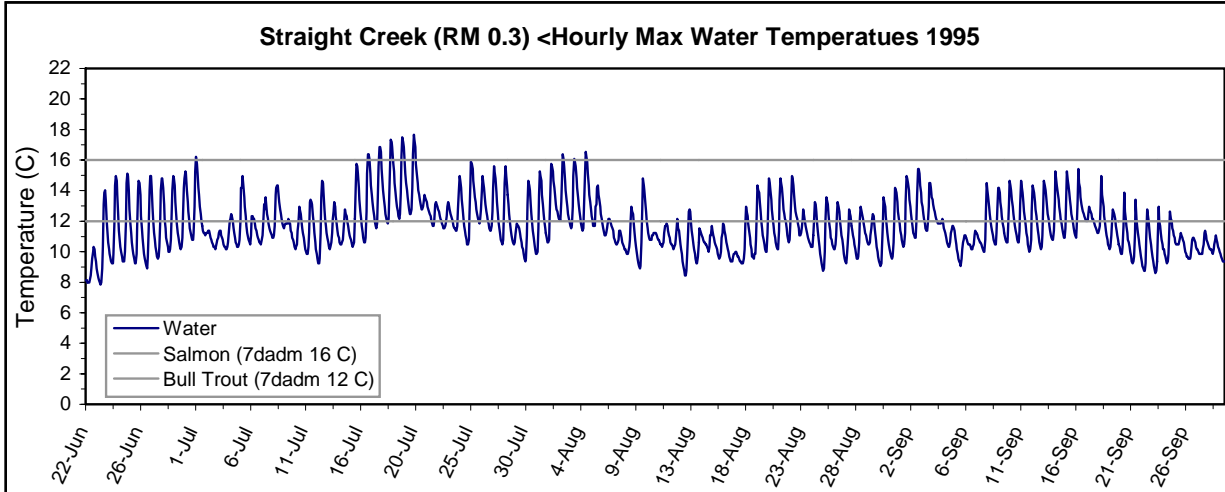
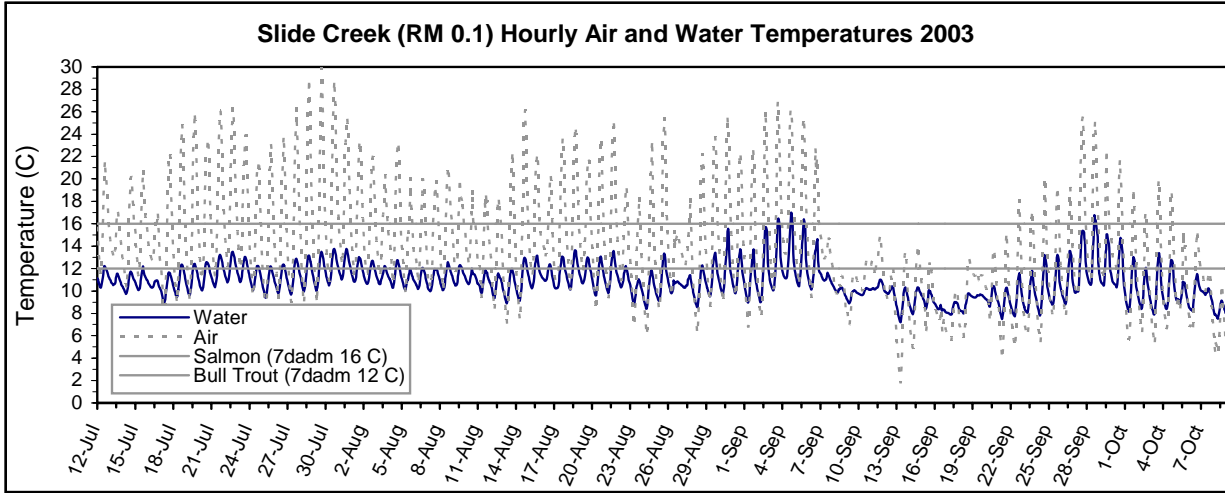


