UMATILLA RIVER SUBBASIN FISH HABITAT IMPROVEMENT PROJECT

ANNUAL REPORT 1995

Prepared by:

Troy S. Laws, Fish Habitat Biologist

Oregon Department of Fish and Wildlife
Pendleton, OR

Prepared for:

U.S. Department of Energy
Bonneville Power Administration
Environment, Fish and Wildlife
P.O. Box 3621
Portland, OR 97208-3621

Project Number 87-l 00-02
Contract Number DE-AI79-87-BP35769

JUNE 1996

TABLE OF CONTENTS

ABSTRACT

This annual report is in fulfillment of contract obligations with Bonneville Power Administration which is the funding source for the Oregon Department of Fish and Wildlife's Umatilla Basin Habitat Improvement Project.

Major activities undertaken during this report period included: 1) Flood damage assessment of project leases after the May 1995 and November 1995 floods, 2) reconstruction of 0.75 miles of riparian fence, 3) inspection and routine maintenance of 14.8 miles of fence, 4) collection of approximately 55,000 native willow and cottonwood cuttings and installation of approximately 21,600 of these material, 5) implementation of two bioengineering projects and initiation of a third project, 6) installation of approximately 30 tree/rootwads for fish habitat enhancement, 7) removal of an abandoned flood irrigation dam/fish barrier, 8) collection and summarization of physical and biological monitoring data, and 9) extensive interagency coordination.

INTRODUCTION

The Northwest Power Planning Council's Fish and Wildlife Program (NPPC 1987) calls for the rehabilitation of steelhead and salmon populations in the Umatilla River (Section 703) (c)(1) to partially mitigate for losses attributed to the installation and operation of the Federal Columbia River Power System. Historically, the Umatilla River basin supported large runs of spring and fall chinook salmon, which provided productive Indian and non-Indian fisheries. Although most chinook were eliminated from the Umatilla over 50 years ago, a few spring chinook were observed as recently as 1963 (OGC 19631, and fall chinook in 1957 (Thompson and Haas 1960).

Annual runs of summer steelhead have averaged 2,034 adults during the past sixteen years with a low of 768 in 1981-82 and a high of 3,124 in 1986-87; counts for 1994-95 were 1,531 (Table 1).

Until the mid-1900's, natural production of coho salmon was widespread throughout the Columbia Basin. In areas above Bonneville Dam, the species could be found in numerous subbasins of the mid- and upper Columbia regions (NPPC 1990). Historically, the Umatilla River is considered to have supported a population of coho, however, documentation of the species presence, era of disappearance, and historical abundance is unknown (NPPC 1990).

The Oregon Department of Fish and Wildlife (ODFW) and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) are currently implementing a major salmon re-establishment program in the Umatilla Basin. Adult fish counts conducted at Three Mile Dam (Figure A) document fall chinook returning to the river since 1985, spring chinook since 1988 and coho since 1987 (Tables 2, 3 and 4).

Reasons for decline in Umatilla River anadromous fish populations include: 1) passage problems at Columbia and Umatilla River dams, 21 water use practices within the basin, 3) poor watershed health, and 4) degradation of the quality and quantity of spawning and rearing habitat.

Reduction in the amount of riparian habitat along the Umatilla and its tributaries contributes to poor stream conditions, which result in: 1) greater seasonal variation in flows and water

TABLE 1. THREE MILE DAM /1, UMATILLA RIVER SUMMER STEELHEAD COUNTS

YEAR /2	TOTAL ADULTS
1979-80	2,361
1980-81	1,298
1981-82	768
1982-83	1,264
1983-84	2,062
1984-85	3,436
1985-86	2,959
1986-87	3,124
1987-88	2,481
1988-89	2,476 /3
1989-90	1,694
1990-91	1,111
1991-92	2,769
1992-93	1,913
1993-94	1,290
1994-95	1,531

/1 See Figure 1 for the location of Three Mile Dam within the Umatilla Basin.

/2 September 1 through June 30.

/3 Trap shut down for extreme cold weather from 2-2-89 to 2-24-89.

TABLE 2. THREE MILE DAM, UMATILLA RIVER SPRING CHINOOK COUNTS

YEAR			TOTAL
	ADULT /1	JACK /2	TOTAL
1988	13	0	13
1989	66	98	164
1990	2,158	32	2,190
1991	1,291	39	1,330
1992	462	4	466
1993	1,205	16	1,221
1994	263	8	271
1995	388	108	496

/1 Adults are greater than 24 inches in length.

/2 Jacks are precocially mature fish less than 24 inches in length

TABLE 3. THREE MILE DAM, UMATILLA RIVER FALL CHINOOK COUNTS

YEAR	TOTAL			
	ADULT /1	JACK /2	SUBJACK /3	TOTAL
1985	6	79	0	85
1986	27	447 /4	0	474
1987	52	52	295	399
1988	94	176	1,283	1,553
1989	279	247	76	602
1990	333	107	621	1,061
1991	522	468	274	1,264
1992	239	64	0	303
1993	370	27	15	412
1994	687	237	368	1,292
1995	603	288	338	1,229

/1 Adults are greater than 24 inches in length.

/2 Jacks are precocially mature fish between 18 and 24 inches in length.

/3 Subjacks are precocially mature fish less than 18 inches in length.

/4 A combination of jacks and subjacks.

TABLE 4. THREE MILE DAM, UMATILLA RIVER COHO COUNTS

YEAR	TOTAL		
	ADULT /1	JACK /2	TOTAL
1987	0	29	29
1988	742	610	1,352
1989	3,694	507	4,201
1990	409	511	920
1991	1,733	187	1,920
1992	340	173	513
1993	1,531	18	1,549
1994	985	62	1,047
1995	946	53	999

/1 Adults are greater than 20 inches in length.

/2 Jacks are precocially mature fish less than 20 inches in length.

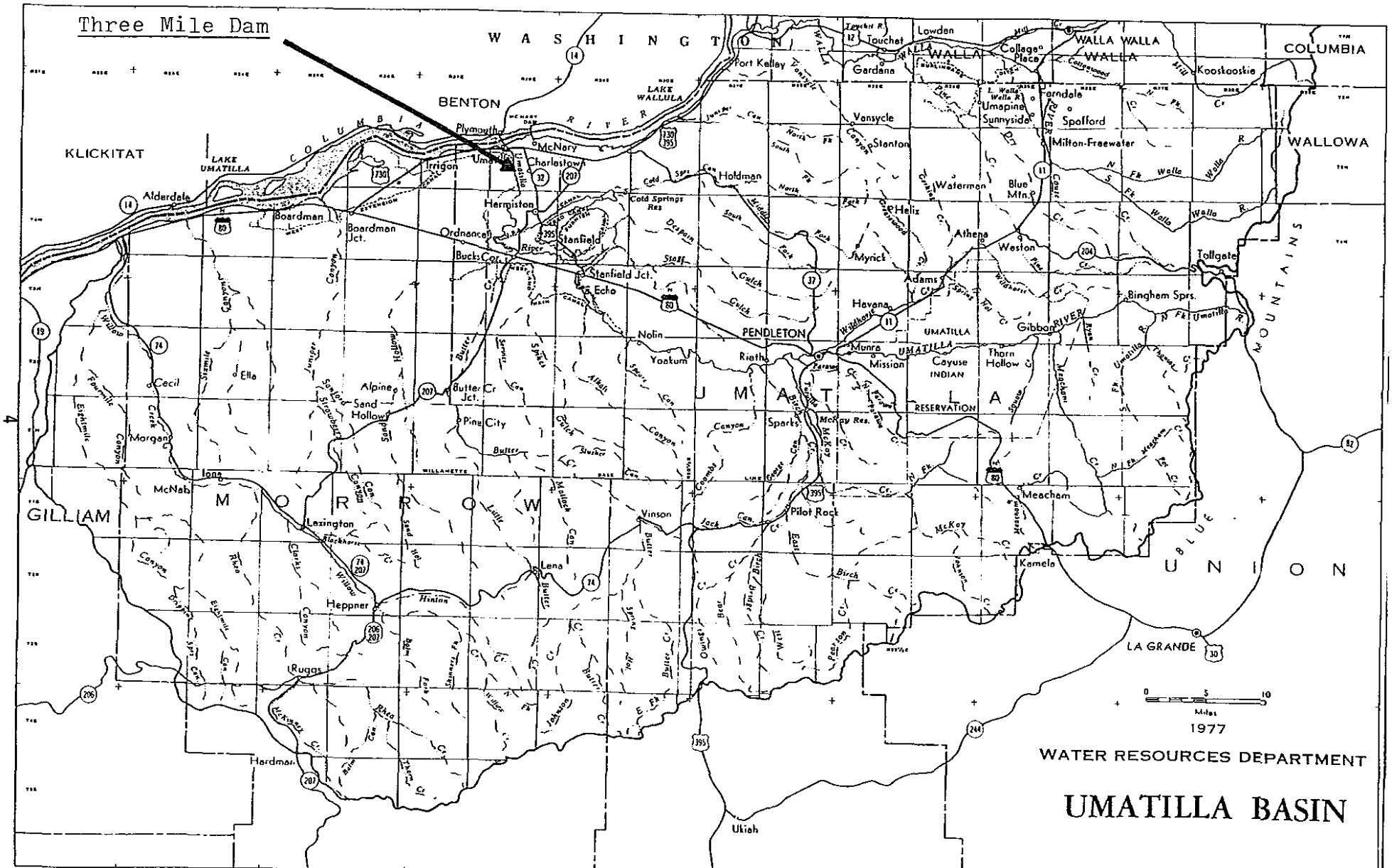


Figure A. Location of Three Mile Dam within the Umatilla subbasin.

temperatures, 2) unstable streambanks, 3) decreased production of food organisms utilized by fish, and 4) loss of instream and streamside cover (USFWS and NMFS 1982). Approximately 70% of the Umatilla Basin streams inventoried in 1982 (295 miles) were identified as needing riparian habitat rehabilitation (USFWS and NMFS 1982). Intermittent or non-existent summer flows in sections of Meacham, Squaw, Wildhorse, and Birch creeks are due in part to extensive losses of riparian vegetation throughout the past century.

The Umatilla River Basin has three government agencies working on habitat improvement projects within their respective jurisdictions; the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) on reservation lands; United States Department of Agriculture Forest Service (USFS) on Umatilla National Forest lands; and Oregon Department of Fish and Wildlife (ODFW) on private lands.

During 1993, the ODFW program emphasis for the Umatilla Basin was shifted from project implementation to maintenance and evaluation of its existing projects. As a result, no new riparian leases with landowners have been developed.

On May 6, 1995, the Birch Creek habitat projects were subjected to another out-of-bank flood[1]. This was the third major flood to afflict our projects since 1988 and was equivalent to the flood flow record set for this subbasin[2] in 1965[3].

In addition, a second flood occurred in the Umatilla River Basin during November 1995. This flood produced a estimated 60-100 year flood in the north and south forks of the Umatilla River, including Meacham Creek. This same storm produced only about a 20 year flood for the lower mainstem Umatilla River where mid-/lower- Umatilla river tributaries did not flood. A survey of Meacham Creek (after the flood) revealed extensive damage to sections of the Union Pacific Railroad grade but only minor damage to the program's habitat projects located in the upper reach of this subwatershed. Minor project damage is mostly attributed to the projects being located in meadow type habitat where stream channel gradient is low and channel sinuosity is high.

---

[1] Peak flow was 2200+ cfs. with a recurrence interval estimate of fifty-years.

[2] Flow records have been kept by the Oregon Water Resources Department since 1928

[3] Peak flow was 2200+ cfs. with a 50-year estimated recurrence interval.

Evaluation of the Birch Creek projects (post May 1995 flood) re-emphasizes the importance of restoring flood plain function, channel sinuosity, and riparian habitat with vegetation (native trees, shrubs, and grasses). Project personnel found eroding streambanks most often developed on sites where trees and vegetation were deficient (pre-flood conditions) and/or immediately downstream from a reach where the stream channel had been constrained by human interventions and/or the stream bank had been treated with bank hardening components (ie. rip-rap). Our assessment of program projects found a positive correlation between vegetative recovery and the deposition of soil. This equates to streambank building, noting several inches of new soil accumulation in areas where riparian plants have been encouraged to re-establish.

In light of these findings, the habitat biologist has begun to implement bioengineering[1] restoration techniques. In the Umatilla program, bioengineering techniques are being tried to satisfy both habitat recovery and the landowners' streambank stabilization needs. Bioengineering treatments, once established, tend to become self-repairing, which contrast to bank hardening techniques such as rip-rap that often require maintenance. Although rock is incorporated in some bioengineering applications, the primary emphasis on each project is the use and re-establishment of lost key vegetative components.

[1] Bioengineering is and aggressive vegetative approach to riparian restoration and bank stabilization that utilizes living plant material as the main structural component in streambank restoration projects.

DESCRIPTION OF PROJECT AREAS

The Umatilla River, located in northeast Oregon, originates on the western slopes of the Blue Mountains east of the city of Pendleton. The river and its tributaries flow in a northwesterly direction for approximately 115 miles. The confluence of the Umatilla with the Columbia River is located at river mile (RM) 289 near the town of Umatilla, Oregon (Figure B). The Umatilla River drainage encompasses approximately 2,545 square miles and as monitored at the city of Umatilla, Or. (RM 2), has an average annual runoff of about 336,000 acre-feet (OWRD, 1988). The actual total annual runoff is estimated to be much higher. Due to extensive water withdrawals within the basin, Oregon Water Resources Department (OWRD) estimates the total annual yield to be 515,000 acre-feet. In downstream order, beginning at the headwaters, major tributaries of the Umatilla River are: North and South Forks of the Umatilla River, Meacham, McKay, Birch, and Butter creeks.

Intensive agriculture (dry land farming, irrigated crops, and livestock grazing) are the predominant land uses throughout the lower Umatilla Basin while timber harvest and livestock grazing are the predominant land uses in the upper basin. Intensive land uses within basin flood plains and upslope habitats have led to dramatic changes in waterway characteristics since arrival of Euro-American pioneers to the area during the middle 1800's (Beschta 1994). Stream channelizing, conversion of bottomland deciduous forests to agricultural fields, diking of stream corridors to prevent out-of-bank flows, streambank hardening (rip-raping), and elimination of riparian vegetation have turned many reaches of Umatilla basin streams into relatively straight/deeply incised channels. Loss of stream channel meander within valley floors help to accelerate runoff velocity and its impacts to the land. A combination of these alterations have caused excessive bedload deposits in the lower reaches of basin streams. From a water quality and fisheries perspective, stream reaches in these conditions, tend to be the most nonproductive for salmonids in terms of desirable habitat, water quality and aquatic resource diversity.

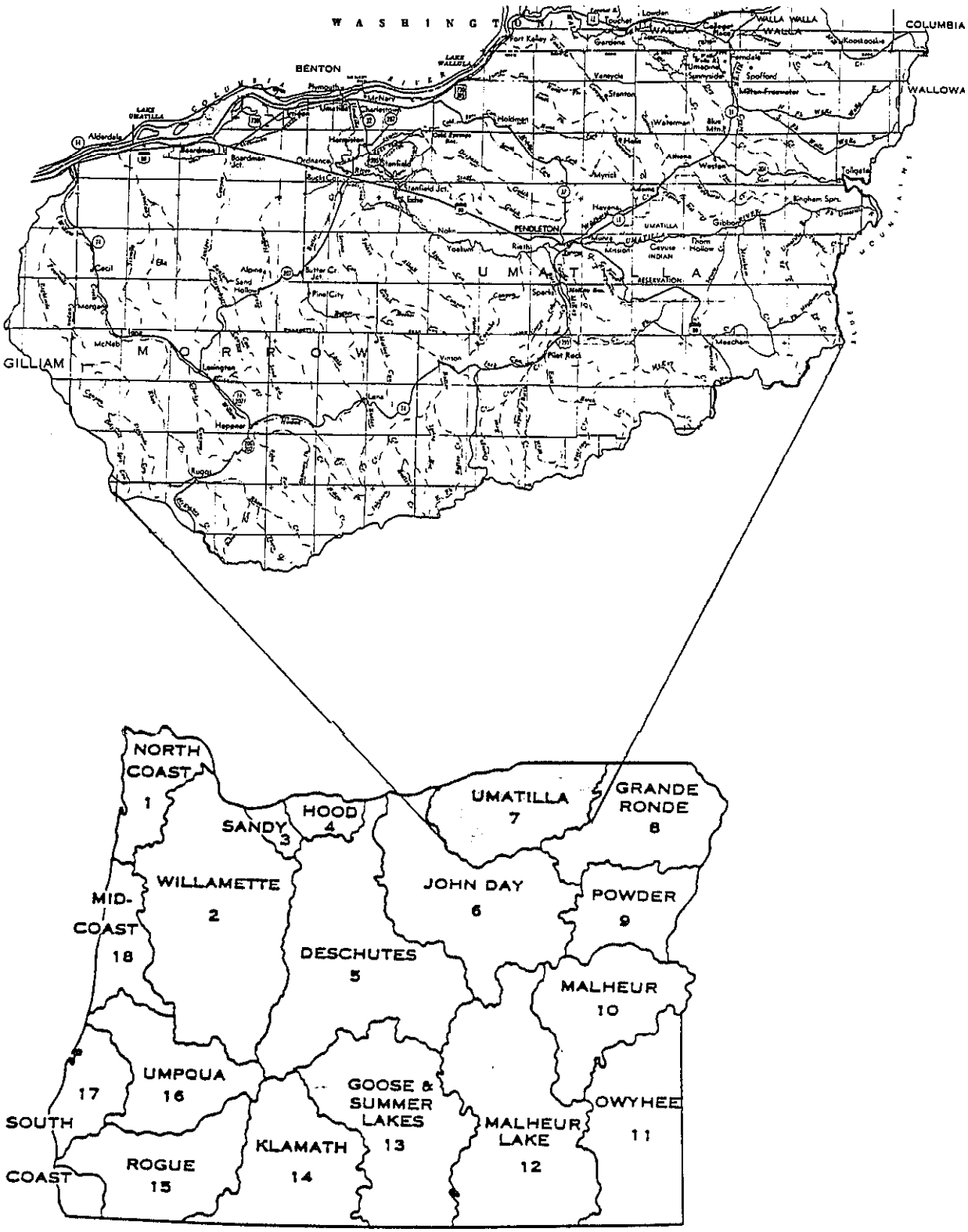


Figure B. Location of the Umatilla Basin within Oregon.

