PHASE I
WATERSHED ASSESSMENT
FINAL REPORT

LAKES PRESTON, WHITEWOOD, THOMPSON
KINGSBURY AND LAKE COUNTIES, SOUTH DAKOTA

South Dakota Water Resource Assistance Program
Division of Financial and Technical Assistance
South Dakota Department of Environment and Natural Resources
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EXECUTIVE SUMMARY

The Kingsbury County Conservation District, South Dakota State University and the South Dakota Department of Environment and Natural Resources conducted an EPA 319 assessment project on the Lake Thompson watershed in East-Central South Dakota. This project area includes portions of Lake and Kingsbury counties. The objectives of this effort were to (1) define nonpoint source critical areas for the Lake Thompson watershed using nonpoint source loading estimates, a geographic information system and annualized AGNPS software, (2) implement quality assurance/quality control procedures to ensure that all data collected during the assessment comply with state and federal protocols and (3) define management prescriptions for identified nonpoint source critical areas within the watershed.

Thirteen lake basin sites and 17 stream sites were sampled monthly during the period April-September from July 2001 through June 2003. Physical, chemical, habitat and biological endpoints were evaluated and compared with water quality standards and comparable measurements from reference stream and lake sites. In addition, continuous discharge, water chemistries and event-based water quality samples were collected from gauging stations at each Kingsbury study stream site. Data collected from these gauged sites permitted the estimation of sediment and nutrient loads to each lake basin using the USACE FLUX model. Field data collected throughout the course of the project were utilized within the USACE BATHTUB model to estimate load reductions which might be anticipated following implementation of best management practices. Annualized AGNPS was utilized to identify critical loading cells within the watershed and estimate load reductions from different combinations of best management practices.

Streams within study and reference basins are low-gradient, intermittent channels. Fourteen study stream sites and three reference streams were sampled through the course of this project. A small number of pH measurements from several stream sites exceeded the water quality standard of 9.0. In addition, 9.4% of study stream samples had unionized ammonia concentrations exceeding 0.05 mg/L and more than 25% of fecal coliform bacteria samples collected from Lake Preston and Whitewood stream samples exceeded 200/100 ml. Invertebrate IBI scores suggest that study streams from Lakes Preston, Whitewood, Henry and Thompson are slightly impaired relative to reference streams within the same ecoregion.

Three reference lakes and four study lake basins were sampled from three locations in each basin. The pH standard of 9.0 was exceeded by 12.5% of Lake Whitewood samples and 8.4% of Lake Thompson samples. Unionized ammonia in excess of state standards was also observed from 15.3% of Lake Whitewood, 33.3% of Lake Henry and 26.4% of Lake Thompson samples. Lake stratification rarely occurred throughout the study period in any of the study basins. However, 2.6% of bottom dissolved oxygen samples fell below the standards to support warmwater fisheries in Lakes Whitewood and Thompson. Fecal coliform bacteria exceeded the state standard in 11.1% of Lake Preston, 5.6% of Lake Whitewood and 8.3% of Lake Henry samples. Reference lake shorelines exhibited greater residential development and less agricultural development than study area

shorelines. Reference shorelines also had greater cover and displayed less evidence of erosion than study lake shorelines. Furthermore, reference lake littoral areas had greater substrate diversity, larger substrate and greater percent cover of macrophytic vegetation than study lake littoral areas. Integrated phytoplankton and invertebrate IBI values suggest slight impairment of all study lakes relative to reference lake basins. Carlson Trophic State Indicators suggest that Lakes Preston and Whitewood are hypereutrophic while Lakes Henry and Thompson are near the regional TSI criterion of 65. Total phosphorus TSI's for all four study lakes exceed the regional criterion while chlorophyll and Secchi transparency TSI's fall below predicted values.

Field assessment, model simulations and community involvement have identified sources of water quality and aquatic life use impairment within the Lake Thompson watershed. Best Management Practices simulated during annualized AGNPS modeling project significant reductions in total phosphorus loading to these basins. USACE BATHTUB model simulations suggest that these projected reductions will begin moving TSI scores for Lakes Preston and Whitewood toward the regional TSI criterion and prevent Lake Henry and Thompson scores from crossing that threshold in the future.