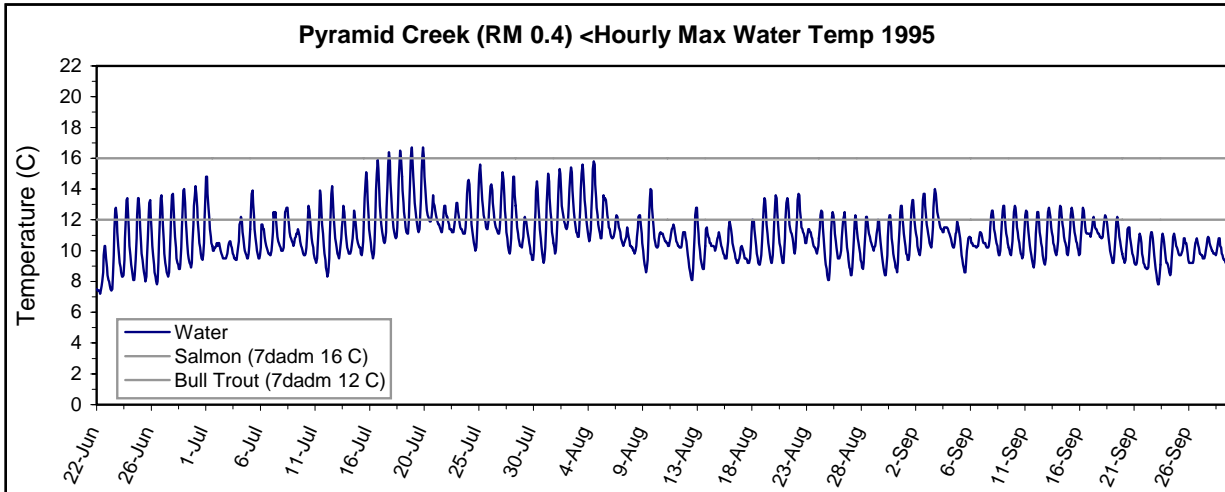
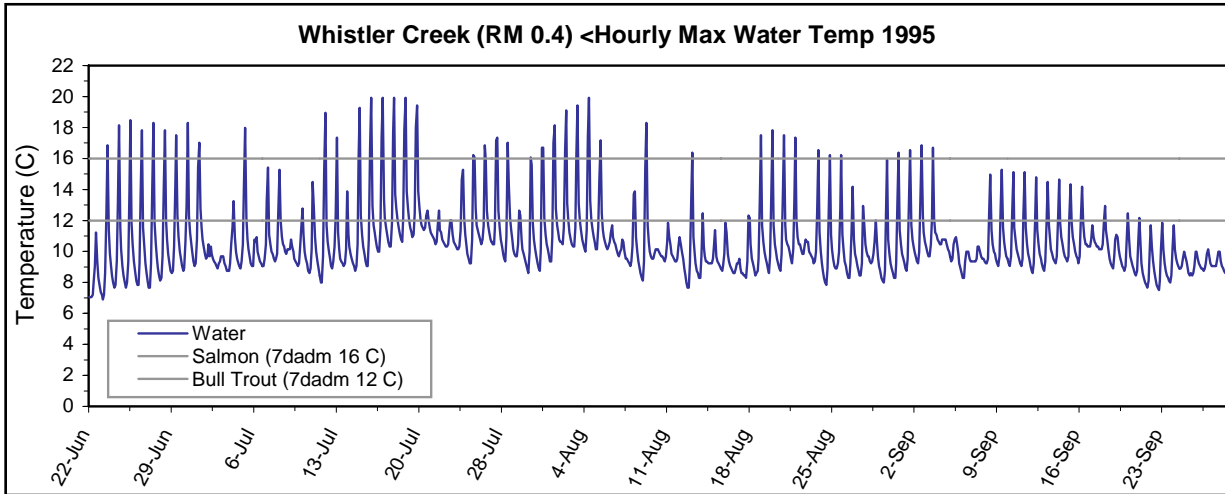
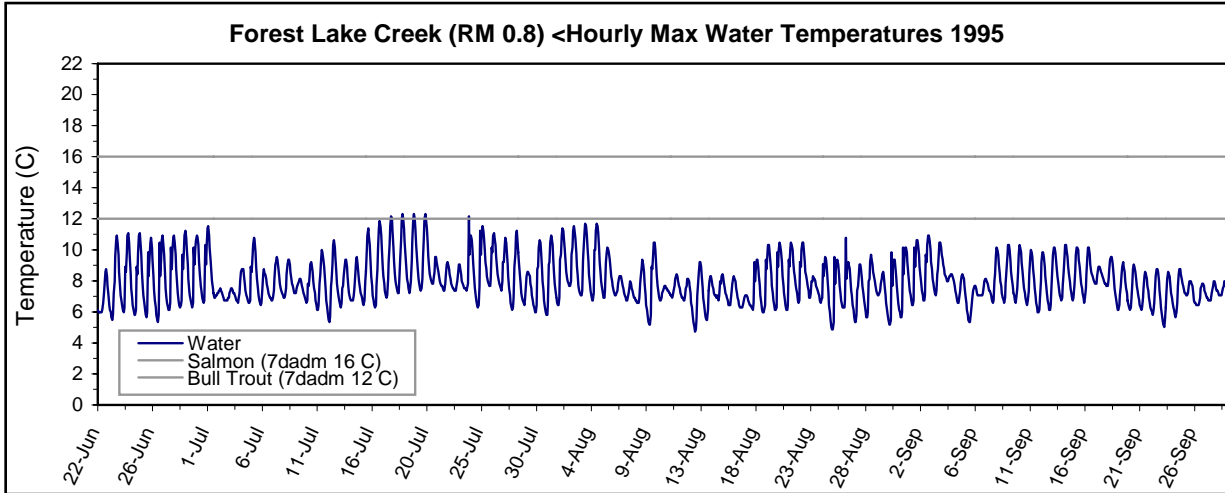