METHODS AND MATERIALS

The goal of the Umatilla Basin Fish Habitat Improvement Program is to apply habitat enhancement measures that will optimize natural production of salmon and summer steelhead smolts within the Umatilla River and its tributaries. To accomplish this goal, work has progressed in four phases:

1. Implementation - Prework
2. Implementation - Onsite Developments
3. Operations and Maintenance
4. Monitoring and Evaluation

In 1993, program emphasis shifted from project implementation to project operation/maintenance (O&M) and monitoring/evaluation (M&E). Methods discussed herein, therefore, are only those associated with O&M and M&E activities.

Operations and Maintenance

Operations and Maintenance (O&M) entails maintaining project structures (ie. fences, livestock water developments, and stream habitat improvements) and any vegetative work (e.g. plantings, weed control, etc.) needed to ensure landowner needs are met and desired future conditions are achieved inside project leases. The O&M phase of the program will continue on each project site for the duration of each projects' respective riparian lease (normally 15 years). Typical O&M activities include:

1. **Project Planning**

Project planning includes design and layout of all maintenance work to be done on-site, landowner coordination, development of contracts and contract specifications, and obtaining necessary work permits.

a. Design and Layout

The layout of maintenance projects (fencing, instream structures, water developments, vegetative plantings, etc.) is usually accomplished in late winter or following spring runoff.

Design and layout of maintenance projects consists primarily of on-site development. Landowners are usually given the

opportunity to review and comment on design and layout of projects. The actual quantity and design of treatments, however, is determined by the biologist and is contingent on the availability of funds, with occasional input provided from other professionals.

b. Landowner Coordination

Landowner coordination is an integral part of maintenance on all projects. Access, field conditions, and work timing are all important considerations to reduce impacts to the land and on landowners' operations.

c. Development of Contracts

Major projects require contracts for the procurement of project materials and the hiring of contractual services. Considerable time is required to develop contracts for all major maintenance projects.

d. Obtaining Work Permits

Fill and removal permits must be obtained for all instream projects that involve removal or fill in a waterway. Permits are obtained from the Army Corps of Engineers, Oregon Division of State Lands, and the Umatilla County Planning Department. Development of permit applications, and correspondence with these agencies requires considerable time and effort.

2. Fencing

Because of intensive livestock use around many project areas, fence inspection and maintenance are year-a-round activities. In addition to corridor fence maintenance, stream cross fences and/or watergap cross fences must be maintained to help keep livestock out of projects. Regular inspection and maintenance ensures maximum riparian recovery inside project leases.

3. Thermographs

Thermographs are placed within project streams to monitor project affects on stream temperature. These monitoring units require periodic inspection to ensure proper recorder

function and to ensure the unit's thermistor cable is in contact with the wetted channel to record true water temperature.

4. **Instream**

Under current watershed conditions, annual inspection and maintenance of instream structures has become necessary. Repeated/prolonged highwater events and/or changes in stream channel morphology can cause habitat structures to fail. To ensure structural integrity and desirable project results, maintenance activities may take place.

Instream maintenance on program projects are done on a case by case basis depending on availability of funds, landowner needs, impact of the structure failure on riparian recovery, and streambank stability.

5. **Revegetation**

A key objective of the Fish Habitat Program is to establish abundant riparian vegetation to reduce soil erosion and provide benefits to aquatic and terrestrial resources. Plantings are made when the biologist and/or other resource specialists determine that natural revegetation is occurring at an unacceptable rate.

Maximum shade attainable for most streams in our project areas is about 80%. The objective of the Umatilla program is to reach a minimum of 70% shade within 20 years of project implementation.

High summer water temperature (July through September) has been identified as a limiting factor for water quality in the Umatilla Basin (ODEQ, 1994). The mainstem Umatilla River and many of its tributaries have been recently listed as “water quality limited" by ODEQ. Revegetating project lease areas helps provide additional stream shade, filter agricultural runoff, improve stream corridor aesthetics, reform aquatic resource diversity, stabilize eroding streambanks, and helps reduce summer water temperatures and increase winter water temperatures.

Re-establishment of maximum stream shade attainable may help project streams achieve compliance with ODEQ water quality

standards. The acceptable range for water temperature in the Umatilla River Basin is ≤ 64°F (17.8°C) (ODEQ Administrative Rules, 1995). Land and/or water use activities which cause streams to exceed state water quality standards are, by law, illegal.

During the spring and fall, areas disturbed inside project leases while conducting maintenance activities are re-seeded with grasses and legumes and/or planted with trees to stabilize soils and discourage weed growth. Since many projects are also within areas of intensive agriculture, noxious weed control is, at times, also necessary. Project areas are monitored throughout the spring and summer for noxious weed occurrence. When discovered, these weeds are either spot sprayed with herbicides or manually removed.

6. Water Developments

To help reduce livestock pressure on riparian fences and habitats, livestock watering sites are being pursued for development away from riparian areas. These projects may involve developing a spring, well, pond, or diverting streamflow into a collection/holding device (e.g. livestock watering trough).

7. Miscellaneous

These activities may include machinery, vehicle, ATV, and other equipment maintenance/repair, project sign maintenance, and animal control.

Animal over utilization of project leases can have a negative impact on project objectives. As riparian zones begin to re-establish, animals (wild and/or domestic) may increase their use of the site. Any use which causes the site to degrade or become static (e.g. beavers dropping trees inside project areas where trees are deficient and rodents targeting grasses and shrubs) should be addressed. To address these type of problems the program consults with district wildlife biologists and addresses the problem according to their recommendations.

Monitoring and Evaluation

This phase of the program usually begins the year following completion of project implementation and continues for the duration of each projects riparian lease (usually 15 years). Monitoring and Evaluation (M&E) is essential to assess the success of this program for restoring stream habitat. Typical (M&E) activities may include:

1. Photopoint Monitoring and Picture Taking

Standardized photographs are taken from selected sites prior to project implementation, and then re-taken annually each fall. Over time these photopoints will provide visual record of habitat changes. Also associated with photopoint monitoring is maintenance of photopoint notebooks. These notebooks contain maps of all photopoint locations, instructions for where and how to take the photographs, and an accumulation of labeled slides and prints. To date the Umatilla program has 56 active photopoint sites.

Aerial photography/videography is another tool available for assessing stream channel and riparian vegetative change over time. The habitat biologist spent time during 1995 exploring these new monitoring techniques and is considering them for future program use.

2. Habitat Monitoring Transect Establishment and Data

Within selected project areas, permanent habitat monitoring transects have been established. These sites are used to measure channel morphology and vegetative response to habitat enhancement activities. These measurements should be repeated at regular intervals (3-5 years) for comparative purposes.

3. Thermograph Data Collection and Summarization

Thermographs have been installed within or adjacent to several project areas. These thermographs are operated year round, collect one temperature reading per hour, and are deployed for up to six month intervals (maximum data storage capacity of the thermograph). The program uses thermographs to detect temperature changes. Data is downloaded into a computer program after each deployment period and

summarized. Results of the data help determine if project goals for improving stream temperature are being met.

During 1994/95 the program deployed thermographs at six locations on Birch Creek and two locations on Meacham Creek (Figure C). Birch Creek thermographs are placed in Westgate Canyon Creek (RM 0.75), East Birch Creek on the Houser property (RM 8.5), West Birch Creek on the Harvey property (RM 15) and at the Hwy. 395 bridge (RM 2), and Birch Creek on the McDanial property (RM 6.5) and Straughan property (RM 3.5). Distance from the upper thermograph site on East Birch Creek to the lower thermograph site on mainstem Birch Creek is approximately 19.5 miles. The West Birch Creek thermographs are located approximately 13 miles apart. Meacham Creek thermographs are deployed on the Louisiana Pacific property and are placed approximately 1 stream mile apart. In 1992, the program began operating thermographs on a year round schedule.

4. Biological and Physical Habitat Surveys

Biological surveys help resource managers assess the ecological roles and habitat requirements of fish and wildlife. Information on the habits and habitat requirements of species life history stages is very useful. This information can be critical not only to effective management of fish and wildlife resources, but also to evaluation of the impacts of mans' activities on specific populations or ecosystems.

Biological surveys conducted by program personnel incorporate fish capture techniques to gather baseline information on fish/fish populations residing in project streams. Data collected can provide insight to the presence/absence, abundance, distribution, season of use, age/species composition, and habitat preference(s) of the species sampled. Data collected within project leases are for informational purposes only and are not statistically valid for answering questions regarding biomass or population gains from habitat projects.

6. Miscellaneous Field Activities

Miscellaneous monitoring and evaluation activities may include salmonid redd counts, aerial observations of project

areas, evaluation of riparian vegetative recovery and/or planting success, and monitoring of logging activities adjacent to project areas.

Proposed instream work activities that may affect project sites are also reviewed by the habitat biologist (e.g. fill and removal permit applications). The habitat biologist provides technical input on a project's design; requests additional information not presented in the original application(s); and, in some cases, recommends rejecting an application as proposed due to negative impact(s) the project will have on fish and/or fish habitat.

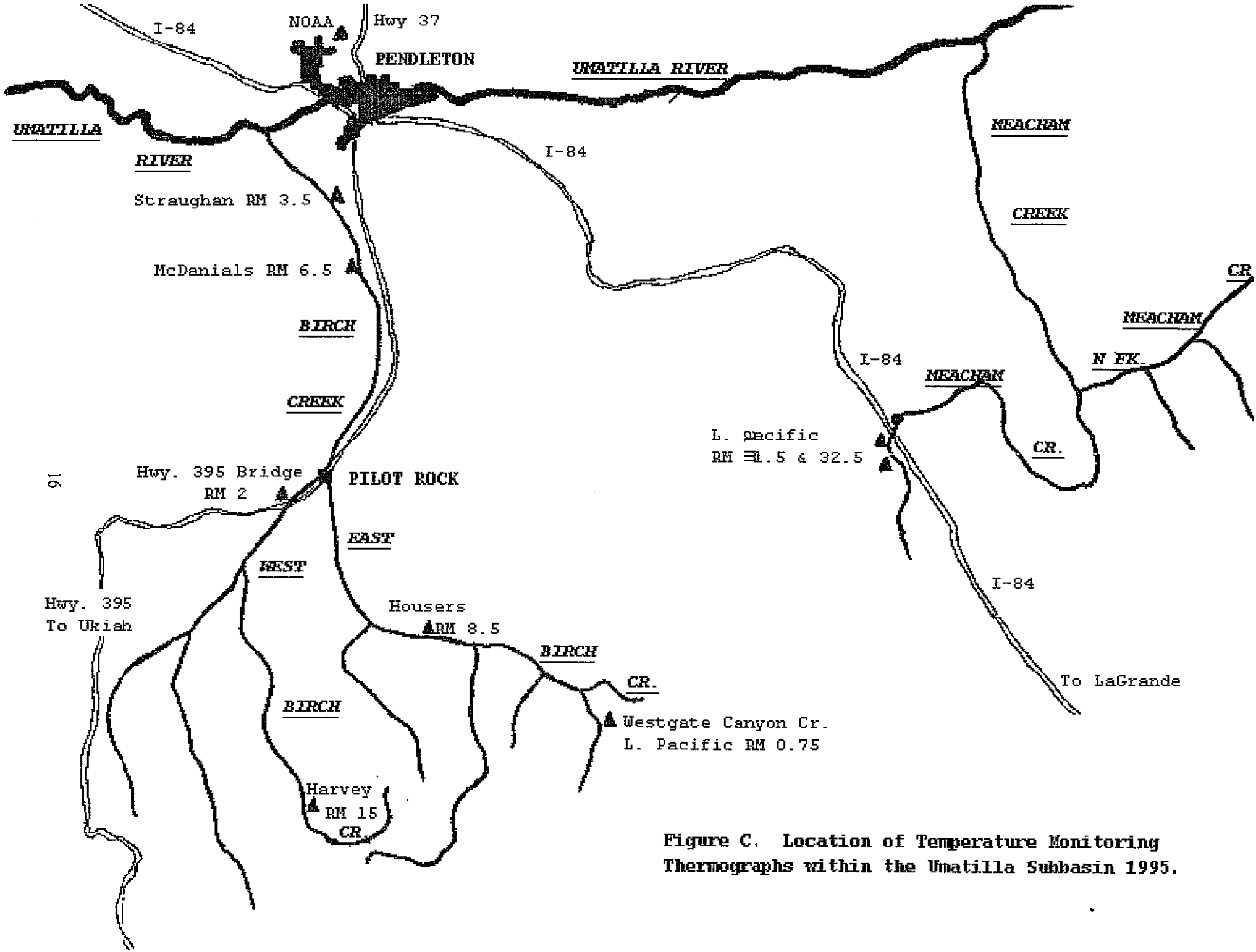


Figure C. Location of Temperature Monitoring Thermographs within the Umatilla Subbasin 1995.

All 1995 field work was associated with either O&M or M&E activities.

Operations and Maintenance (O&M)

The Umatilla Basin experienced a relatively cold/wet winter with a normal snowpack. Rain on snow and localized cloudbursts in the Upper Umatilla Basin produced flashy flow conditions during the late winter/early spring. These weather conditions produced a flood in Birch Creek almost equivalent to the flood record set for this subbasin in the winter/spring of 1965[1]. On project leases, the flood of 1995 caused streambank erosion, bedload deposition, channel migration, riparian vegetation loss, and moderate damage to project fences, watergaps, and instream habitat structures.

In addition, above normal precipitation and cooler than normal temperatures persisted throughout the summer/early fall. As a result there was year round streamflow inside all project leases for the first time since 1988.

Maintenance Work Planning

There are four stages included in maintenance planning: a) design and layout, b) landowner coordination, c) development of contracts and contract specifications, and d) obtaining work permits.

a. **Design and Layout.** Project design and layout was completed for fence reconstruction work on 0.25 miles of Birch Creek, and 0.5 miles of East Birch Creek.

b. **Landowner Coordination.** Considerable time was spent coordinating with landowners while developing plans for project maintenance.

A comprehensive fish and wildlife habitat improvement project was developed and implemented on the D. Lobato property on lower Birch Creek. This project addresses a multitude of fish and wildlife habitat deficiencies

[1] Records have been kept for this subbasin since 1928 by the Oregon Water Resources Department.

using bioengineering restoration techniques. The habitat biologist worked in cooperation with Agua Tierra Environmental Consulting Inc. (ATEC) a bioengineering consulting firm, other ODFW biologists, participating agencies, volunteers, and local resource groups to bring this project together.

To implement the Lobato project, sponsor-ship and funding from a variety of sources was obtained. The objectives are to demonstrate an array of bioengineering techniques, provide hands on training to project participants, and furnish a long-term educational project for the local community.

The habitat biologist worked with Interfluve Inc. (another bioengineering consulting firm) to develop bioengineered maintenance treatments for three East Birch Creek leases (Appendix 3). Landowner coordination was a integral element in bringing this work from conceptual design to on the ground implementation; most landowners are very skeptical about trying "soft" streambank restoration approaches in lieu of the traditional "hard" bank treatments (rip-rap).

The habitat biologist also coordinated with landowners along Birch and Meacham Creeks regarding:

- weed and beaver control activities inside leases.
- review of timber harvest operations adjacent to to leases.
- weed control activities implemented adjacent to leases.
- relocation and reconstruction of fences destroyed by the May 1995 flood.
- maintenance activities conducted inside leases.
- instream work activities conducted by landowners inside leases.

habitat restoration information requested by landowners.

c. **Development of Contracts.** Contracts were developed for maintenance and/or restoration of projects.

A weed control contract was developed with the Umatilla County Weed Control Department for treating noxious weeds within project areas.

A debris removal contract was developed for the cleanup of the storage compound at the Pendleton District Office. Slash derived from the storage of trees and rootwads was removed.

The program leader, habitat biologist, and ODFW engineers, developed maintenance contracts for bioengineering treatments on three East Birch Creek leases. Inter-fluve Inc. was hired to assess two stream reaches, and subsequently developed a restoration plan and assisted the program with project implementation.

Contracts were also developed for design and implementation of the Lobato bioengineering demonstration project.

d. **Obtaining Work Permits.** Three instream work permits and one instream blasting permit were obtained to conduct work activities during 1995. Instream work permits were obtained through the Oregon Division of State Lands (ODSL) and U.S. Army Corps of Engineers (USACOE). The instream blasting permit was obtained through ODFW Habitat Conservation Division to facilitate removal of an abandoned irrigation diversion dam.

Maintenance Work Preparation

All maintenance work sites needing identification were appropriately marked. Sites were prepared for work activity (e.g. riparian fencing was temporarily removed, sensitive areas marked for protection, and access routes to work areas were pre-approved by landowners).

Maintenance Work Implementation

Bioengineered streambank restoration and instream habitat improvement work was implemented on the D. Lobato, J. Houser, A. Falk, and T. Rugg properties. Restoration work was completed on three of these leases. The D. Lobato project was broken into two construction phases, of which phase one work was completed during the reporting period.

Fish habitat projects in the Umatilla program encompass 5.7 miles of Birch Creek, 2.8 miles of East Birch Creek, and 2.1 miles of Meacham Creek respectively (Table 5).

Routine maintenance work was implemented on all program leases. These activities however, could not address all problems in severe flood impacted areas due to budgetary limitations. Instead, many areas had to be assessed, work prioritized based on available funds and scheduled for treatment in 1996 or later.

Fencing

Approximately 15 miles of project fencing was inspected and routine maintenance completed. Of these 15 miles of fence, approximately 0.75 miles was rebuilt with permanent high tensile steel fence. In areas where permanent corridor fence was lost during the 1995 flood, temporary fence (electric and/or barbed wire) was installed. Total length of temporary fence constructed during 1995 was 1.75 miles.

Temporary fence will have to be used at many of our project sites until a long term solution for streambank stabilization and fish habitat enhancement can be developed. This solution will probably require negotiating a wider riparian corridor with landowners.

Approximately 100 yds. of electric push wire was added to the McDanial lease fence. Watergaps and stream crossing fences also had to be rebuilt. Several of these structures were replaced with electrical polywire; a very effective and inexpensive alternative for hardwire fence replacement after floods

During 1995 a falling market on beef prices caused many of our leasees to keep animals that ordinarily would have been

sold. Consequently, herd size and grazing pressure increased substantially around our habitat leases as the year progressed. Overgrazed pastures were common by mid-summer as operators held on to their animals in hopes of a reversal in market prices. Fence monitoring by program personnel had to be increased appreciably as the forage within our riparian exclosures became more enticing for livestock. Several incidents of livestock trespass were encountered.

Thermographs

Thermographs were checked periodically throughout the year for maintenance and repair needs. Occasionally, especially after high water events, some of the sensor cables had to be placed back in the stream channel after high waters receded.

Instream

Instream structures were inspected along 8.6 miles of Mainstem and East Birch creeks and 2.2 miles of Meacham Creek.