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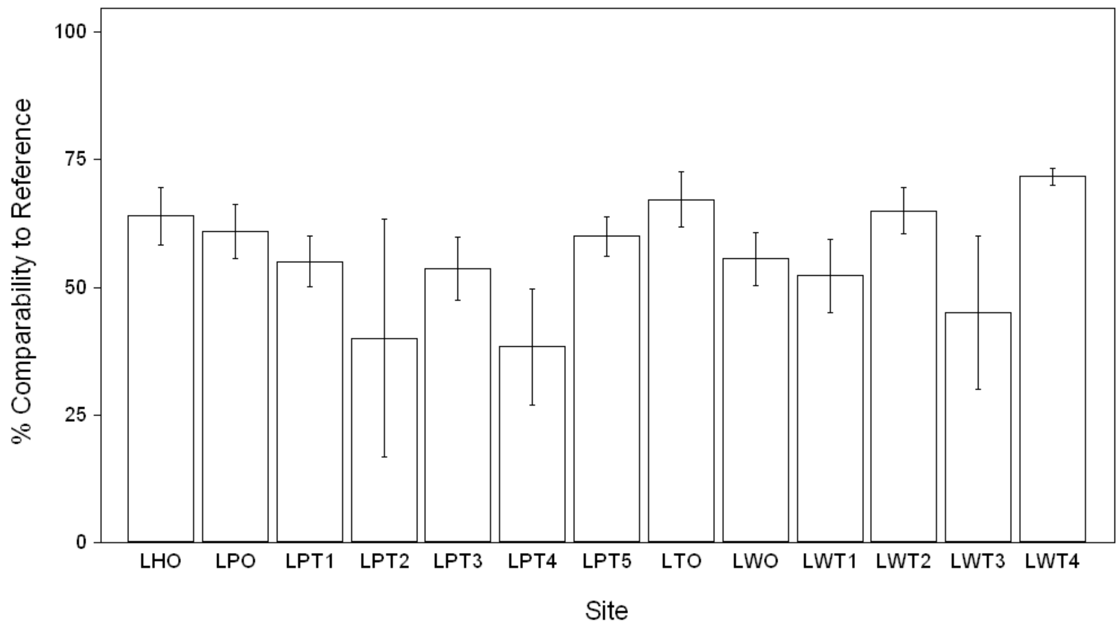

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INTRODUCTION

Lakes Preston, Thompson and Whitewood are natural prairie pothole lake basins whose watersheds drain portions of Kingsbury County in South Dakota. Outlets of these lake basins contribute water to the Vermillion River. Lakes Thompson, Preston and Whitewood experience heavy recreational use and heavy shoreline development. All receive contributions of agricultural runoff from upstream land uses. Inlet creeks receive runoff from agricultural operations while outlet creeks receive water from upstream lake basins and adjacent agricultural operations. The Thompson, Preston and Whitewood project area has a total drainage of approximately 263,044 acres. Cropland and grazing are the predominant land uses. This project is intended to be the initial phase of a multi-basin restoration project. Results of this effort will be used to identify sources of impairment to three lake basins and define feasible alternatives for watershed restoration

Lake Thompson is the largest lake in South Dakota and receives heavy recreational use as a freshwater fishery. Drainage to the Vermillion River occurs along low-gradient, temporary and intermittent stream channels and through a series of small and large pothole basins. Lake Thompson itself was a shallow slough through the early 1980's prior to filling in response to a series of wet years through the 1990's. Lakes Thompson, Whitewood and Preston have greatly increased in depth throughout this period and are now managed as freshwater lakes. Lakes Thompson, Whitewood and Preston have been listed on the State's 303(d) list. The objective of this project is to locate and document sources of nonpoint source pollution within the Lake Thompson watershed and generate feasible restoration alternatives which might be used within an implementation project.

Watersheds for these three lake basins fall within the Vermillion watershed and include three lake basins that are listed on the State 303(d) list. These basins include Lakes Thompson, Preston and Whitewood. Lakes Thompson and Whitewood have been assigned the beneficial uses of warmwater permanent fish life propagation, immersion contact recreation, limited contact recreation and wildlife propagation and stock watering. Streams in the watershed drain predominantly agricultural lands with both cropland and grazing acres. Winter feeding areas for livestock are present in the watershed. The streams carry sediment loads and nutrient loads, which degrade both stream and lake water quality, leading to eutrophication.

Lakes Thompson, Preston and Whitewood fall within one watershed with a total surface area of approximately 263,044 acres. The Lake Thompson drainage encompasses this entire area. Lakes Preston and Whitewood fall upstream of Thompson with watershed areas of approximately 58,687 acres and 106,134 acres, respectively. Larger cities within the project area include Desmet (popn - 1180), Arlington (popn - 913) and Lake Preston (popn - 623).