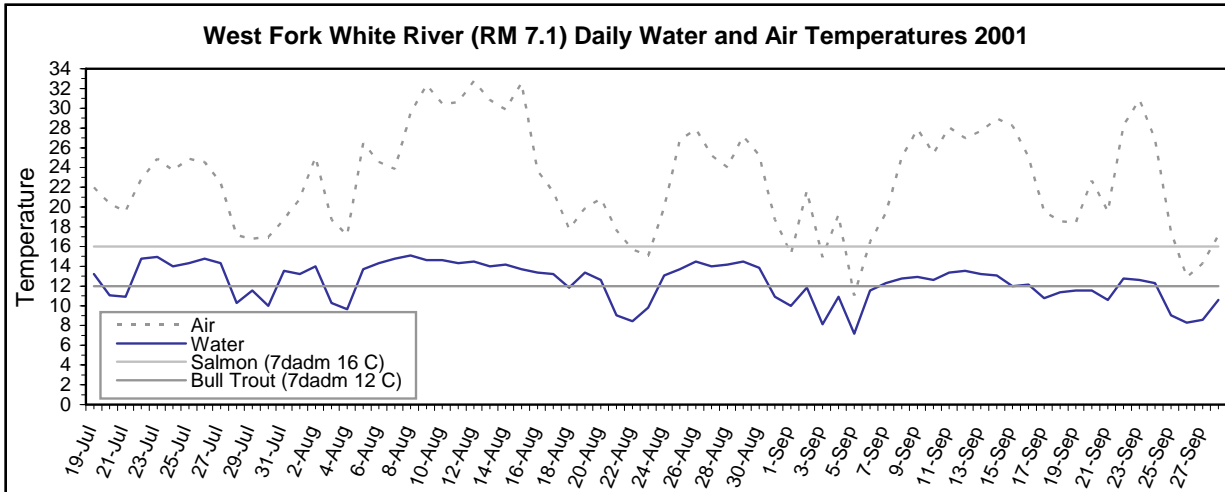
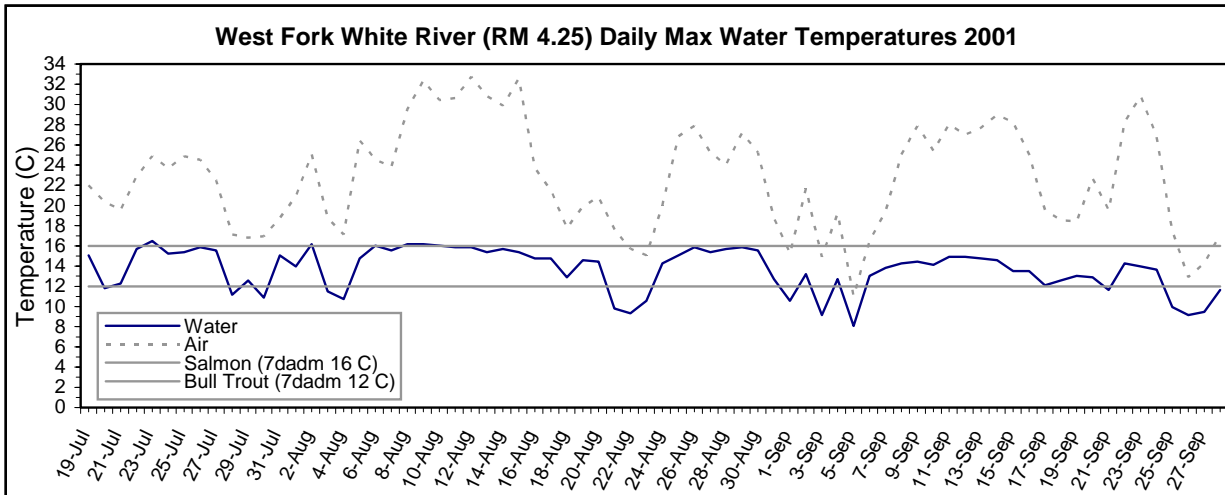
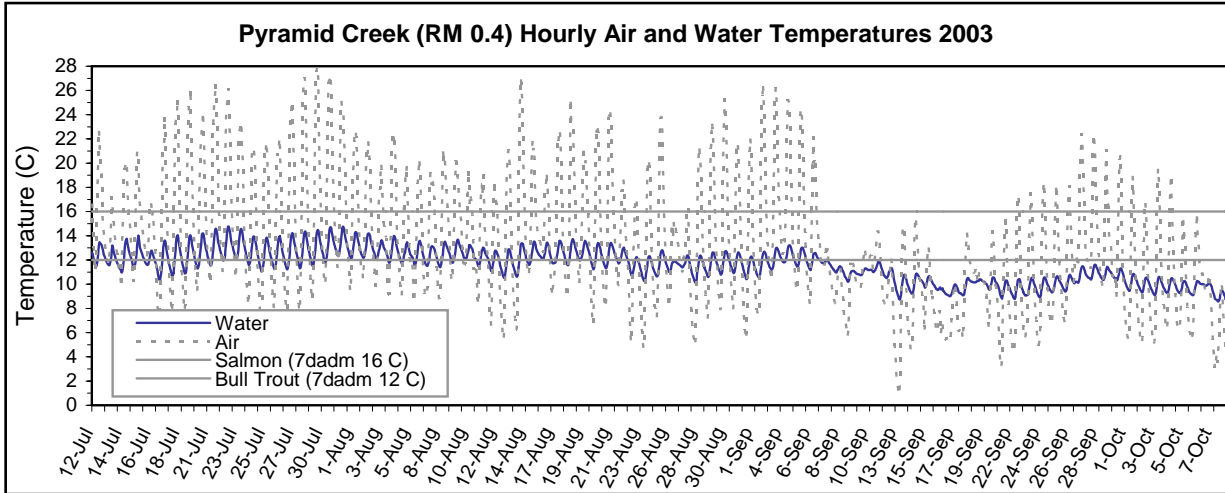