Bioengineering treatments were tried on the J. Houser, T. Rugg, and A. Falk leases. A major bioengineering demonstration project using a wide array of these techniques was also initiated on the D. Lobato property on lower Birch Creek. On the program leases, bioengineering work consisted of the following: Installation of 10 weirs to establish grade control within a heavily incised stream reach, streambank stabilization utilizing biodegradable coir fabric/streambank re-shaping/hay mulching/dead stout staking/and live plant cuttings, log/rootwad configuration placements, live post treatments, live willow/cottonwood staking, grass seeding, and bank toe stabilization. Pictures of this work and treatment design typicals are illustrated in Appendix 3.

On the Lobato project, phase one work consisted of completion of all instream work (bank toe stabilization, removal of an abandoned irrigation diversion dam, channel regrading, installation of five weirs and five barb structures for channel grade control, streambank reshaping, and wildlife pond contouring).

Approximately 50 logs with limbs and rootwads attached were donated to the program for fish habitat enhancement work (Appendix 4). A new addition to the Pendleton high school that required the removal of the trees made this possible. During the reporting period, 30 of the trees were installed instream. Twenty six trees were used in conjunction with bioengineering treatments. Four trees were installed for streambank erosion control on two leases.

Revegetation

Weed control activities were conducted along six miles of Mainstem and East Birch creeks. Treated properties included the Gambill, Hemphill, Hoeft, Houser, Magic Mile, McDaniel, Rhinhart, F.E. Straughan, J. Straughan, Wheeler, and W. Weinke properties.

Deciduous tree plantings on Birch Creek program leases were conducted during 1995. This was done to complement pre-existing habitat improvement work, and as a major construction component of bioengineering projects. Deciduous tree cuttings were collected throughout the winter of 1994/95 and planted in the spring of 1995. They were also collected/installed during late fall 1995. Approximately 50,000 willow and 5,000 cottonwood cuttings were collected; 20,000 willow and 1,600 cottonwood cuttings were actually planted during the report period. Projects treated included: Falk, Gambill, Houser, Lobato, McDanial, Rhinhart, Rugg, and J. Struaghn. Considerable effort was required to accomplish this part of our annual work. Assistance from other BPA habitat projects, ODFW programs, CTUIR Salmon Corps program, and numerous volunteers were critical to making this effort possible. A conservative estimate of 2,000+ volunteer hours were donated to this aspect of our program. Project sites planted were identified by the need to improve streambank stability and/or improve channel shading.

Water Development

No water developments were installed during the report period.

Miscellaneous

Machinery, vehicle, ATV, and equipment maintenance were completed as needed throughout the year.

The program's backpack electroshocker was serviced in preparation for the 1995 summer field sampling season.

Approximately 75 cottonwood trees on Birch Creek project leases were wrapped with protective wire to discourage beaver depredation.

TABLE 5. FISH HABITAT PROGRAM RIPARIAN PROJECTS WITHIN THE UMATILLA RIVER BASIN.

BIRCH CREEK: Landowner	Year Imp.	Fence Miles	Acres Leased	Stream X-ings	Water Gaps	Stream Miles	Instream Structures
F. Straughan	89	0.69	5.8	4	2	0.31	21
J. Strauahan	90	0.84	17.2			1.00	3
McDaniel>	**89**	1.75	20.3	**9**	4	**0.90**	42
Rhinhart	**89**		22.1			**0.63**	40
B. Weinke	**90**	0.50	**5.8**	3	2	0.50	**4**
Hoeft	**90**	0.50	21.0	2	**1**	1.00	1
Hemphil	89	0.38	10.0	1	1	0.25	
Gambill	90	1.25	12.9		3	0.70	21
W. Weinke	89	0.65	17.9	4	2	0.44	14
Totals:		6.56	133.0	23	15	5.73	146

E.BIRCH CREEK: Landowner	Year Imp.	Fence Miles	Acres Leased	Stream X-ings	Water Gaps	Stream Miles	Instream Structures
Magic Mile	89	1.75	21.2	12	6	0.70	27
Rugg	89	0.45	10.4	3	1	0.31	
Houser	88	2.01	33.6	11	5	1.13	6
L. Pacific	89	1.25	11.4	6	2	0.70	
Totals:		5.46	76.6	32	14	2.84	33

MEACHAM CREEK: Landowner	Year Imp.	Fence Miles	Acres Leased	Stream X-ings	Water Gaps	Stream Miles	Instream Structures
L. Pacific	89	0.90	15.4	4	1	0.65	
L. Pacific	91	0.50	23.5	4	3	0.60	32
F.R.Inc/Twomile	92	1.70	**18.3**	4	3	**0.94**	
Totals:		3.10	57.2	12	7	**2.19**	32
All Projects Total :		15.12	266.8	67	36	10.76	211

Monitoring and Evaluation

1. Photopoint Monitoring and Picture Taking

Photopoint pictures (35mm color slides) were taken during the month of September from 13 Meacham Creek and 43 Birch/East Birch Creek photopoint sites. This activity encompassed all program leases. Selected photopoint pictures depicting project progress are included in this report.

2. Habitat Monitoring Transects and Data Collection

Habitat monitoring transects were not sampled during 1995.

3. Thermograph Data Collection & Summarization

Water temperature has been identified as a key component in the selection of habitat utilized by juvenile salmon and steelhead (Meehan, 1991). Juvenile salmonids exhibit a tolerance threshold for minimum and maximum water temperatures. Lethal limits for chinook salmon have been reported as 26.2 °C and 0.8 °C respectively; and 23.9 °C and 0.0 °C respectively for steelhead. The preferred ranges are 12-14 °C for chinook, and 10-13 °C for steelhead.

Juvenile salmonids respond to unfavorable water temperatures by moving to thermal refuges. It is important to note that when temperatures approach each species tolerance threshold, a proportional reduction in the amount of total habitat available develops for that species. As temperatures in a stream increase, salmonids will begin to concentrate in smaller areas within suitable stream habitat. This concentration may increase the competition for space, food, oxygen, and can make the fish more susceptible to disease and predation. Invasion of non-native fish species can also be expected. This, in turn, can increase predation on salmonids and further increase competition for the diminishing available habitat (Ebersole, et.al., 1994).

All hourly temperature data for 1994/1995 was summarized and graphed as weekly and monthly average maximum, minimum and mean temperatures (Appendix 1, figures l-14).

From July through September, four of the six stations within the Birch Creek drainage recorded average mean weekly maximum temperatures that exceed state water quality standards for the respective streams. (Appendix 1, figures 1 & 2). Temperatures of this magnitude can have a negative effect on salmonids.

Monthly minimum and maximum air[1] and water temperatures were also plotted for some of the sampling stations monitored during 1994/1995 (Appendix 1, figures 15-18). Due to a lack of thermographs, the program is limited to recording only stream temperatures at this time. To accurately evaluate the effects of riparian habitat restoration and its relationship 'co stream temperature, air and water temperature should be recorded simultaneously at each of the monitoring sites.

Currently the NOAA data is the best information available for depicting air temperature conditions over our Lower Birch Creek thermograph sampling sites. Other thermograph sampling sites are located at substantially higher, and therefore cooler, elevations than the NOAA Pendleton airport site.

At this time the program has insufficient information to detect trends in water temperature changes directly related to our projects. Some of the physical and biological changes from upper to lower parts of the Birch and Meacham Creek watersheds can be explained by the natural continuum of ecological process within the stream system (Vannote et. all. 1980). However, intensive land uses that occur throughout the drainage have drastically changed the riparian plant community which shapes the physical, biological, and hydrological components of the stream (Cummins 1984). These uses are most pronounced in the lower reaches. Therefore, trends in these data are greatly influenced by land use practices that occur throughout the drainage. To what extent this occurs, however, cannot be quantified with the information available. Influences such as the impacts of the 1991, 1994, and 1995 basin wide floods further complicate this endeavor. We predict air temperature will continue to have a major influence on water

[1] Using maximum and minimum monthly air temperature readings taken at the Pendleton Airport's National Oceanic and Atmospheric Administration (NOAA) weather station as a reference.

temperature in our project streams until vegetation increases within the riparian corridors. As long as project areas are maintained, riparian habitat should continue to improve.

The habitat biologist used a Qpro summarization program to summarize the temperature data for this report. There are occasional data recording errors produced by the programs' thermographs that go undetected when using other data summarization programs. This discovery means all temperature data collected in previous years (except for 1993/94 which also was summarized with the Qpro program) will need to be re-summarized to see if corrections are necessary. Re-visiting this data will also allow us to standardize data (for all years) into a single format and thus make comparative analysis between sampling years possible. For this annual report the biologist only summarized the 1994/1995 temperature data. An effort will be made to re-summarize the previous years temperature data in the future.

4. Biological and Physical Habitat Monitoring

A 50 meter reach on Meacham Creek within the Louisiana Pacific lease was sampled during mid-summer 1995 for species composition information. This same area was sampled in 1992 - 1994 (Appendix 2, figure 19). Species composition was similar to that observed in 1992 and 1993. Salmonid species composition was 18%, 23%, and 16% for 1992,93, and 95 respectively, and 66% in 1994.

Project personnel also assisted ATEC and Interfluve Inc. with three site surveys in preparation for bioengineering project implementation. Data collected was used to design instream and streambank restoration treatments for these projects.

RESULTS AND DISCUSSION II. ADMINISTRATION

Administrative

Administrative activities during 1995 included preparation of reports and data summaries, budget preparation and purchasing, program development, personnel hiring and supervision, and contract administration.

Reports and Data Summaries

In compliance with our contract, annual and monthly progress reports for the Umatilla Fish Habitat program were prepared and submitted to BPA.

A watershed assessment of Birch Creek was developed by ATEC as part of their contractual obligation for the Lobato bioengineering project. ATEC and Interfluve Inc. both satisfactorily completed their project designs and plans.

Information for the 1995-1996 Statement of Work and Budget was submitted to the Program Leader for contract preparation.

Project personnel wrote and submitted a habitat survey summary report (West Birch Creek) to the ODFW Aquatic Inventories Program. This report will assist the Aquatic Inventories staff in their analysis of the data our program collected from West Birch Creek during the summer of 1994.

Certificates of appreciation were sent to the speakers and sponsors of the bioengineering workshop that the program helped sponsor in Pendleton during February of 1995.

Budgets/Purchasing

The Habitat Biologist and District Fish Biologist wrote and submitted grant applications (GWEB, R&E, Embrace a Stream, USDA Ag program, etc.) for the Lobato bioengineering demonstration project begun in 1995. Approximately $85,000.00 was obtained by these efforts.

Field supplies, office supplies, and project maintenance materials were purchased as needed throughout the year.

Major purchases included: two handheld two-way radios, a new program computer system, a used 4x4 extend-a-hoe backhoe, and two stinger planting tool attachments.

Program Development

The program spent considerable time implementing three bioengineering demonstration projects. These projects were essential for bringing new habitat restoration techniques to the basin for program personnel and landowners to consider for future stream habitat restoration projects.

Bioengineering techniques are heavily weighted on the use of vegetative techniques in lieu of hard structural approaches to solve erosion problems. The program hired two bioengineering consulting firms to survey and design prescribed treatments for three demonstration projects. The two firms were also contracted to assist with the implementation of their respective designs to ensure quality control. The program gained valuable hands-on experience by working with the two firms.

Personnel

Mr. Michael Montgomery resigned in May from his seasonal employee position to take another job. Mr. Doug Sheppard occupied the position from July through September and Mr. John Gordon filled the position throughout the remainder of the report period. Seasonal employees spent the majority of their time on project maintenance and implementation of the bioengineering projects.

Performance evaluations were written for all three employees.

Contract Administration

Noxious weed control, slash removal, Bioengineering consulting/project plan development, heavy equipment operation, project materials, and bioengineering project implementation contracts were administered by project personnel during 1995.

INTERAGENCY COORDINATION/EDUCATION

Interagency Coordination

The habitat biologist worked with Umatilla County Weed Control on noxious weed problems within the program's habitat leases.

Meetings were held with the Oregon Department of Environmental Quality (ODEQ) and Oregon State Police (OSP) respectively to address a solid waste dump problem that affected our program leases (Appendix 3). The dump, located within a former oxbow just upstream of the 0. Rhinhart lease on lower Birch Creek, washed out during the May 1995 flood and deposited its contents on gravel bars and streambanks. The habitat program notified affected program leasees and requested ODEQ to notify the dump owner and mandate a cleanup of the materials on behalf of our leasees.

The habitat biologist attended monthly meetings of the Umatilla and Walla Walla Basin Watershed Councils, Blue Mnt. Chapter of Trout Unlimited, and Umatilla SWCD.

The habitat biologist attended district meetings with OSP and ODEQ to discuss environmental violations, policies and procedures.

The habitat biologist worked cooperatively with the Confederated Tribes of the Umatilla Indian Reservation's (CTUIR)fish habitat biologist on various habitat restoration issues throughout the year.

The habitat biologist coordinated with ODFW Aquatic inventory program staff to facilitate completion of the field work data collected by project personnel on West Birch Creek during 1994.

Trout Unlimited habitat project funding sources were reviewed with the TU. program's Project Coordinator. The habitat biologist will seek these funds for future habitat restoration opportunities.

A proposal was written and submitted to the Apprenticeship in Science and Engineering (ASE) summer youth program in an

attempt to obtain a summer student employee to assist with program projects.

A cooperative agreement was developed with the Union Pacific Railroad (UPRR) on the Lobato Bioengineering Demonstration Project. Streambank erosion threatened to undermine the UPRR's Pilot Rock line which bisects the project treatment reach. The UPRR donated $11,550.00 to the project in exchange for addressing their erosion problem. The erosion problem was corrected using streambank stabilization techniques that will simultaneously improve fish and wildlife habitat. Cooperative agreements were also developed with Trout Unlimited, Umatilla Basin Watershed Council, Umatilla County Soil and Water Conservation District, Weyerhaeuser Corp., USFS Umatilla National Forest, Oregon State Forestry, Umatilla Co., and CTUIR Salmon Corps Program for this same project.

Education

The following educational activities were undertaken during 1995:

Project personnel helped staff a ODFW display booth at the Pendleton sportsmen's show. A pictorial display of the Umatilla fish habitat program was developed to help increase public awareness about habitat restoration activities occurring within the Umatilla River Basin.

Informational letters were sent to, and educational meetings were held with, project cooperators whose property was improved by the bioengineering projects. This communication was necessary to gain acceptance for the new techniques we implemented.

Copies of our BPA Annual reports were provided to various interests upon request.

A video tape presentation of the February 1995 Streambank Stabilization workshop (Bioengineering Techniques) was completed. Copies of the tape and an accompanying workbook were mass produced for distribution to agencies and the general public.

The habitat biologist was interviewed twice by the East Oregonian Newspaper. Articles were written about the bioengineering projects implemented this year. One article focused on the use of wood in streams for fish habitat improvement, and the other discussed the intricacies of bioengineering techniques and their application for streambank stabilization.

A presentation on the ODFW/BPA Umatilla Subbasin Fish Habitat Improvement Program was given to the Umatilla Basin Watershed Council.

A ODFW/BPA fish habitat program tour of our Birch Creek leases was given to approximately 60 people who were attending a day long weed and crop tour.

A tour of the Umatilla Basin bioengineering projects was facilitated with representatives from the Army Corps of Engineers who are considering using similar techniques in projects they design.

REFERENCES

Beschta, R.L., 1994. Restoration of Riparian/Aquatic Ecosystems in Eastern Oregon: Turning Back the Clock to Understand the Future. Department of Forest Engineering, Oregon State University. Presented at the Annual Meeting of the Oregon Chapter of the American Fisheries Society.

Cummins, K.W., G.W. Minshall, J.R. Sedell, C.E. Cushing, and R.C. Petersen. 1984. Stream ecosystem theory. Verh. Internat. Verein. Limnol. 22:1818-1827.

Ebersole, J., Frissell, C. and Liss, B. 1994. Invasion of Non-Native Fishes in Northeast Oregon and Western Montana Streams: Potential Impacts of Climate Change. Oregon State University. Presented at the Annual Meeting of the Oregon Chapter of the American Fisheries Society, 1994.

Meehan, William R., Editor, 1991. Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats, American Fisheries Society Special Publication 19, Bethesda, Maryland, 1991.

National Oceanic and Atmospheric Administration 1992 and 1993, Local Climatololgical Data, Annual Summary with Comparative Data, Pendleton Oregon. 1992:8p, 1993 Preliminary Data:12p.

Northwest Power Planning Council. 1987. Columbia River Basin Fish and Wildlife Program. Portland, Oregon.

Northwest Power Planning Council. 1990. Integrated System Plan for Salmon and Steelhead Production in the Columbia River Basin. Columbia River Basin Fish and Wildlife Program. p117-121. Portland Oregon.

Oregon Department of Environmental Quality, Water Quality Division. January, 1993. Oregon Administrative Rules. Chapter 340, Division 41 - Department of Environmental Quality. 50-Div.41-54-Div.41.

Oregon Department of Environmental Quality, Oregon's 1994 Water Quality Status Assessment Report [305(b)]. April, 1994. Chapter 3, pg 6.

Oregon Department of Fish and Wildlife. 1993. Aquatic Inventories Project. Stream Survey Methods. 40p.

Oregon State Game Commission. 1963. The Fish and Wildlife Resources of the Umatilla Basin, Oregon, and their water use requirements. Report of the State Water Resources Board. Portland, Oregon.

Oregon Water Resources Department. 1988. Umatilla Basin Report. August 1988. 246p.

Thompson, R.N., and J.B. Haas. 1960. Environmental survey report pertaining to salmon and steelhead in certain rivers of eastern Oregon and the Willamette River and its tributaries. Part I. Survey report of eastern Oregon rivers. Fish Commission of Oregon, Fish Research Project, 14-17-001-178, Completion Report, Clackamas Oregon.

U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1982. Eastern Oregon Anadromous Fish Habitat Restoration Project. Umatilla River Basin Planning Aid Report. Portland, Oregon.

Vannote, R.L., G.W. Minshall, K.W. Cummins, J.R. Sedell, and C.E. Cushing. 1980. The river continuum concept. Can. J. Fish. Aquat. Sci. 37:130-137.

APPENDIX – 1
THERMOGRAPH DATA

Figure 1. Mean Weekly Maximum Temperature for Birch (B), East Birch (EB), and Westgate Canyon (WC) Creeks. May 1, 1995 through October 22, 1995.