Watershed Description

Land use in the watershed is primarily agricultural cropland and grazing. Small grains, corn and soybeans are the main crops on cultivated lands while areas with rolling terrain are used for grazing. Some winter animal feeding areas are located in the watershed.

Major soil associations found in the watershed include Poinsett-Waubay-Buse, Poinsett-Hetland, Renshaw-Sioux-Marysland, Clarno-Ethan-Bonilla and Vienna-Brookings-Egeland-Embden.

The Kingsbury Lake Assessment Project area fall within a Humid Continental Type B climate. Average annual precipitation is 24 inches per year and average seasonal snowfall is 38 inches per year. Most precipitation falls during the period April to September. Tornadoes and severe thunderstorms strike occasionally. These storms are local and of short duration and occasionally produce heavy rain fall events.

The project area falls within the Northern Glaciated Plains ecoregion. This glaciated landscape consists of rolling terrain above drift plains. There is a high density of prairie pothole wetlands and a poor drainage network. Elevations range from approximately 1500 to 2000 feet with local relief ranging from 50 to 150 feet. Potential natural vegetation consists of tall grass prairie species.

The Lake Thompson watershed is located in the Northern Glaciated Plains Ecoregion (Omernik 1986). This glaciated landscape consists of rolling terrain above drift plains. There is a high density of prairie pothole wetlands and a poorly developed drainage network encompassing 234,420 acres. Elevations range from approximately 1500 to 2000 feet above sea levels with local relief ranging from 50 to 150 feet. Potential natural vegetation consists of tall grass prairie species. The area falls within a Humid Continental Type B climate. Average precipitation is 24 inches per year and average seasonal snowfall is 38 inches per year. Approximately 77% of this precipitation falls during the period April to September. Average temperatures vary from 0oC during the winter months to 16oC during the summer. Over 70% of this drainage area is managed for field crop and livestock production (Table 1). Small grains, corn and soybeans are the predominant crops on cultivated lands while areas with rolling terrain are used for grazing. Larger municipalities in the area include Desmet (popn 1180), Arlington (popn 913) and Lake Preston (popn 623).

Table 1. Land uses within the Lake Thompson watershed, eastern South Dakota.

Land Use	Acres	Percent
Field Crops	146383.30	62.44
Water	29079.16	12.40
Pasture	27955.85	11.93
Non-Crop	15016.13	6.41
Trees	3744.18	1.60

Homestead	3620.03	1.54
Urban	1683.67	0.72
Waterbank	808.24	0.34
Conservation Reserve	566.83	2.42
Wetland Reserve	462.50	0.20
Total	234419.89	100.00

Basin Descriptions

Lakes Preston, Thompson and Whitewood (Figure 1) have all been listed by the South Dakota Department of Environment and Natural Resources for total maximum daily load studies due to nutrient loading and eutrophication issues. Characteristics of each basin are listed below in Table 2.