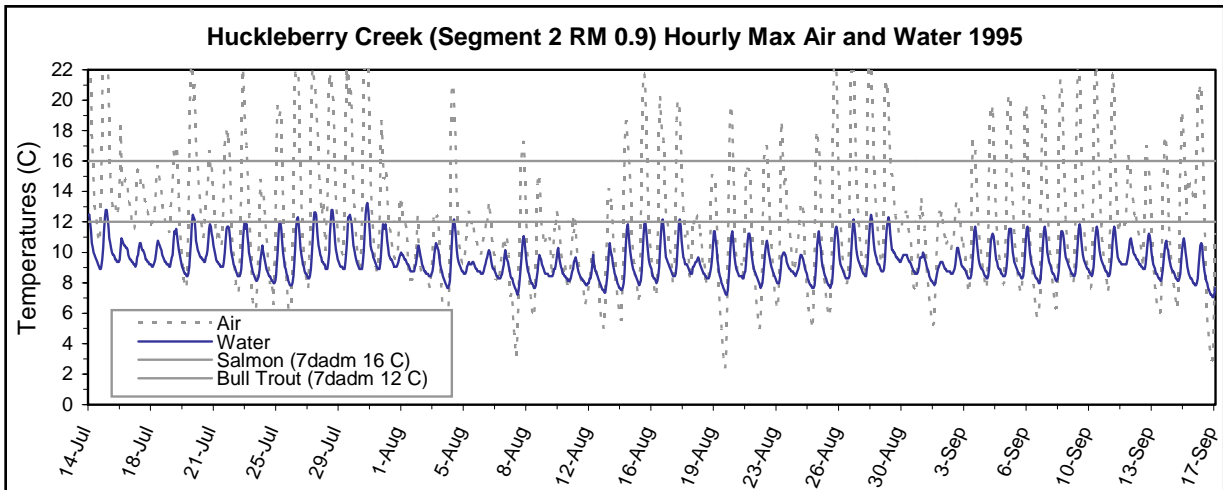
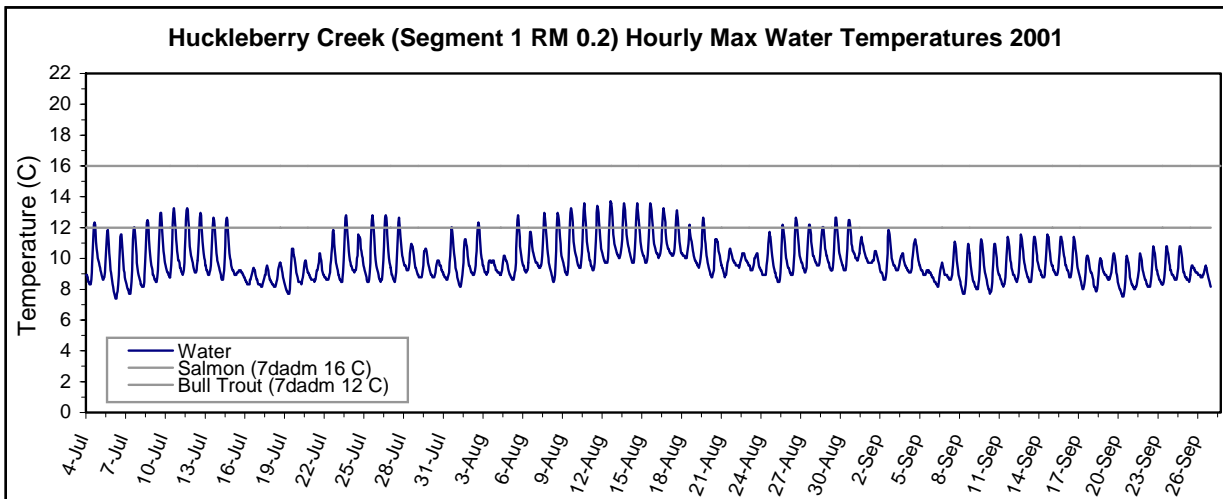
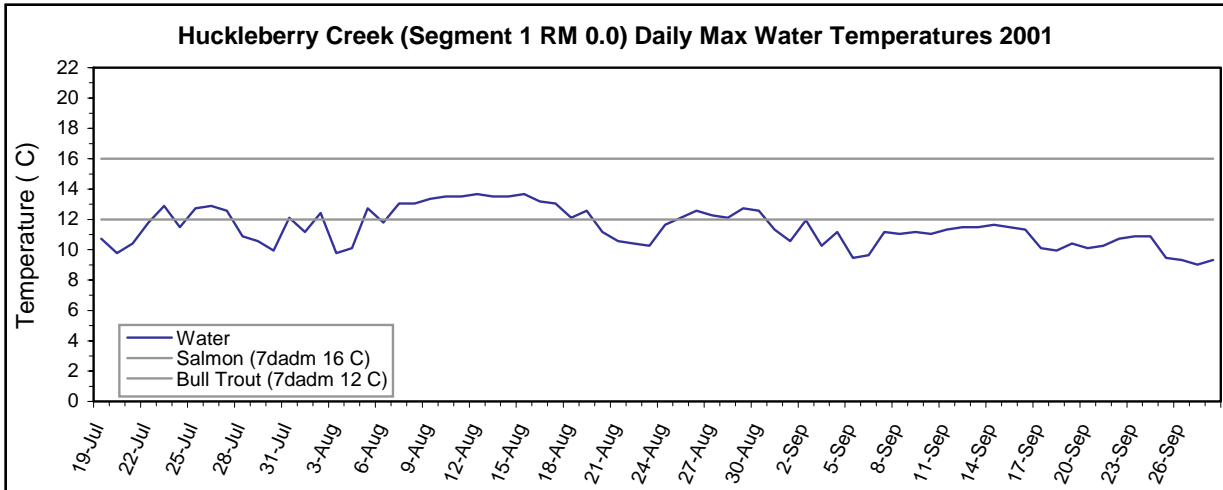