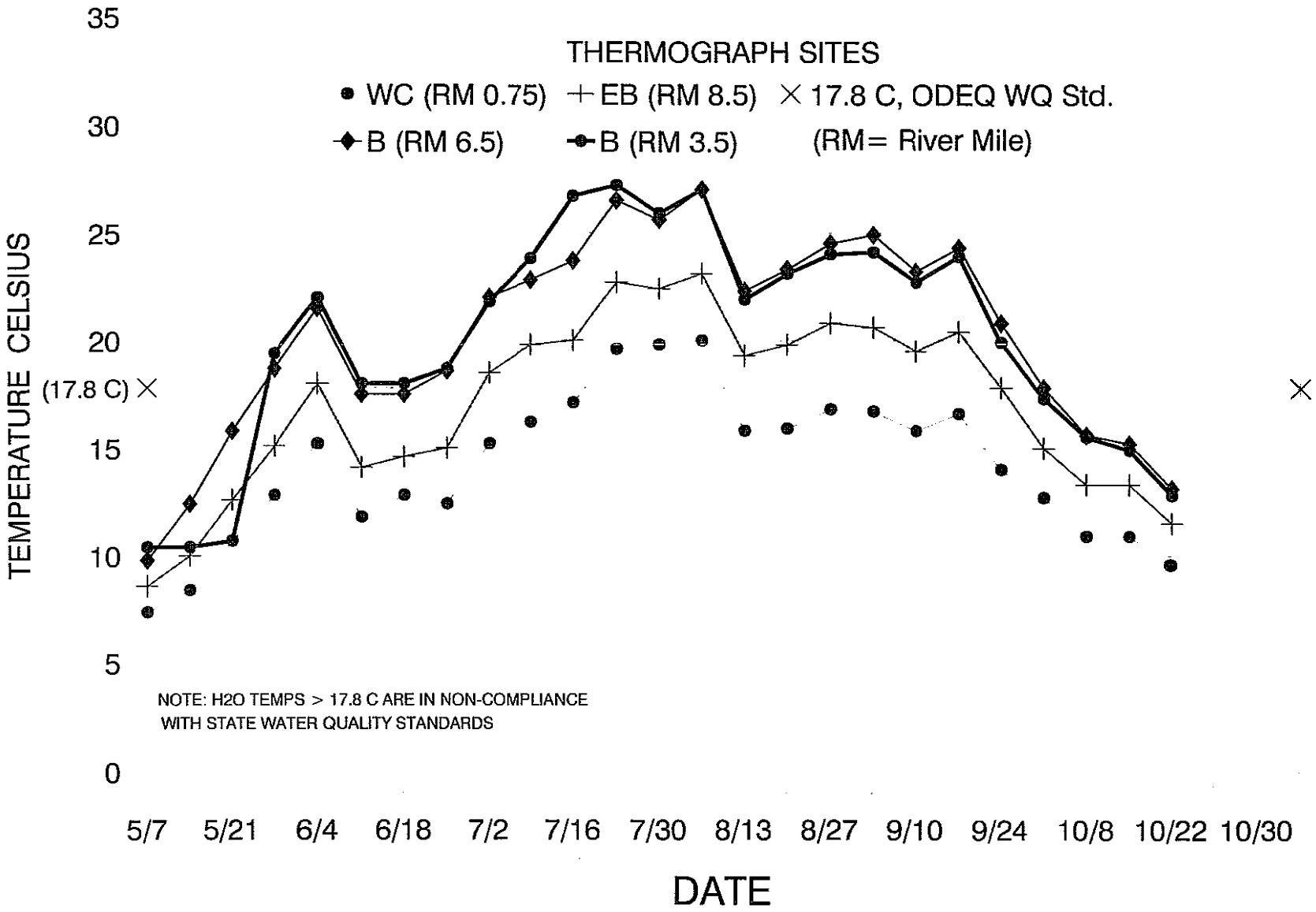


Figure 2. Mean Weekly Maximum Temperature for West Birch (WB)Creek. May 1, 1995 through October 22, 1995.

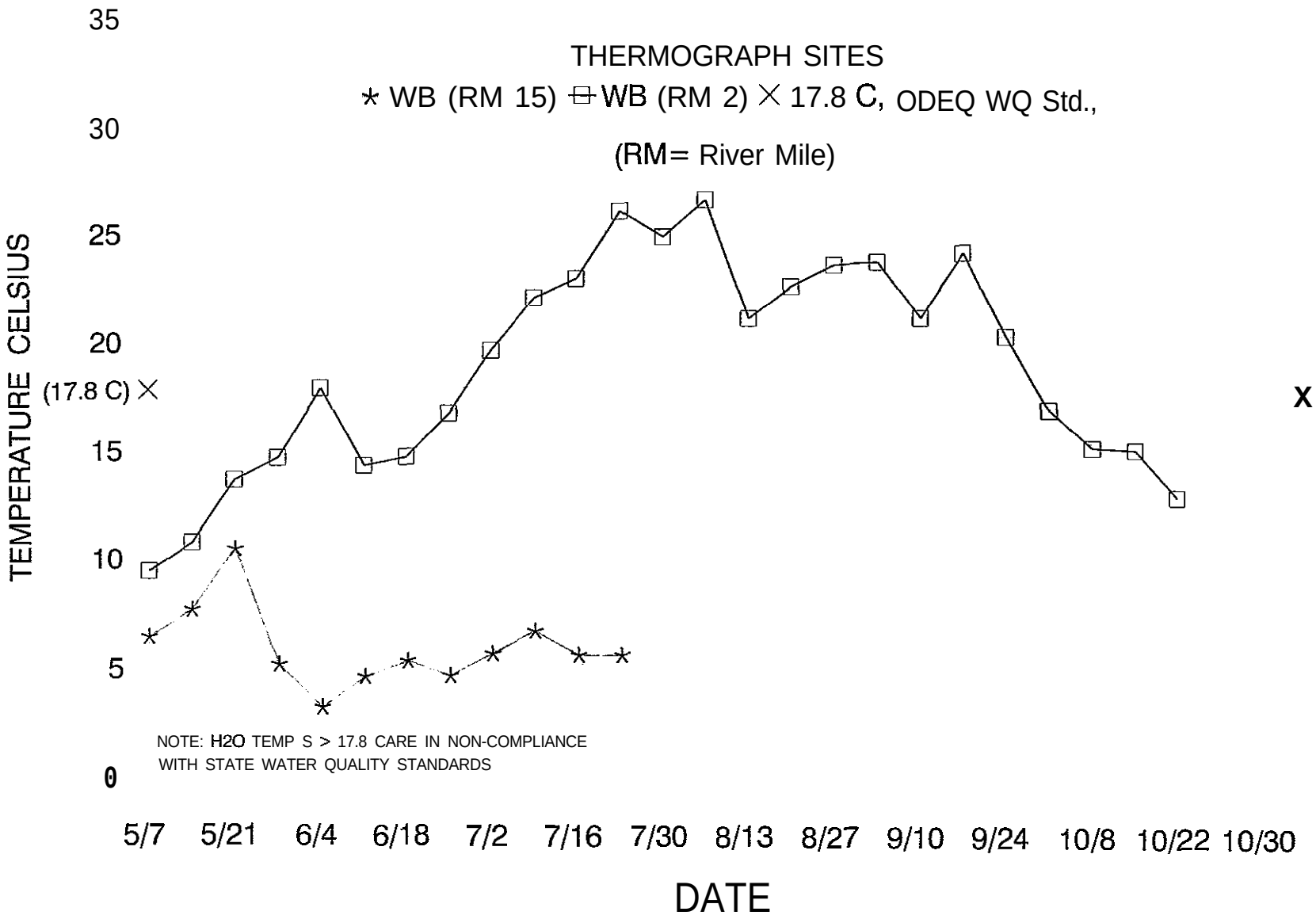


Figure 3. Mean Weekly Maximum Temperature for Meacham Creek (MC). May 1, 1995 through October 31, 1995.

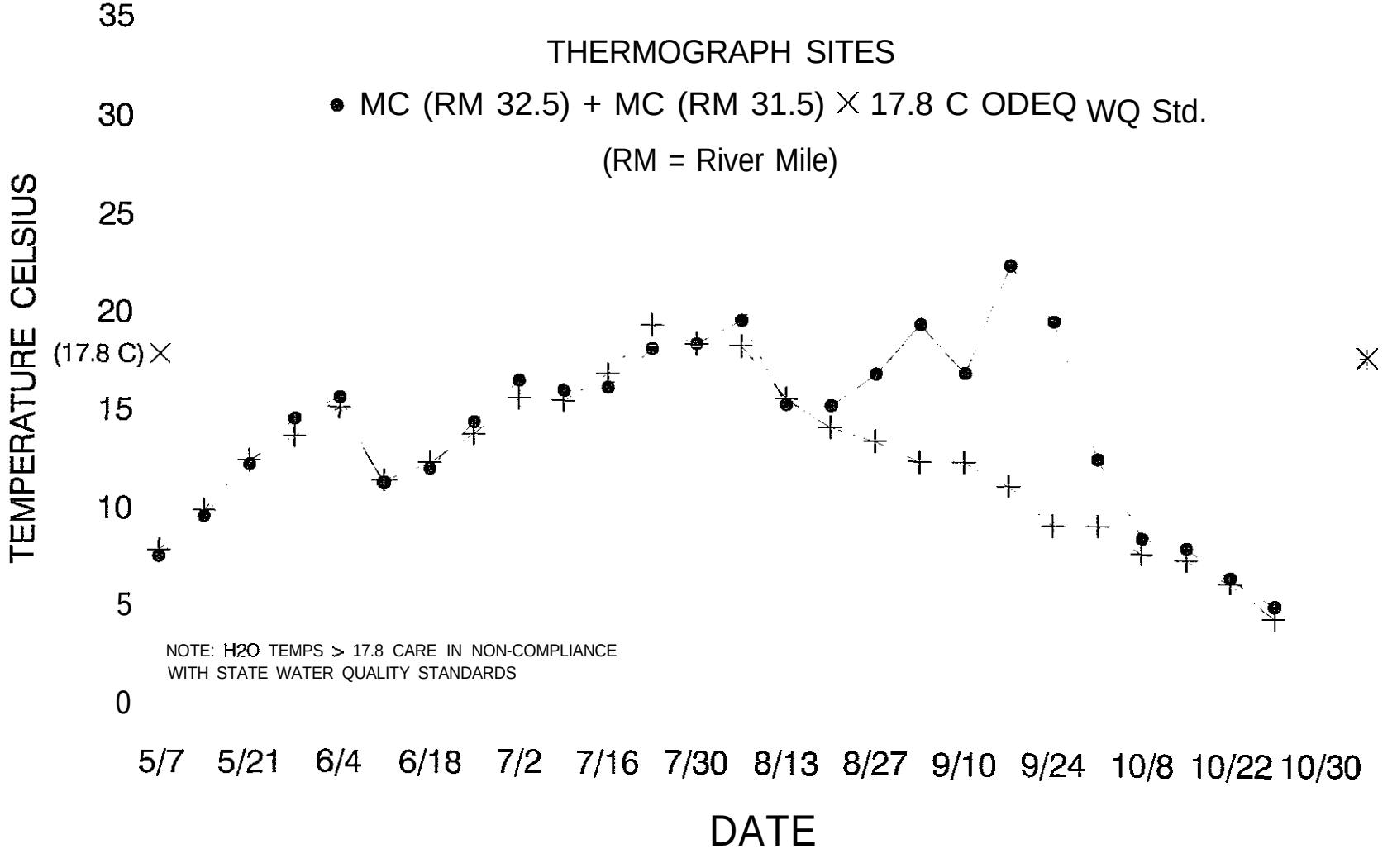


Figure 4. Mean Weekly Minimum Temperature for Birch (B), East Birch (EB), and Westgate Canyon (WC) Creeks. November 1, 1994 through April 30, 1995.

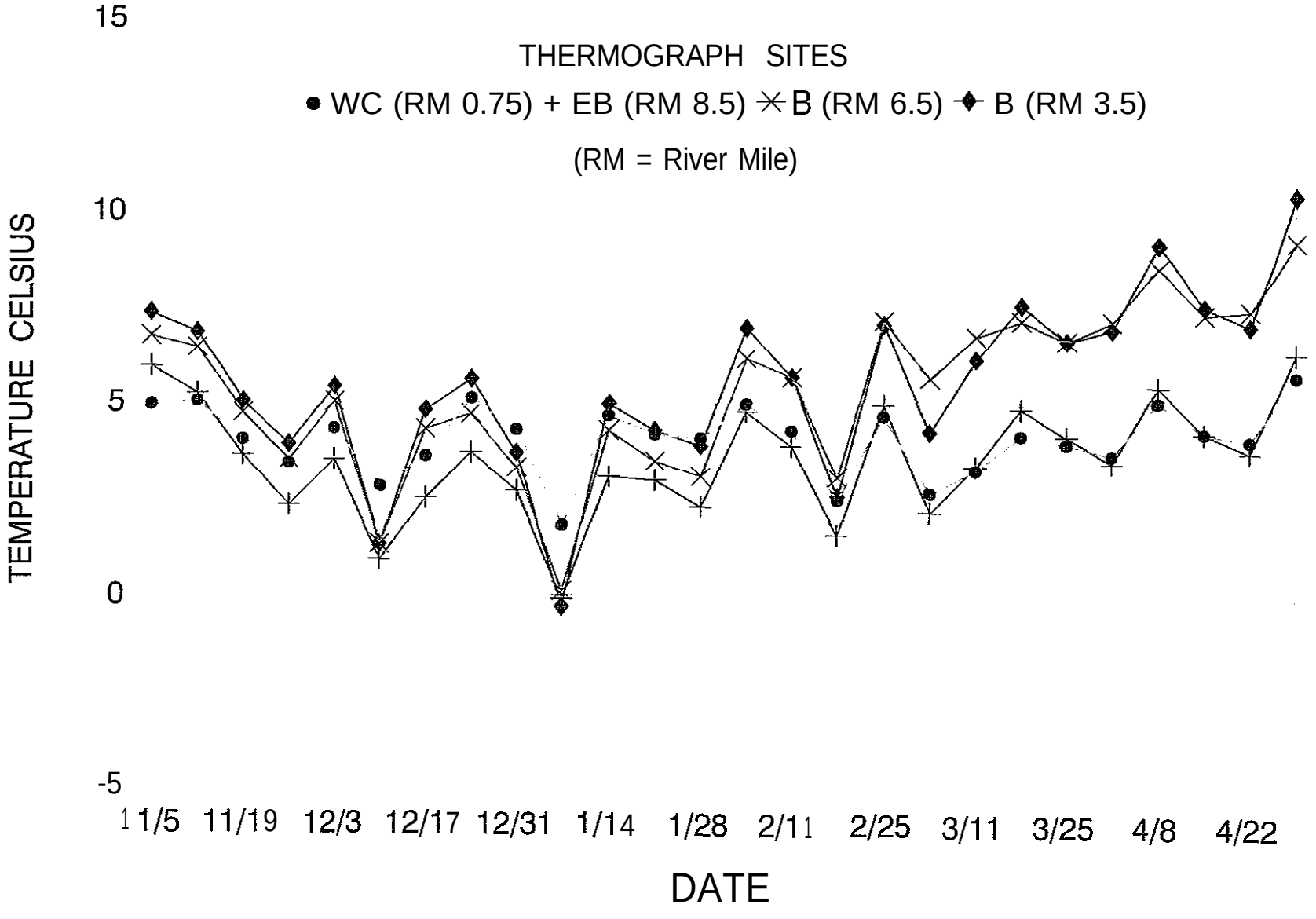


Figure 5. Mean Weekly Minimum Temperature for West Birch (WB) Creek November 1, 1994 through April 30, 1995.

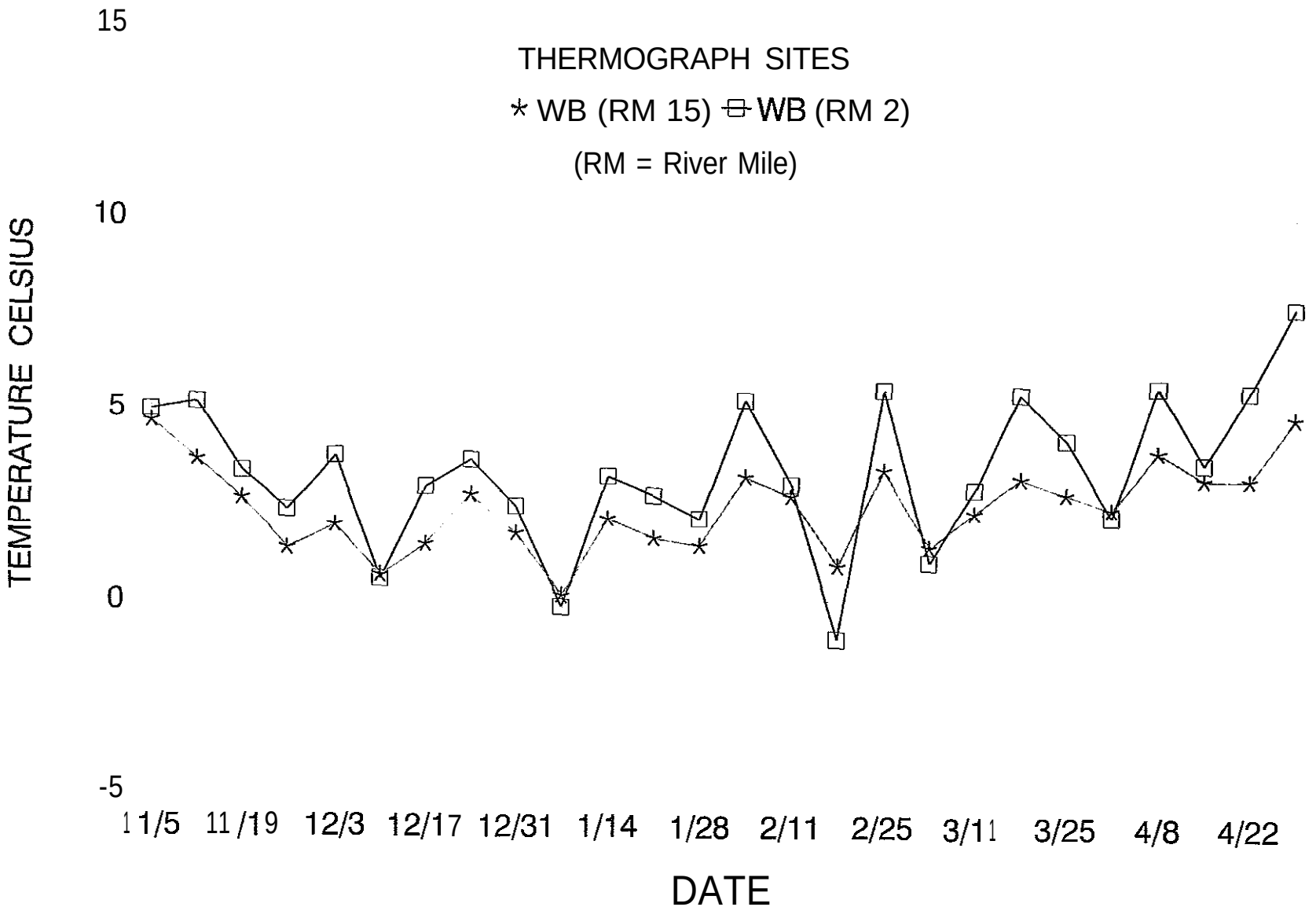


Figure 6. Mean Weekly Minimum Temperature for Meacham Creek (MC). November 1, 1994 through April 30, 1995