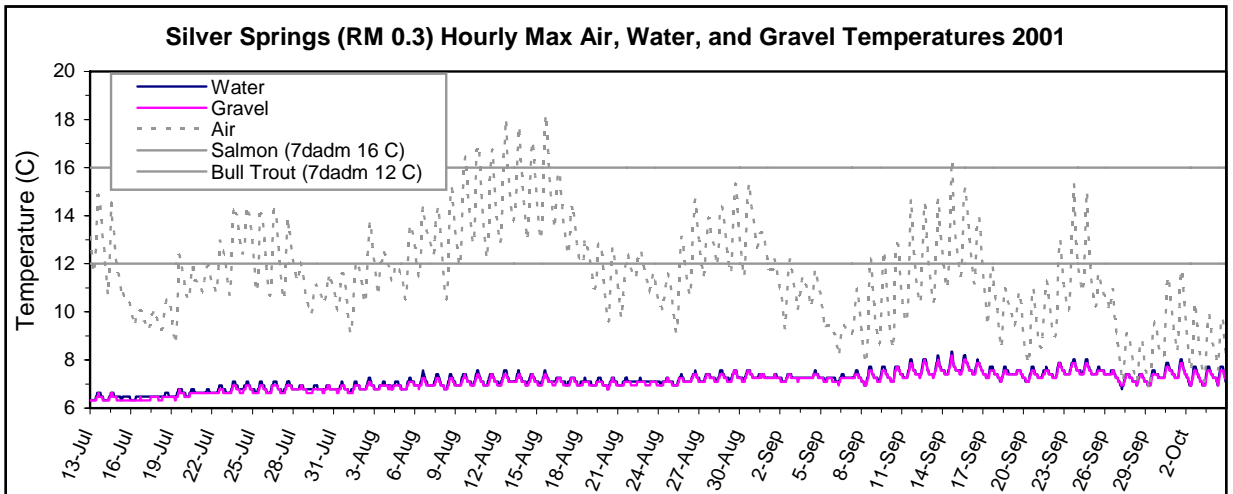
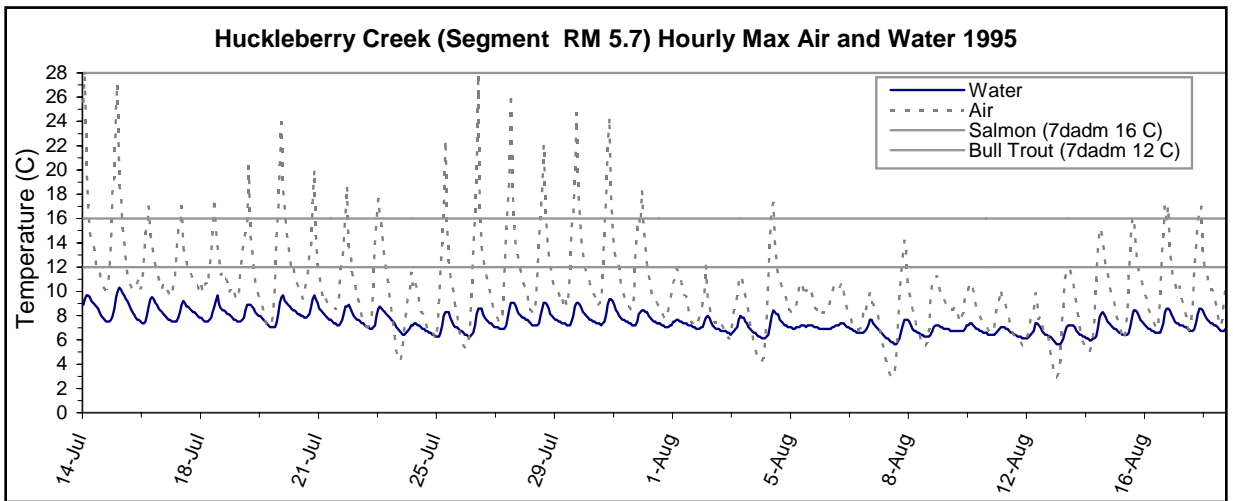
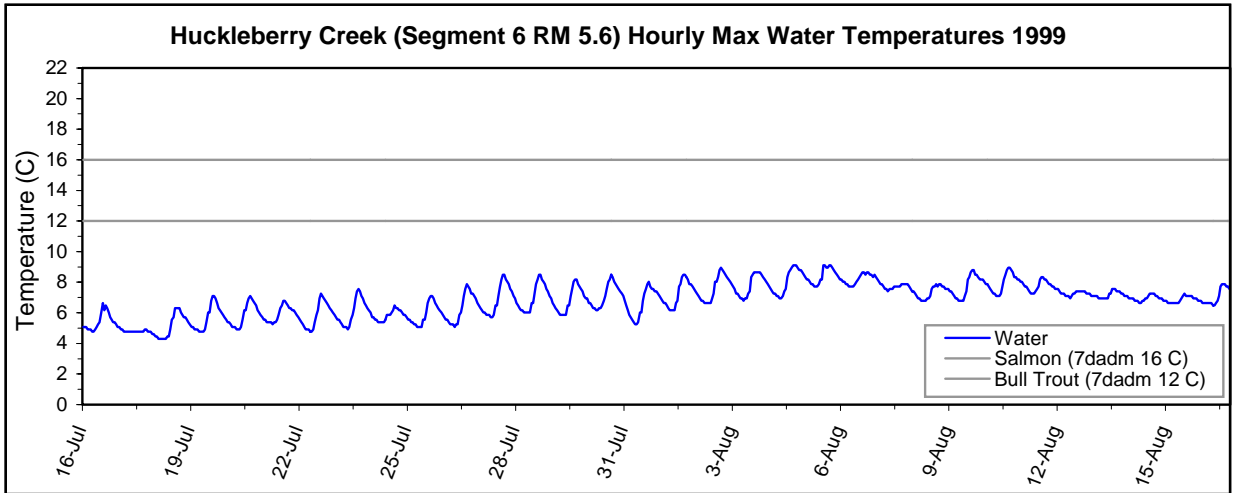