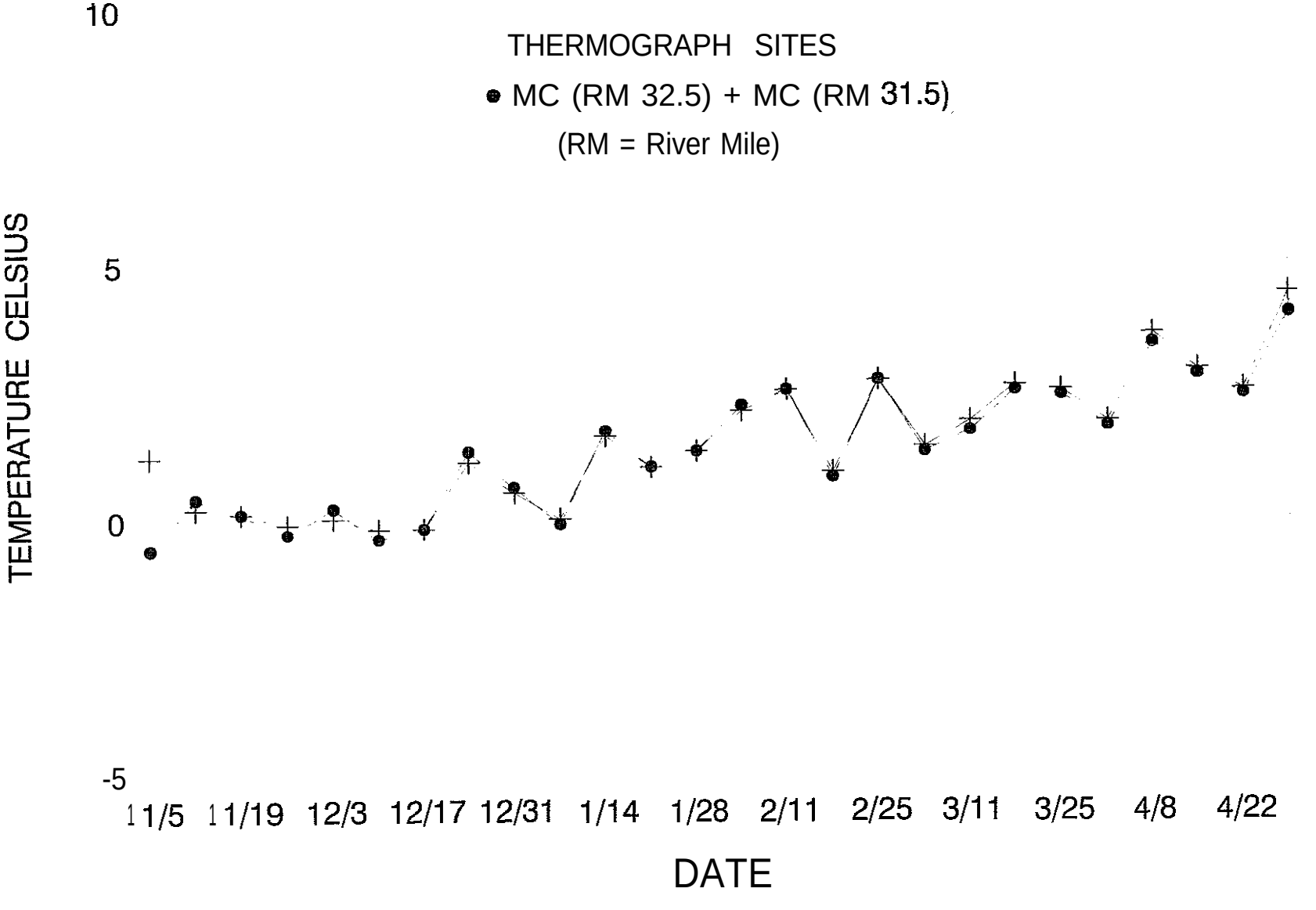


Figure 7. Monthly Average (Min, Max, and Mean) Water Temperature for Westgate Canyon Creek. (RM 0.75) Nov. 1994 - Oct. 1995

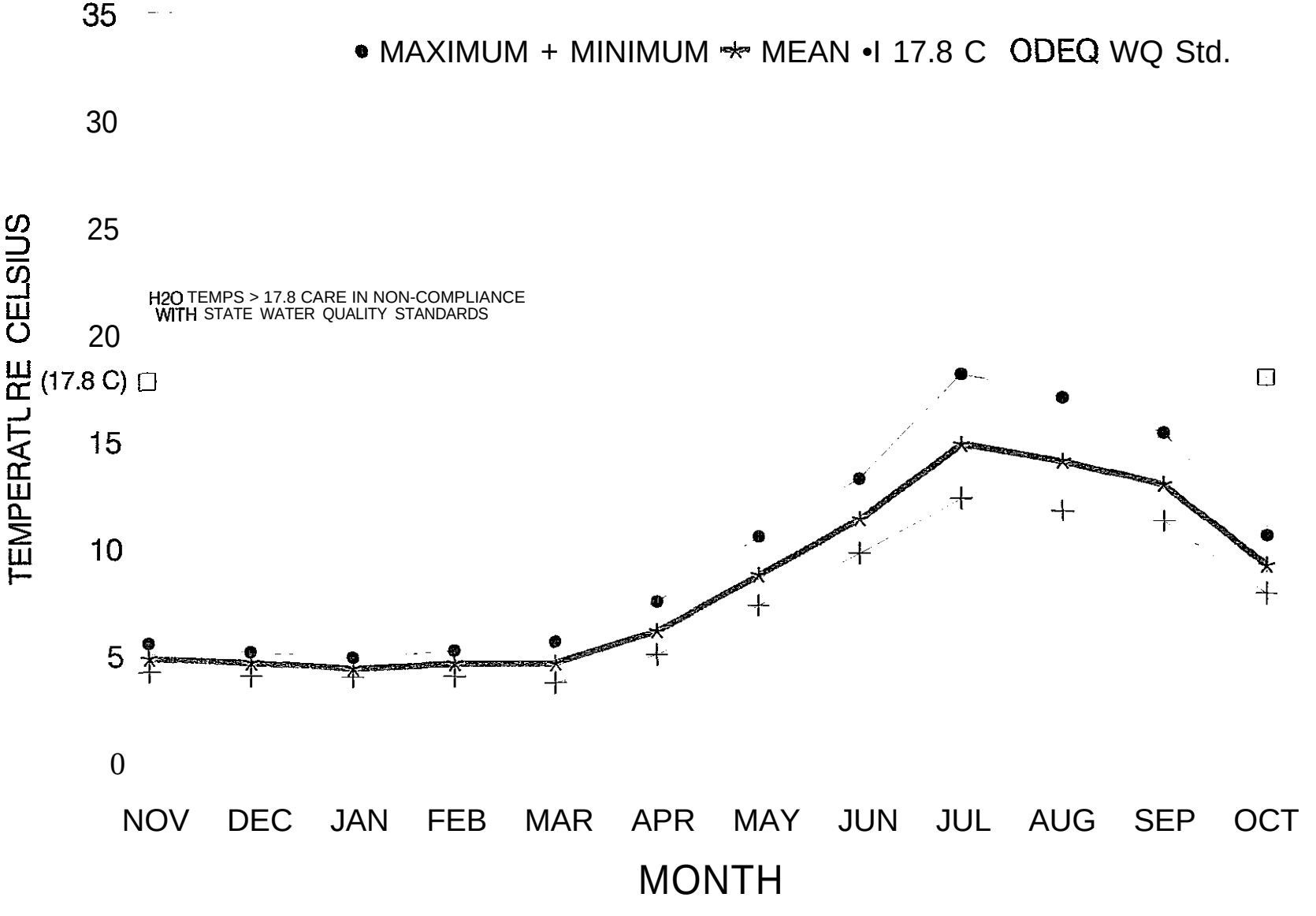


Figure 8. Monthly Average (Min, Max, and Mean) Water Temperature for East Birch Creek. (RM 8.5) Nov. 1994 - Oct. 1995

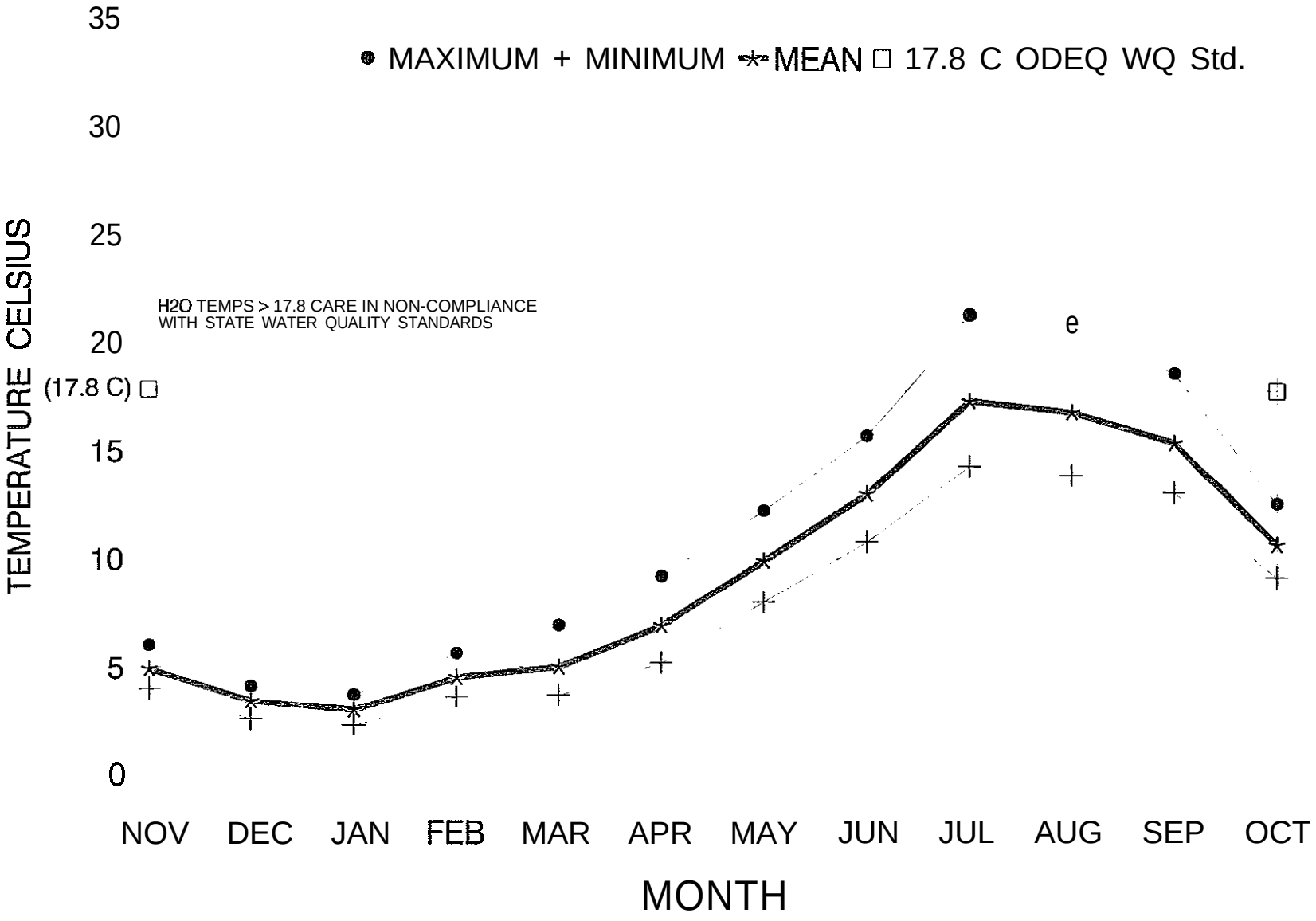


Figure 9. Monthly Average (Min, Max, and Mean) Water Temperature for Birch Creek. (RM 6.5) Nov. 1994 - Oct. 1995

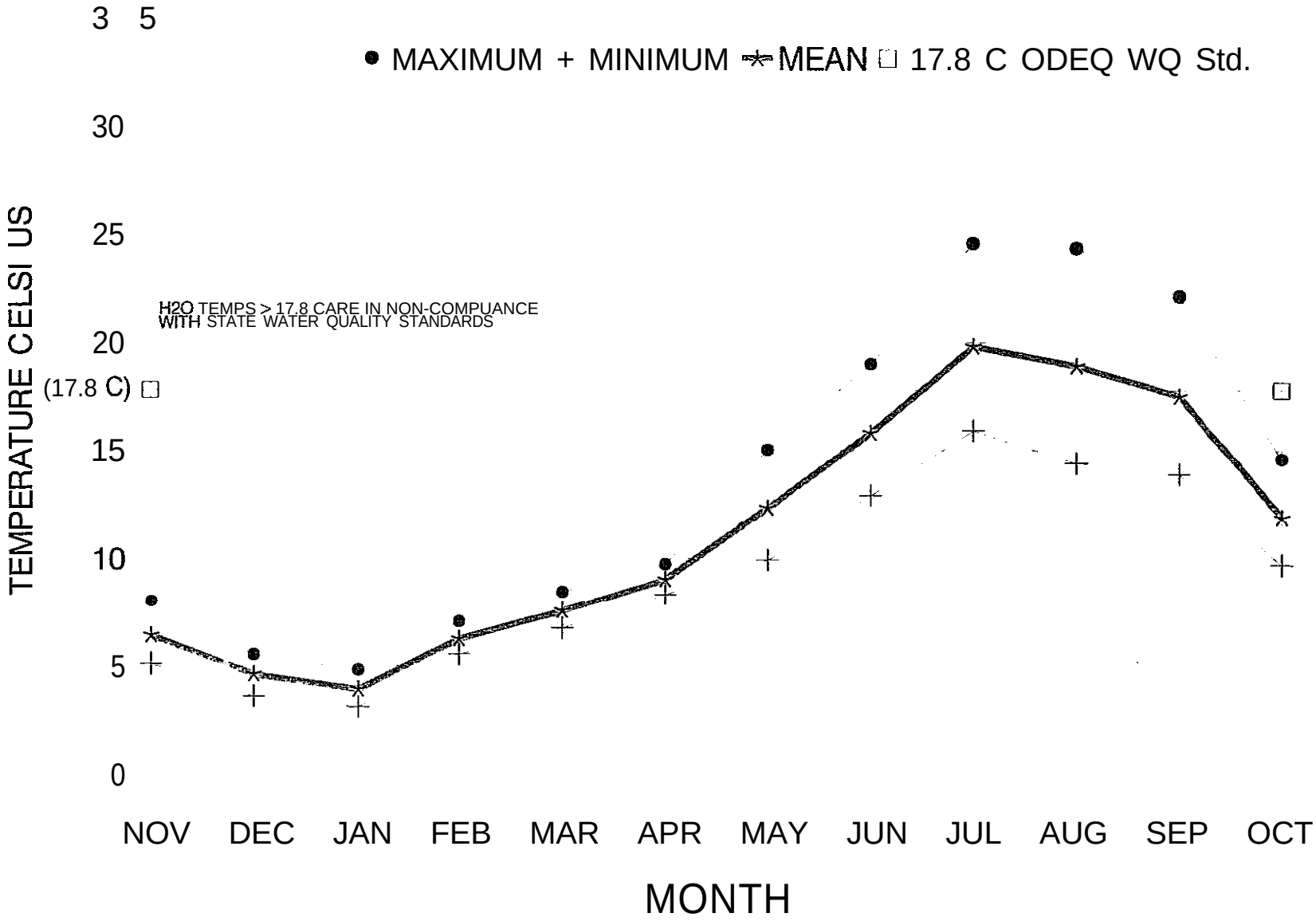


Figure 10. Monthly Average (Min, Max, and Mean) Water Temperature for Birch Creek. (RM 3.5) Nov. 1994 - Oct. 1995