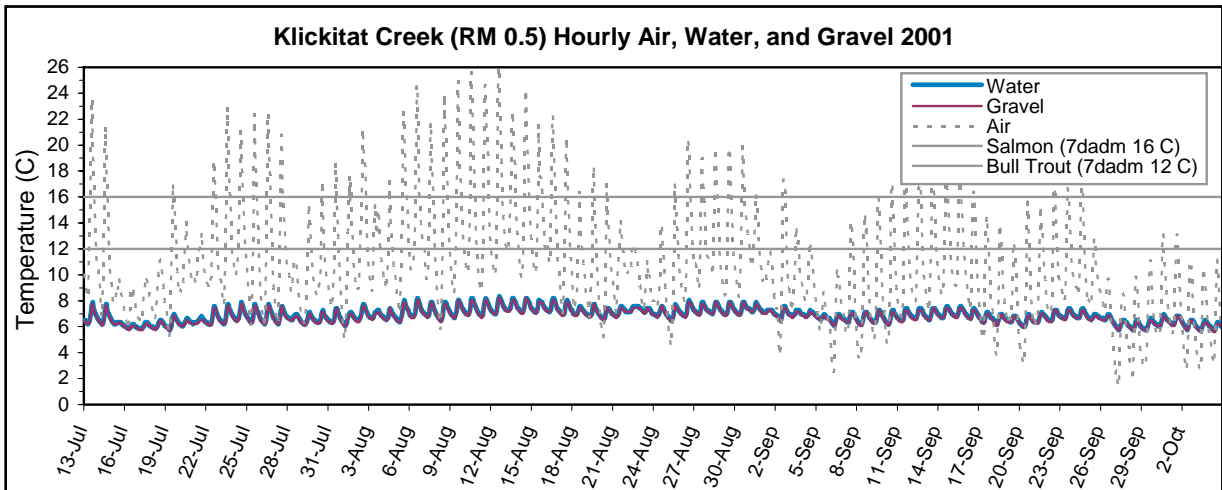
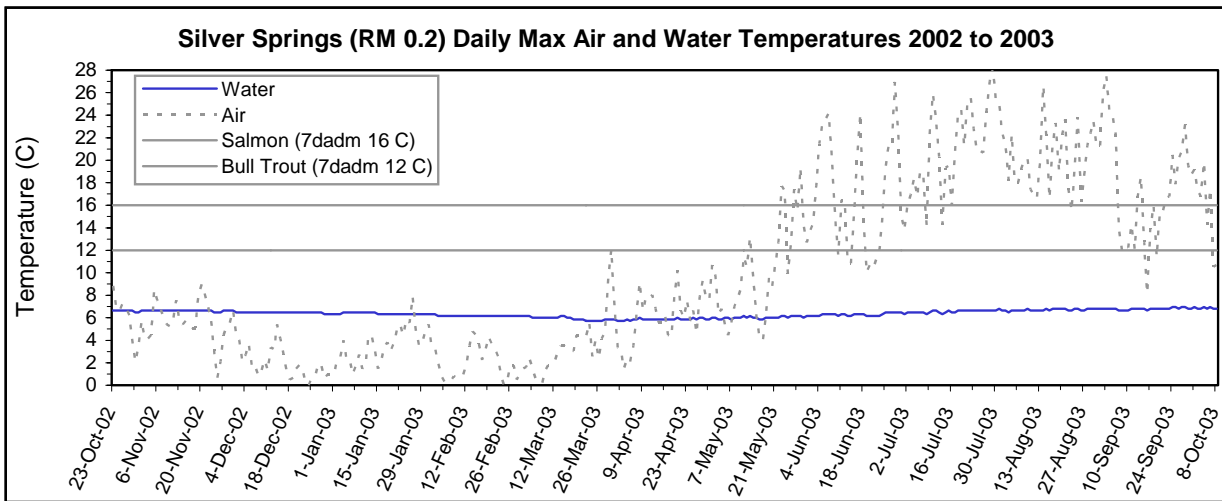
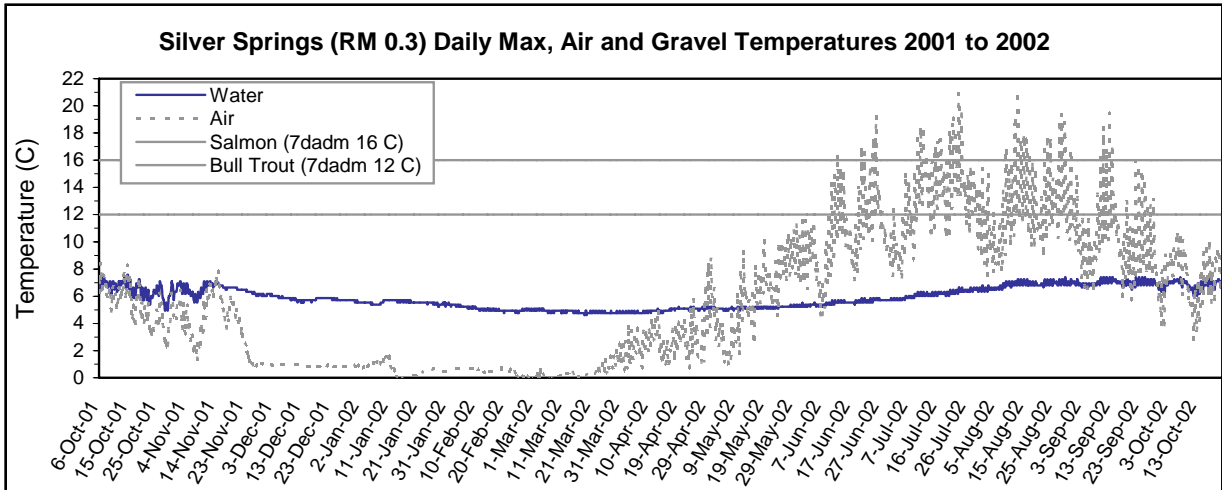