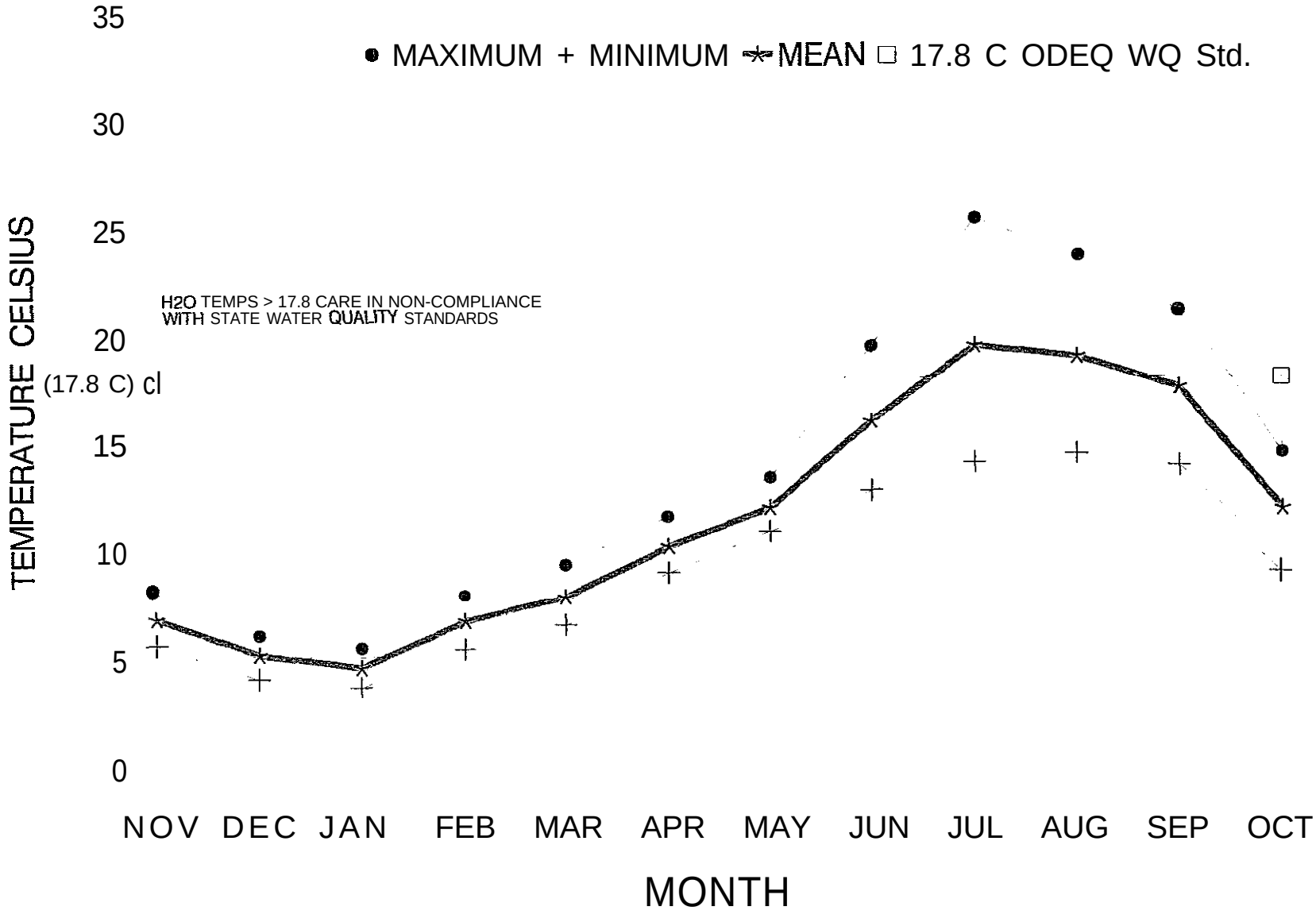
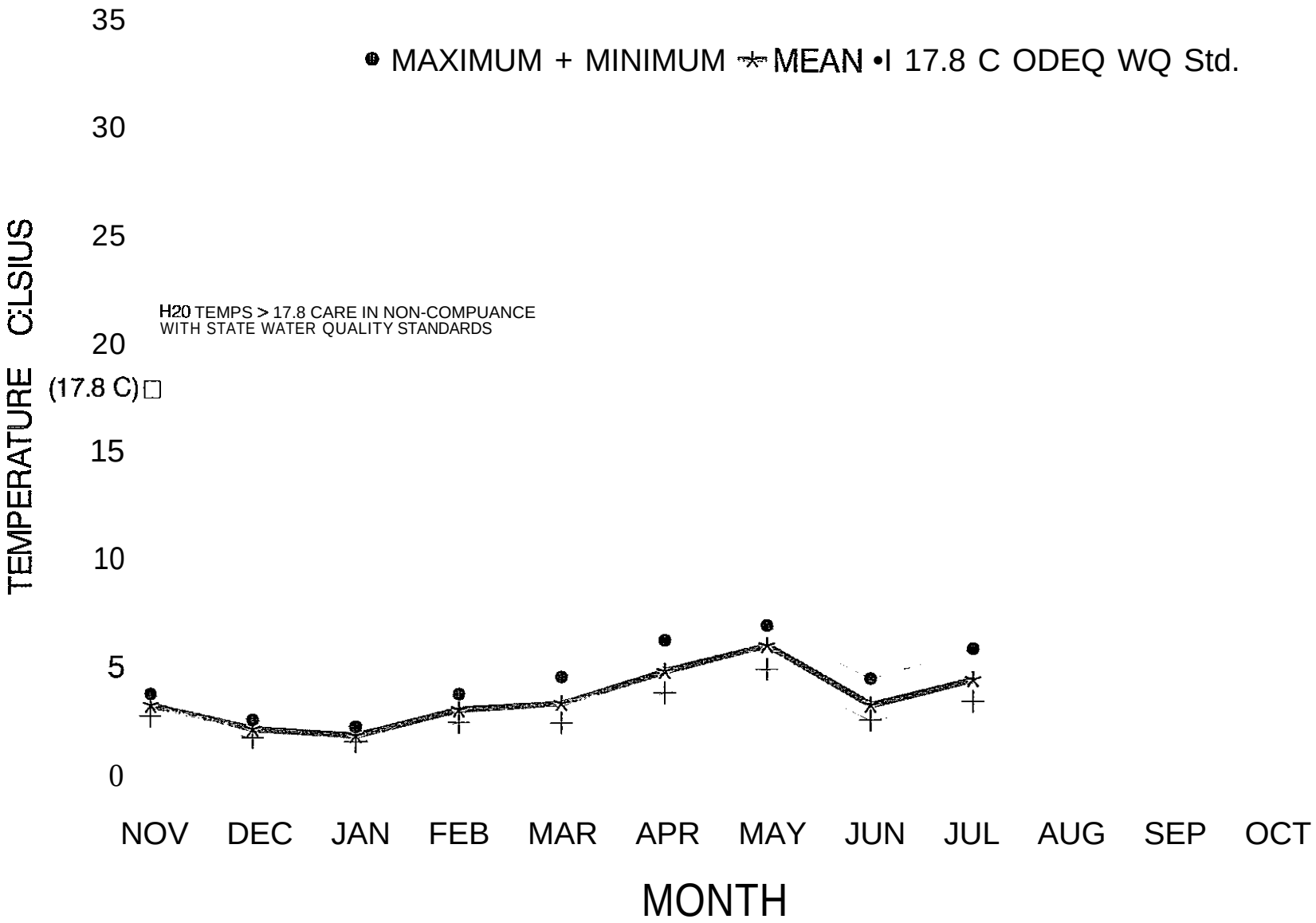


Figure 11. Monthly Average (Min, Max, and Mean) Water Temperature for West Birch Creek. (RM 15) Nov. 1994 - Oct. 1995



NOTE: July 18 - Oct. 31, tempmentor quit recording data.

Figure 12. Monthly Average (Min, Max, and Mean) Water Temperature for West Birch Creek. (RM 2) Nov. 1994 - Oct. 1995

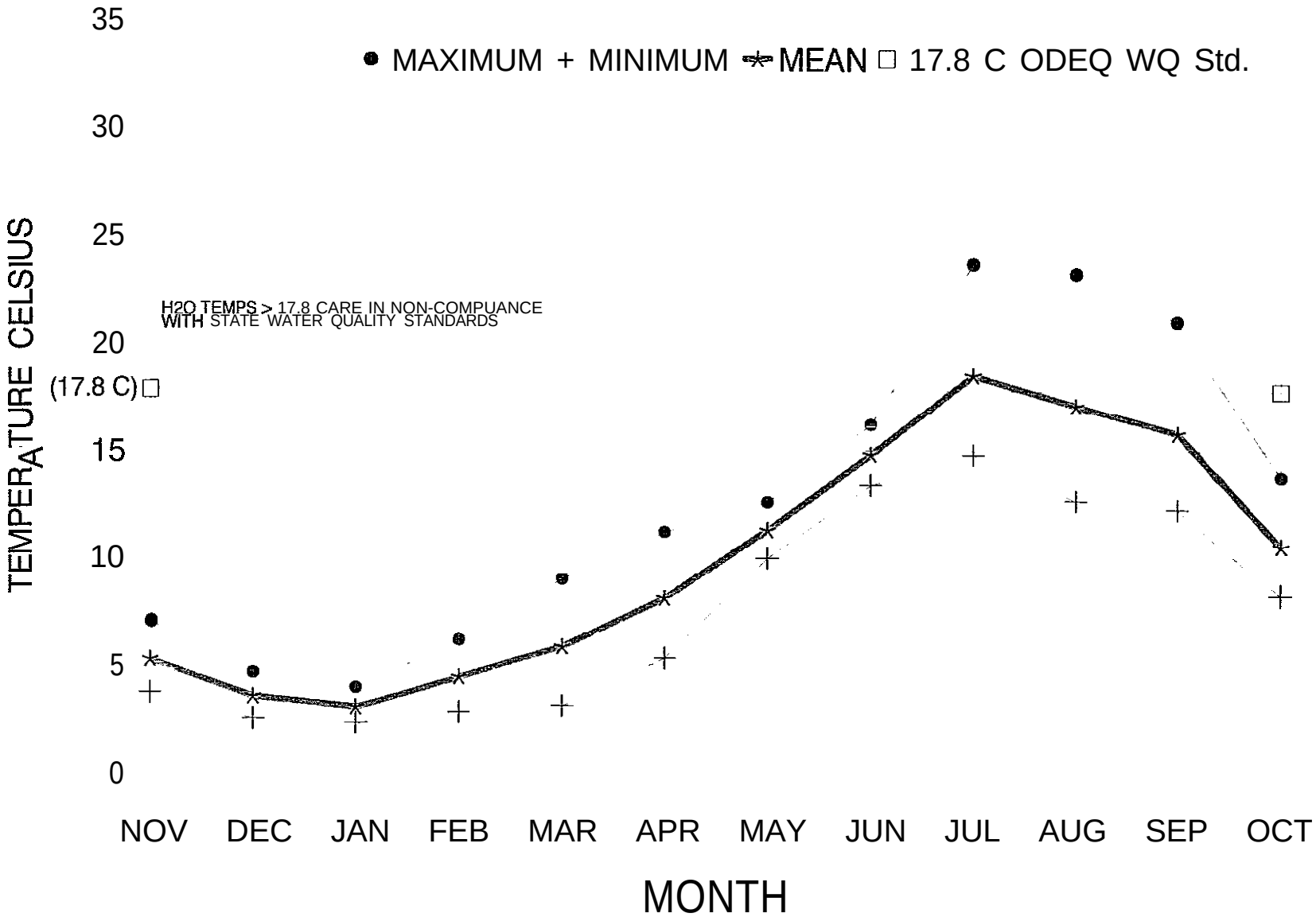


Figure 13. Monthly Average (Min, Max, and Mean) Water Temperature For Meacham Creek (RM 32.5) Nov. 1994 - Oct. 1995

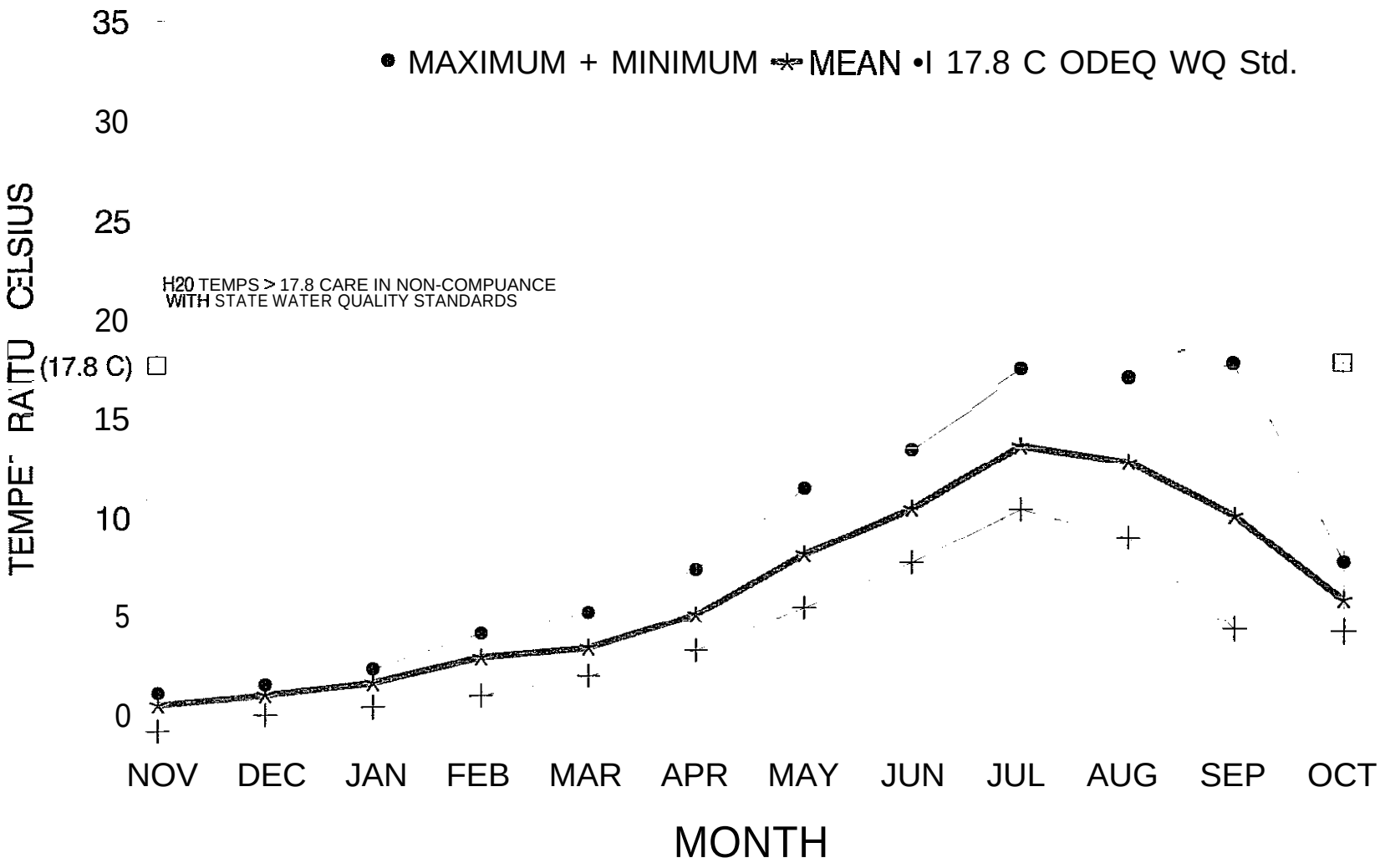


Figure 14. Monthly Average (Min, Max, and Mean) Water Temperature for Meacham Creek (RM 31.5) Nov. 1994 - Oct. 1995

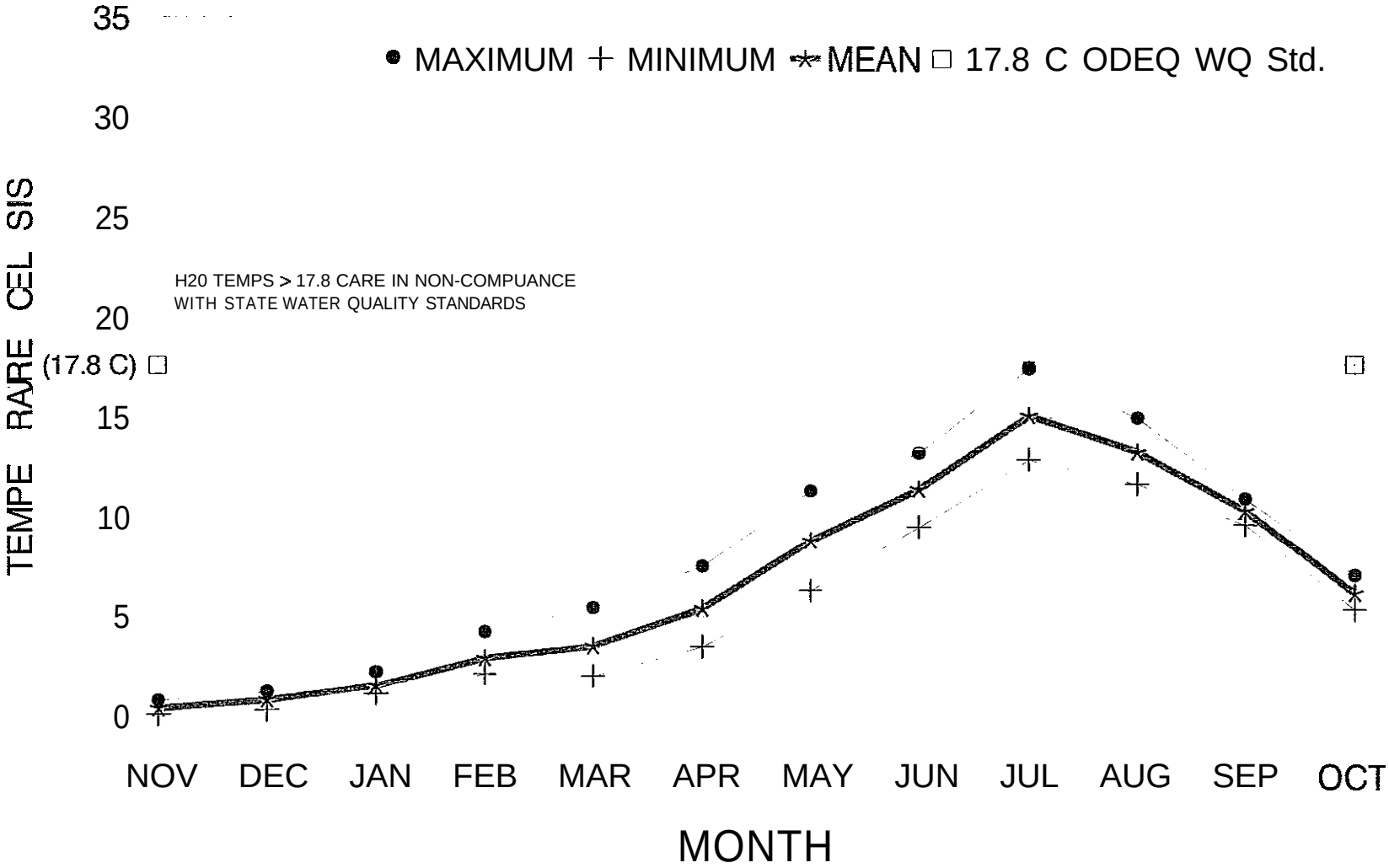
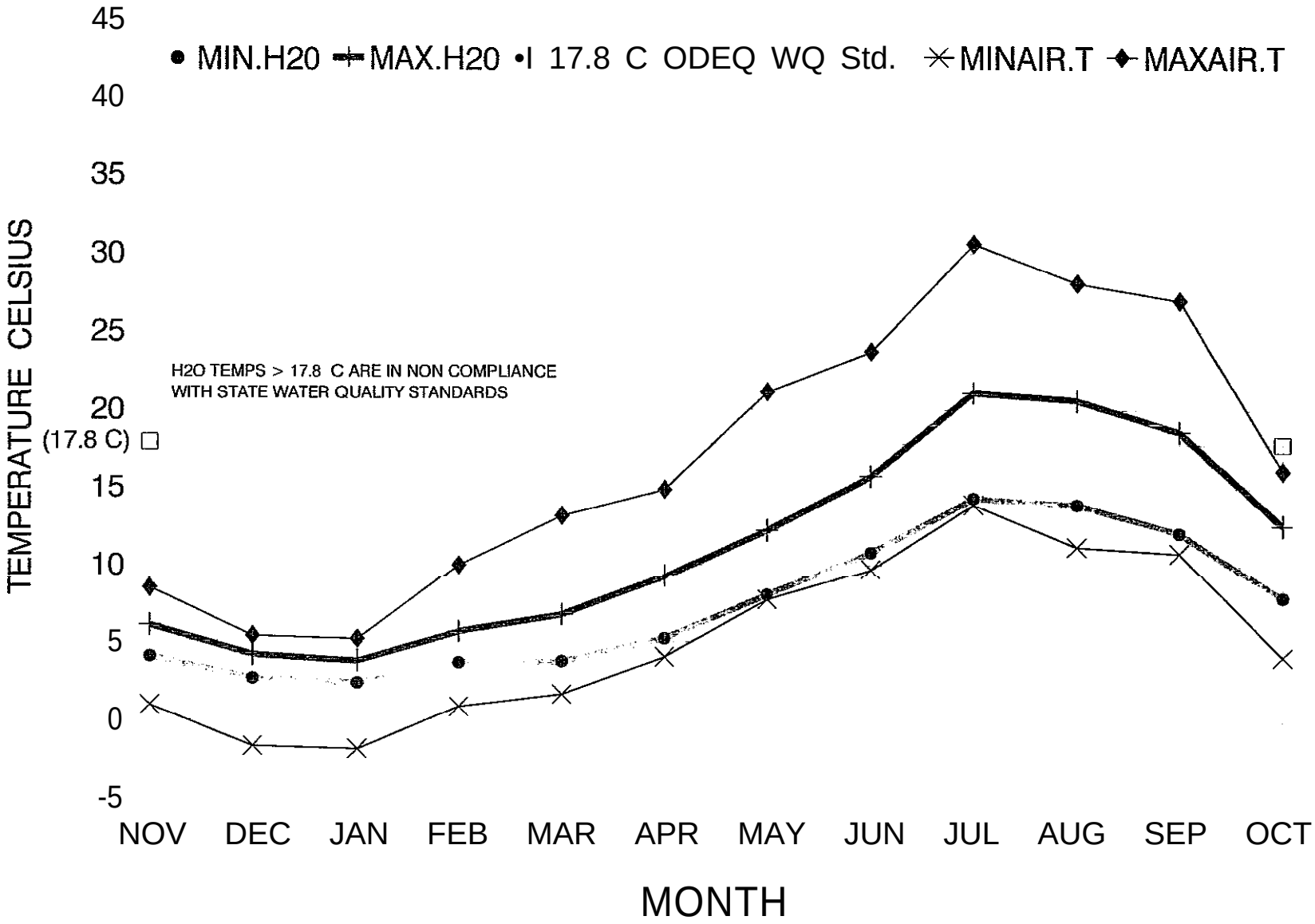
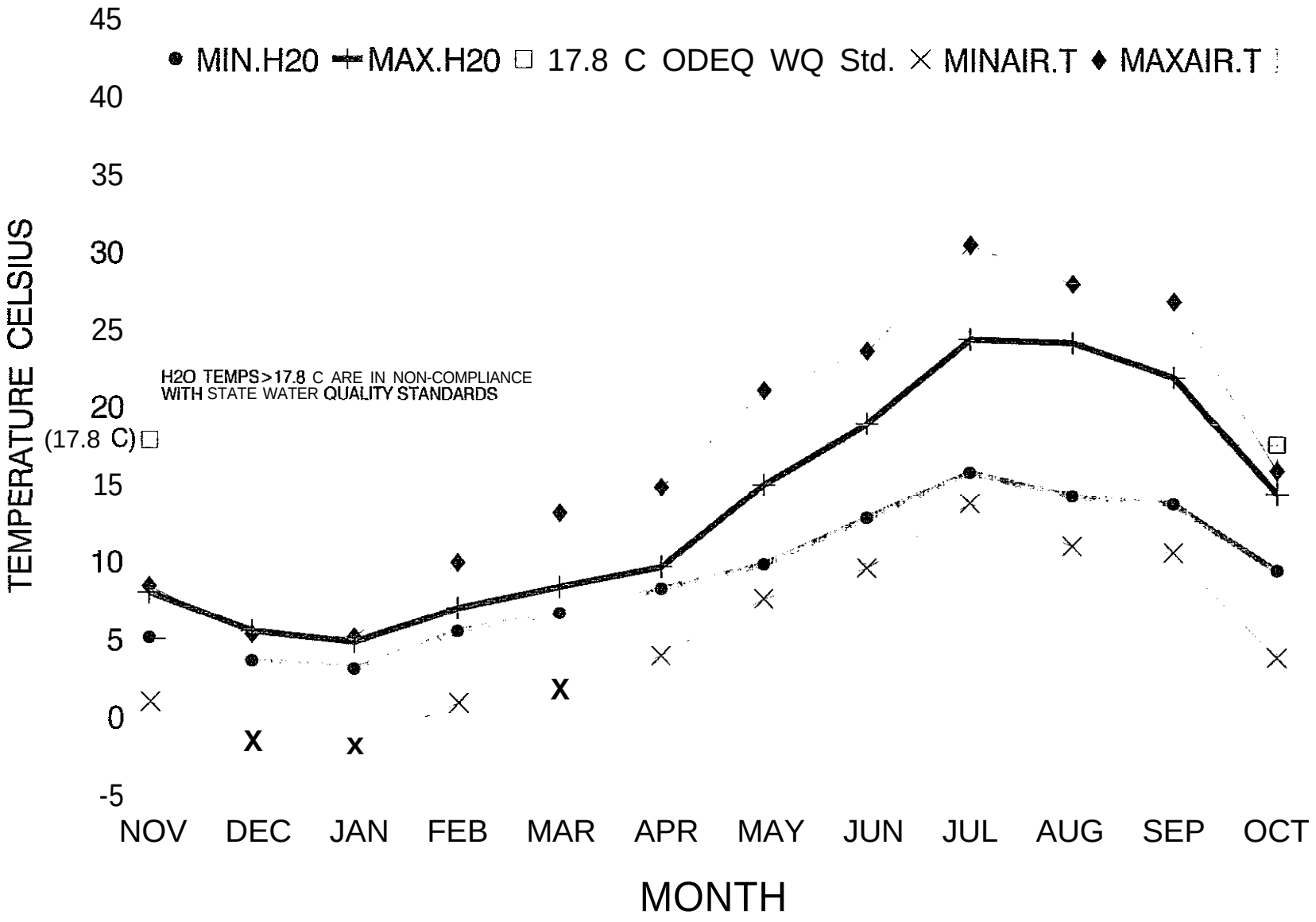


Figure 15. Monthly Average (Min. & Max.) Air and Water Temperature for East Birch Creek (RM 8.5) Nov. 1994 - Oct. 1995



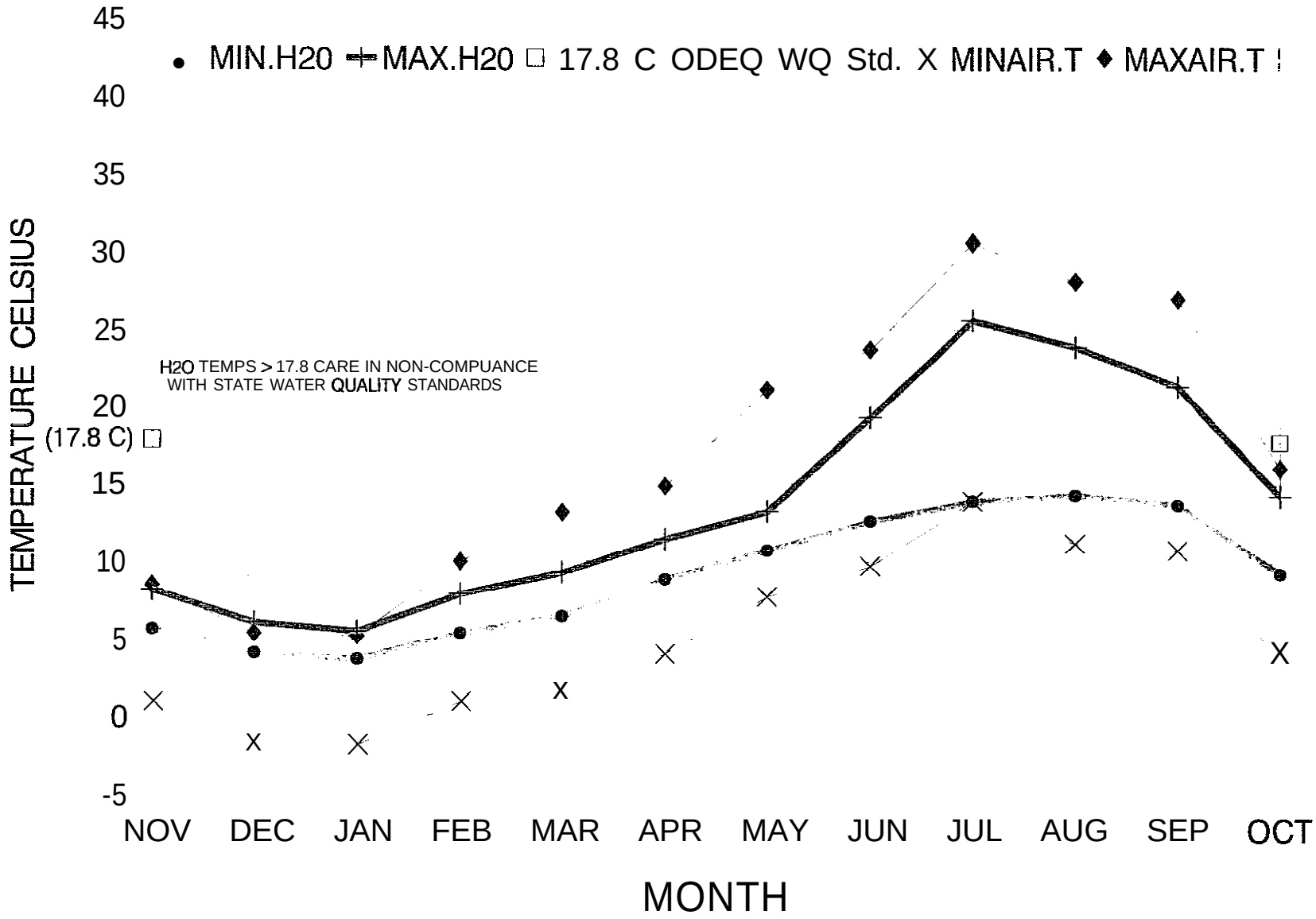
Note: Air temperature data from NOAA @ Pendleton Airport.

Figure 16. Monthly Average (Min. & Max.) Air and Water Temperature for Birch Creek (RM 6.5) Nov. 1994 - Oct. 1995



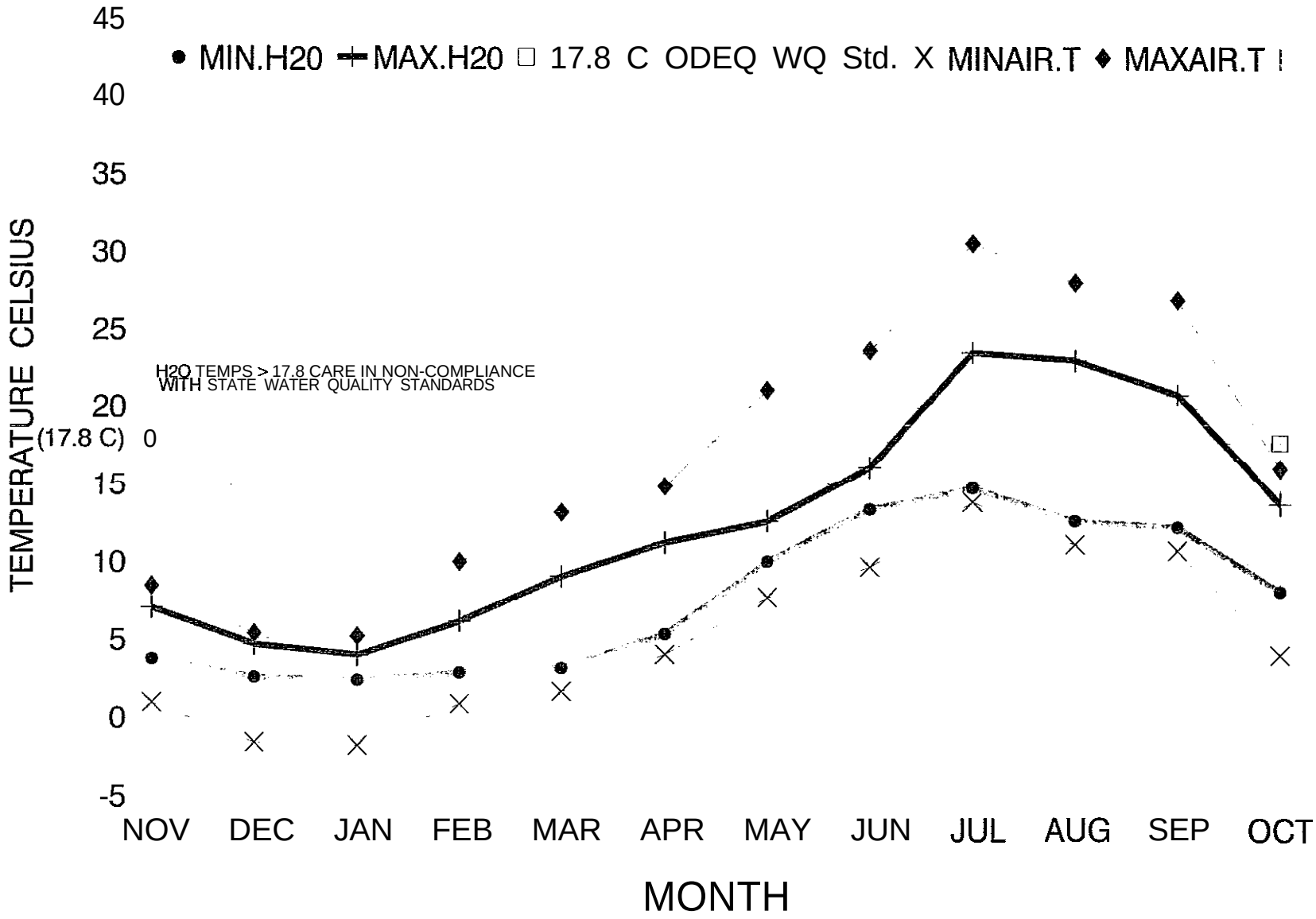
Note: Air temperature data from NOAA @ Pendleton Airport.

Figure 17. Monthly Average (Min. & Max.) Air and Water Temperature for Birch Creek (RM 3.5) Nov. 1994 - Oct. 1995



Note: Air temperature data from NOAA @ Pendleton Airport.

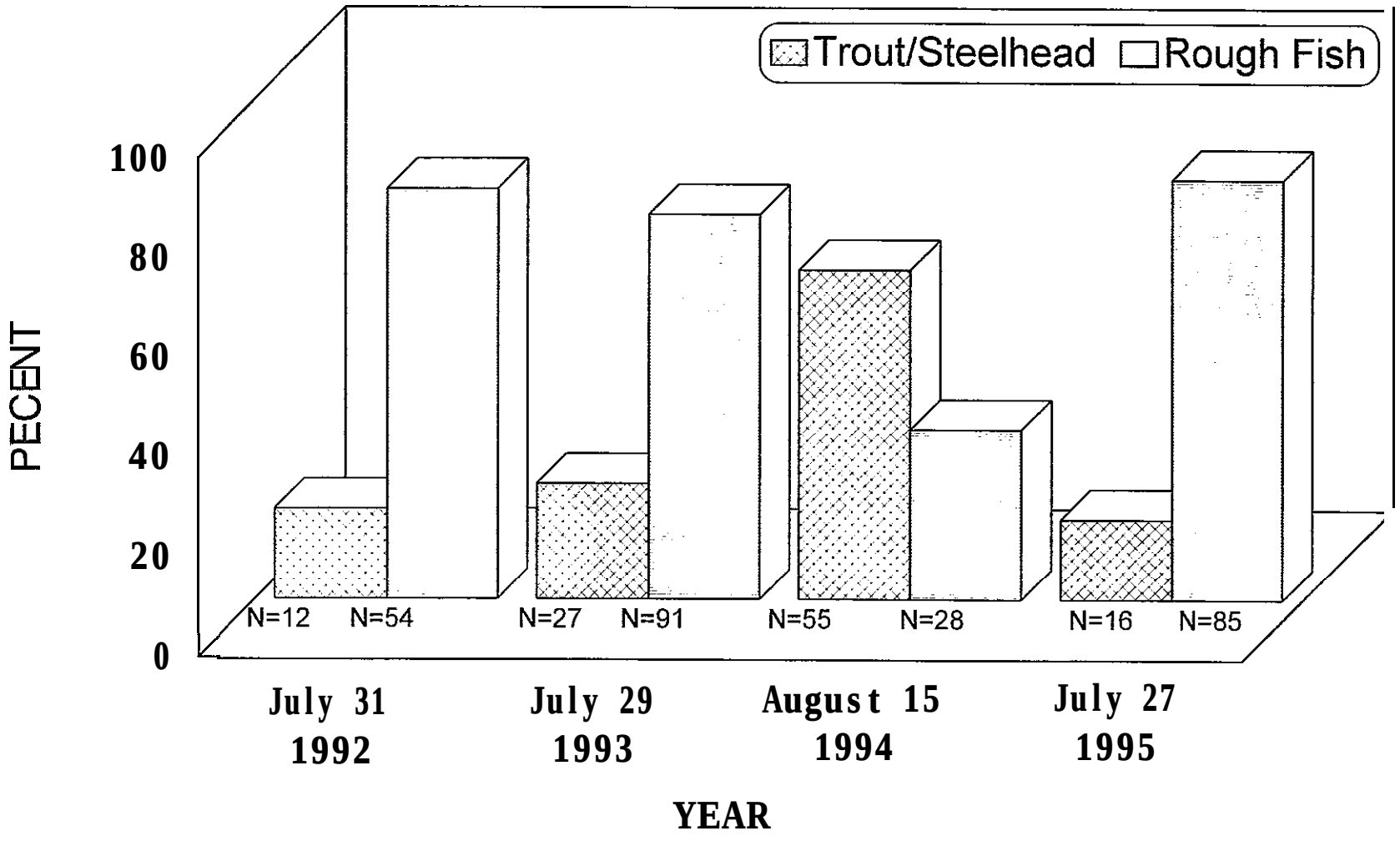
Figure 18. Monthly Average (Min. & Max.) Air and Water Temperatures for West Birch Creek (RM 2) Nov. 1994 - Oct. 1995



Note: Air temperature data from NOAA @ Pendleton Airport.