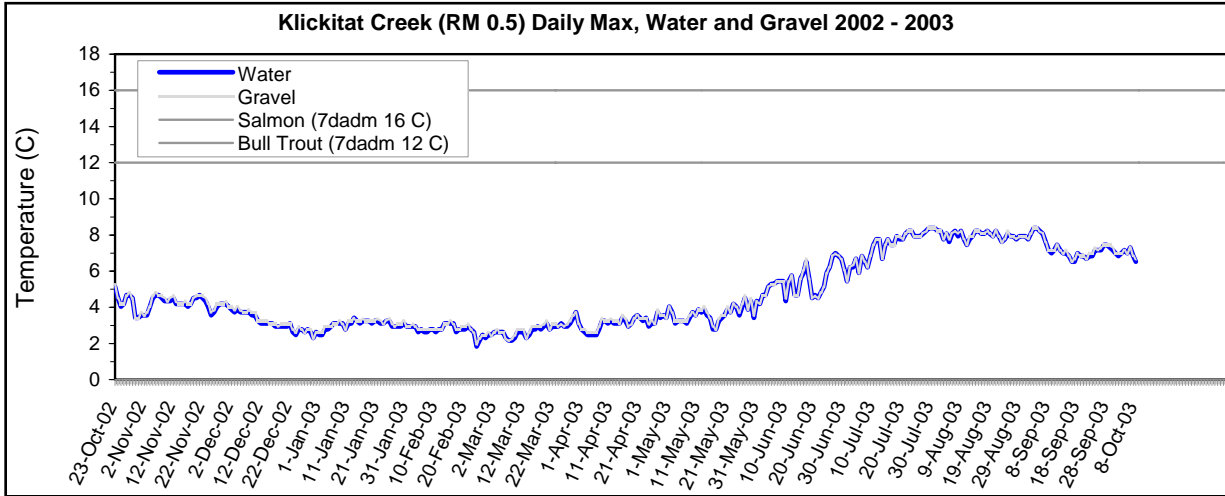
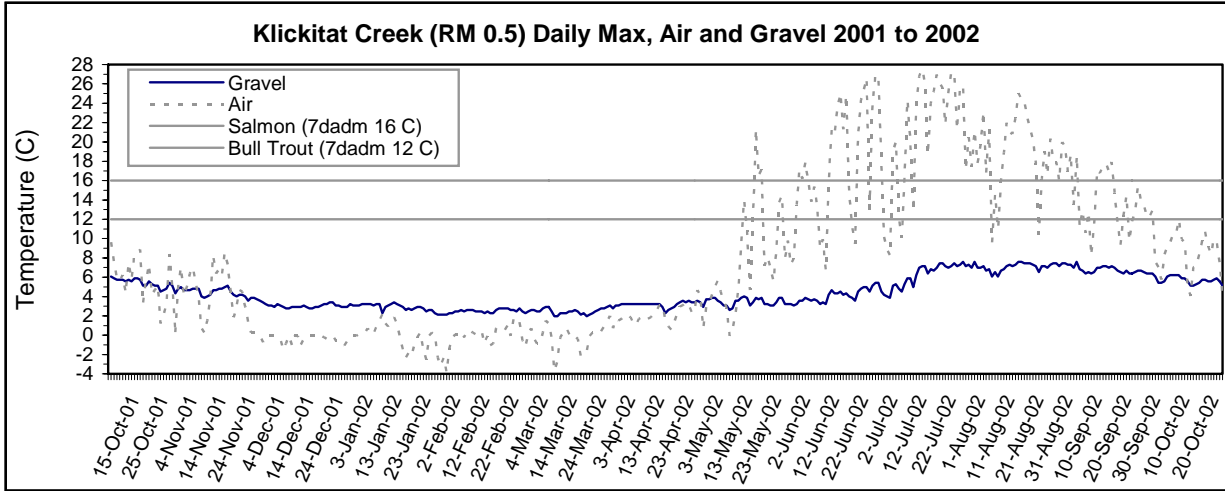








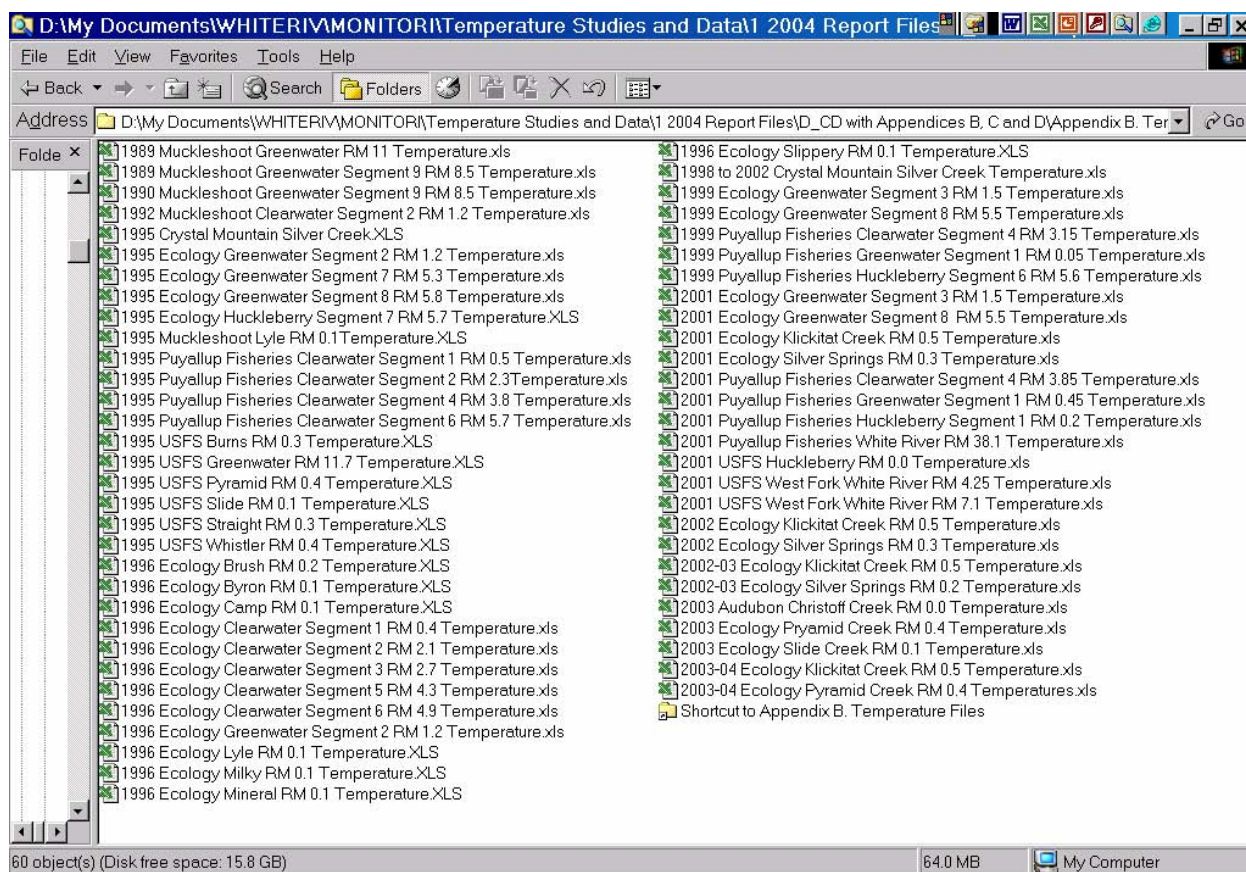




APPENDIX B

Appendix B temperature files on the attached CD are as follows:

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APPENDIX C

Appendix C thermal reach files on the attached CD are in the following order:

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1. Clearwater River thermal reach data
2. Greenwater River thermal reach data

APPENDIX D

Appendix D QA/QC folders on the attached CD are in the following order:

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1. 1995 Temperature QA/QC Plan
2. 1996 Temperature QA/QC Plan
3. 1999 Temperature QA/QC Plan
4. 2001 Temperature QA/QC Plan
5. 2002 Temperature QA/QC Plan
6. 2003-04 Temperature QA/QC Plan

APPENDIX E

The Appendix E file contains information useful for plotting temperature station locations in GIS and is found on the attached CD as follows:

If you are viewing this document online, you may call 360-407-6270 for copies of the CD.

GIS_Locations_Upper_White.xls