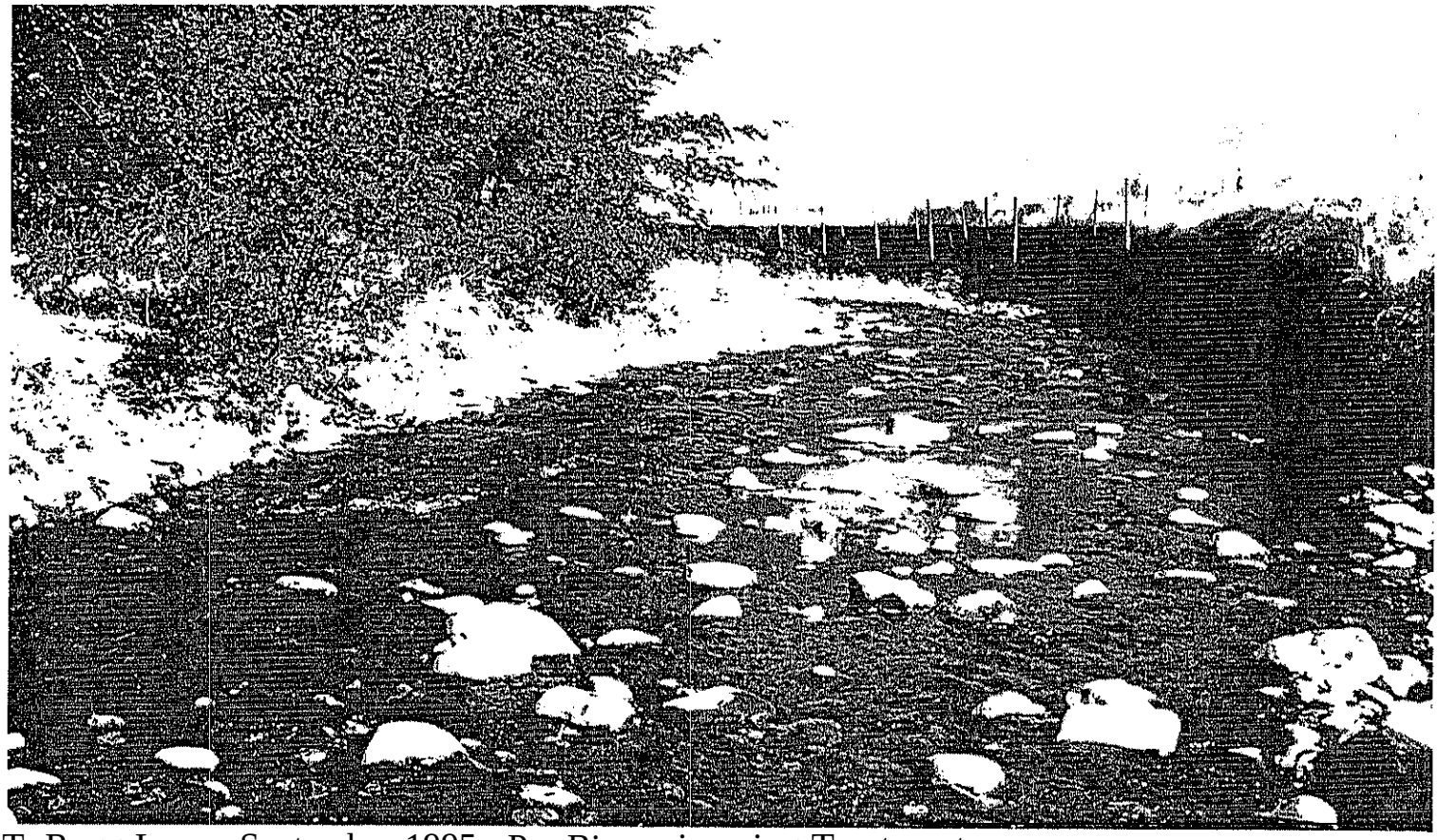
APPENDIX - 2
BIOLOGICAL SAMPLING DATA

Figure 19. Fish Species Composition Within a 50 Meter Reach on Meacham Creek (L.P. Lease). Summers 19924995.



APPENDIX – 3
Photographs

Bioengineered Streambank Restoration. East Birch Creek 1995



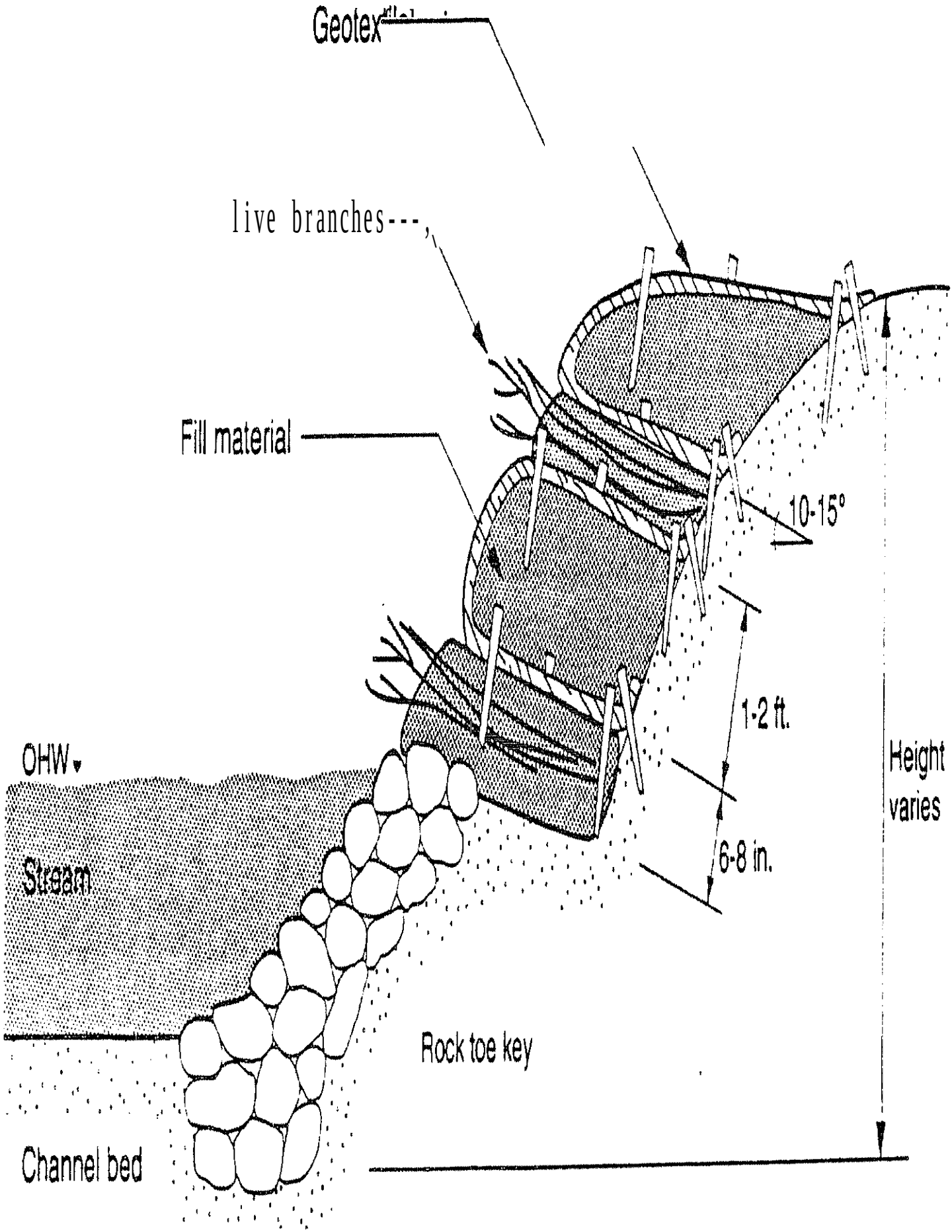
T. Rugg Lease, September 1995. Pre-Bioengineering Treatment.
Notice section of fence hanging in mid-air where streambank erosion has allowed the channel to migrate outside of the leased riparian corridor.

T. Rugg Lease, January 1996. Post-Bioengineering Treatment.
Treatment included: Bank reshaping, rock/rootwad bank toe placement, **BioD Mat-70 (coir fabric) geotextile blanket placement** over **the** raw streambank, dead **stout & live willow/cottonwood stakes to anchor the fabric** in place, hay m**ulching underneath the coir blanket, grass re-seed**ing, and five post plantings.

Bioengineered Streambank Restoration. East Birch Creek 1995

T. Rugg Lease, May 1996.
Post-Bioengineering Treatment subjected to flooding. Object in middle of the stream is a car **body** that was **formarly** used for streambank rip-rap upstream above the projèct lease.

Typical cross sectional view of a bioengineered streambank treatment using BioD Mat Coir fabric. A Similar treatment was used to treat the T. Rugg Lease (shown in the previous photos) and three sites on the J. Houser Lease during 1995.



APPENDIX -4
Newspaper Articles

The most radical of the proposals calls for the conversion of the wheat board into a free system, or a glorified co-op, Flagg said. However, it does not stand a chance of passing at this time because Canadian growers back the Canadian Wheat Board's monopoly and how its practices have created an unfair market system for U.S. growers. Canadian growers do not have the option of selling their grains when they prefer but are told by the wheat board what no unified recommendation, Flagg said. At that point the issue would be returned to the U.S. and Canadian governments, he said.

The countries' delegates have agreed on most points except how the wheat lost a significant amount of the market share in most countries except those that use the U.S. Export Enhancement Program or have free trade, he said.

The Canadians have not formally accepted this position, but Flagg is optiBut American gr
derstand this is r
issue, but a multi
said. The United
kets throughout So
Pacific Rim, he sai

School's trees to improve stream banks

By STEVEN BROWN
of the East Oregonian

PENDLETON — Pendleton High School's loss during remodeling and construction has become a significant gain for habitat-starved fish in nearby streams.

Bill Peal, a PHS teacher, is orchestrating a program that will make wise use of trees after their removal from the high school campus.

The trees — primarily the larger stems and root wads — eventually will hold strategic locations along area streams, providing hiding cover and bank stabilization for trout and steelhead.

"I couldn't believe it when we got the call that we had all of these trees available," said Troy Laws, an Oregon Department of Fish and Wildlife fish-habitat biologist.

ODFW is cooperating with other state, federal and private organizations on a demonstration project along Birch Creek, about half a mile above Rieth, where the trees should make a sizable contribution.

Some of the trees removed from the school grounds are being stockpiled at the ODFW office for later use in state and tribal habitat projects.

Peal, who owns land along Wildhorse Creek, is stockpiling some of the material for restoration projects of his own involving students in his Future Farmers of America and SMILE (Science Math Investigative Learning Experience) programs.

Peal teaches a course in natural resources which introduces students to bioengineering, which is a 180-degree contrast to standard construction of concrete dikes and levees that control stream flow.

In bioengineering, biologists use natural material that promotes natural regeneration of riparian areas.

"The difference is that bioengineering will repair itself as opposed to concrete where man has to come in with huge equipment," Peal said.

Biotechnologies are being demonstrated at the site along Birch Creek, showing how new technologies can replace old practices that may actually damage the environment. The demonstration is in the design phase.

"This is exciting for me to be a part of because as a teacher it's only 20 minutes away for me to show my students how bioengineering works," said Peal.

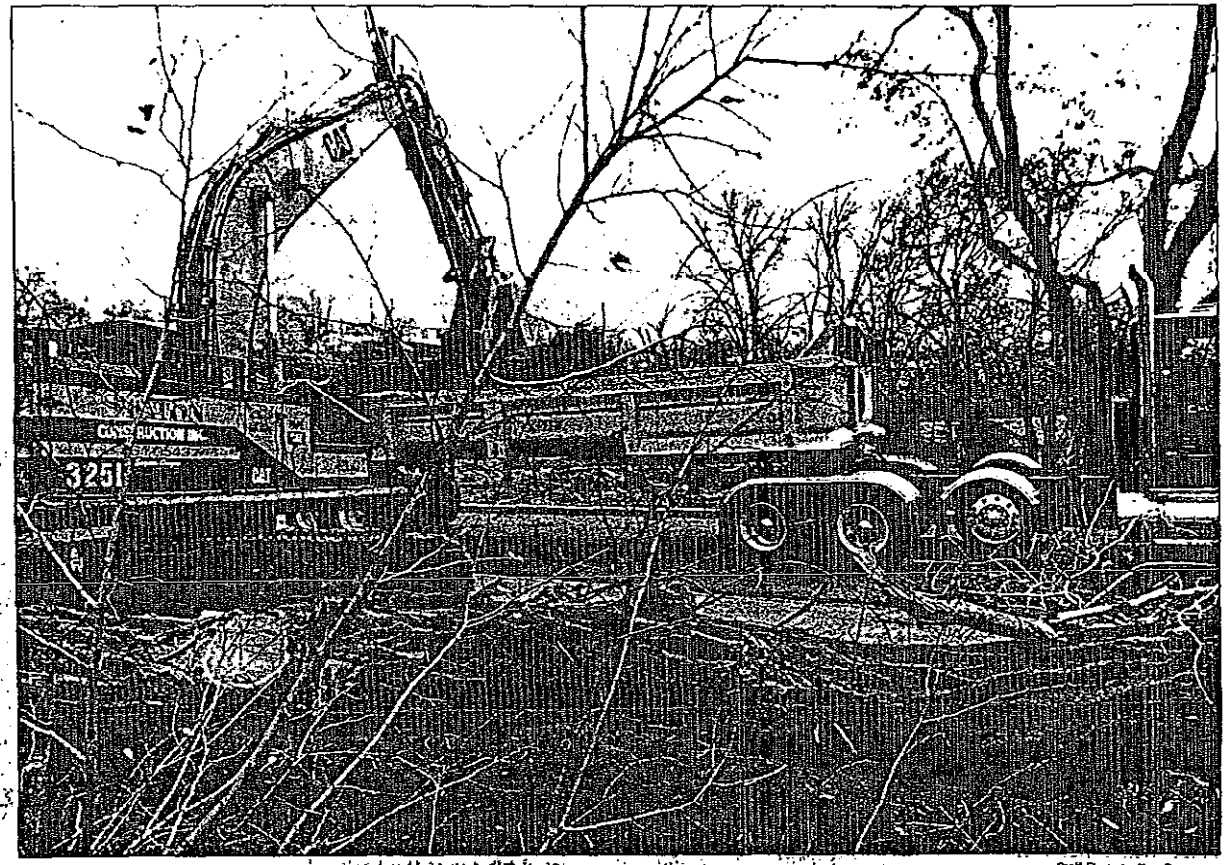
The demonstration site will be available for public education of students and other landowners, although access is limited.

Doug Shisler of Staton Construction of Eugene, a subcontractor on the high school construction and remodel project, said the trees would have been hauled away and chipped.

"What this means is that people, government agencies and the school district are making sure that this material can be utilized, rather than going up in smoke," Shisler said.

In general, the woody material will provide overhead cover, provide food for aquatic organisms and stabilize the stream bank.

Biologists also refer to the woody material in streams as "fish condominiums." Laws said a greater number of fish will use a stream when woody material gives them refuge from others of their own species — similar to guests in a hotel room who are oblivious to neighbors.



Staff Photo by Don Cresswell

Staton Construction of Eugene, a subcontractor on the Pendleton High School construction and remodel project, is removing trees that will be used along streams to provide cover and bank stabilization for trout and steelhead.

Eastern Star chapter

Morr
agree
anno
By PAM
of the East

HEPPNE
agreement
County He
Stericycle
Morrow C
medical w
hauled to
Washington
Previous
waste was
neer Memor
pner.
Gary Nol
services m
Hospital, s
"macrowav
recyclable
grind them
medical pro
As a resul
the Departm
tal Quality
tal's incin
down effect
costly emi
equipment
Nolan sa
would have
trict about
$20,000 wou
every year
study to mo
"We explo
including
dump sites,
of them wer
regulated w
According
Stericycle h
trict's infect
will cost ab
cineration.
Stericycle
dispose of
lated medic
ulations p
storage of
up to 30 day
The distri
frigerated c
cycle for $6,
morial Hosp
tious waste
ty's medical
cycle makes
County m
clude Pione
tal and Nur
Memorial
Health Care

East Oregonian Newspaper Summer 1995

Year was rewarding for county

By BILL HANSELL

When the old year is ushered out and a new one begins, it provides the opportunity to look back and reflect on what took place. As I look back on 1995, Umatilla County government accomplished some significant things and continued the development of several others. As I've reflected, it seems that it has been a very busy and prosperous year. Here is my listing in no particular order of the county's top accomplishments in 1995.

1. County Reorganization: With the decision to fully implement a home rule charter provision in January 1995, the county embarked on a reorganization plan, Thanks to an outstanding citizens advisory committee, a lead team, and county staff, a new plan was implemented concurrent with the new budget on July 1, 1995. It was a major task, which should produce a more efficient, effective and responsive county government, all done at no additional cost to the taxpayer.

2. Community Block Grants: Umatilla County successfully sponsored and received three community block grants totaling $1,110,000. These projects included the building of an alcohol residential treatment center for the Eastern Oregon Alcohol Foundation; a technical assistance grant for Meadowood Springs Speech Camp; and an infrastructure grant for Tamustalik Interpretive Institution.

3. Association of Oregon Counties Convention: Umatilla County successfully hosted the 1995 AOC convention which had 500 attendees. Umatilla County is the only Eastern Oregon location to be invited to host the AOC state convention of Oregon's elected county leadership

4. Harris Park: The county has continued to develop this jewel of a park on the South Fork of the Walla Walla River. The county made a land purchase and did a major tree removal project at the park in 1995.

5. Legislative Session: Working closely with our state elected officials, Umatilla County was an active player in the 1995 session. Local officials effectively participated through AOC in the legislative process.

6. Watershed Council: A demonstration bio-engineering project on Birch Creek was completed showing what can be done to improve the watershed through stream bank stabilization.

7. County Budget: Since 1990 when the county voters adopted a new tax base, the county has operated within that base. Thanks to the dedicated work of the budget committee and county staff, we have maintained or increased levels of service while staying within our tax base.

8. Economic Development Team: Working with groups such as cities. port, state, development corporations and tribes, Umatilla County has continued to be an active player in the economic development arena. 1995 was a very good year in the county for economic development. This is reflected in the increase of the total valuation of the county.

9. Fighting Crime: The county initiated a citizens committee and hired a consultant to determine our jail needs. We also developed the Community Accountability Boards to handle some juvenile issues on the local level, which helps relieve the crowded juvenile court docket. We are serious contenders for a state-funded community corrections facility to serve the county's need for treatment and incarceration.

10. Umatilla Army Depot: 1995 saw the formation, as required by the federal government, of a Local Reuse Authority (LRA). Membership includes two counties — Umatilla and Morrow -both ports, and the Confederated Tribes. The LRA is the local authority which will deal with the federal government, in returning the depot to civilian use, after the chemical agents have been destroyed and the base is closed.

I anticipate that 1996 will be another successful year as we continue to serve the citizens of Umatilla County in partnership with our communities and state.

Bill Hansel1 is completing his thirteenth year as a Umatilla County Commissioner He lives in Athena.

East Oregonian Newspaper, December 1995