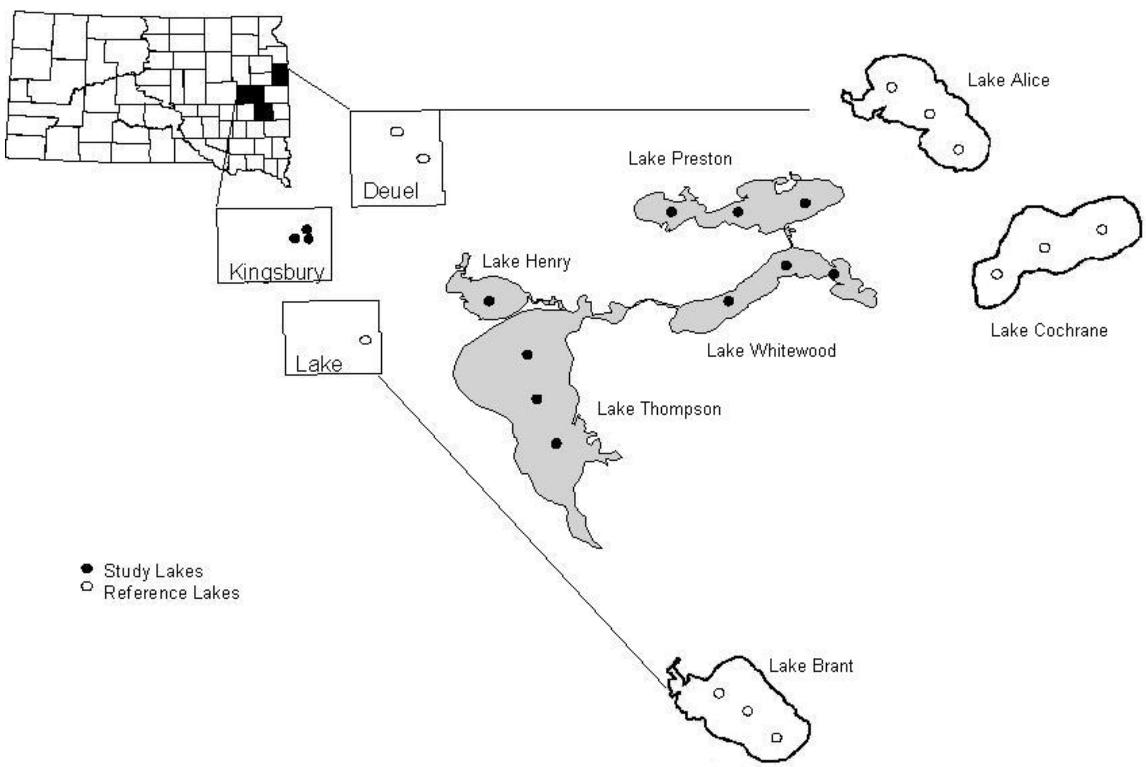

Figure 1. Locations of reference lakes Alice, Brant and Cochrane and study lakes Preston, Whitewood, Henry and Thompson. Sampling locations within each basin are indicated by open and closed circles.

Table 2. Drainage and basin attributes for lakes Thompson, Whitewood and Preston, Kingsbury County, South Dakota.

Attribute	Thompson	Whitewood	Preston
Drainage Basin	Vermillion River	Vermillion River	Vermillion River
County	Kingsbury	Kingsbury	Kingsbury
Longitude	44 °17'09"N	44°20'20"N	44 °22'49"N
Latitude	97 °28"17"W	97 °18'26"W	97 °28'14"W
Legal Description	T109N; R55,56W; Sect's 1,4,9,16-17,20-21	T110N; R53,54W; Sect's 18,19,9-21,29-30	T110,111N; R54,55W; Sect's 3-4,25-28,31-36
Basin Area	6570 ha	2011 ha	2114 ha
Maximum Depth	5.5 m	NA	NA
Volume	183000000 m3	NA	NA
Basin Type	Natural	Natural	Natural
Inlets	Yes	Yes	Yes
Outlet	Yes	Yes	Yes
Shoreline Length	71.7 km	29.9 km	31.3 km
Mean Depth	NA	NA	NA
Watershed:Lake Area	16	21	11
Thermal Stratification	Yes	No	Yes
Ownership	State	State	State
Popn within 65 mi	196,590	196,590	196,590

Lake Thompson

Lake Thompson is the largest freshwater lake basin in South Dakota. This basin has witnessed dramatic changes in hydrologic condition over the past 20 years. A cattail marsh 20 years ago, Lake Thompson began filling during a wet period in the middle eighties. Today, depths within the middle of this basin normally exceed 6 meters. Slight thermal stratification may occur during calmer periods of the summer. However, this stratification is easily broken due to frequent high winds that blow along the fetch of the lake.

Lake Thompson is managed to support warmwater permanent fish life propagation, immersion contact recreation, limited contact recreation, wildlife propagation and stock watering. Each of these designated uses is supported by a different set of water quality criteria. The most stringent values for each protected parameter constitute the water quality standards for this and each of the other basins. The water quality standards for Lake Thompson are shown below (Table 3). These standards provide a benchmark against which current conditions might be compared and management decisions might be made.

Table 3. Water quality criteria and standards for the Lake Thompson basin.

WW Permanent Fish Life Propagation	Criterion
Total residual Cl	<0.02 mg/L
Unionized NH3	<0.04 mg/L
Dissolved O2	>5.0 mg/L
Undisassociated H2S	<0.002 mg/L
pH	>6.5 and <9.0
TSS	<90 mg/L
Temperature	<80^{o}F
Immersion Contact Recreation	
Dissolved oxygen	>5.0 mg/L
Fecal Coliforms	200/100 ml as geometric mean/400/100ml as one
Limited Contact Recreation	
Dissolved oxygen	>5.0 mg/L
Fecal Coiforms	1000/100ml as geom mean/2000/100ml as one
Wildlife Prop and Stock Watering	
Total alkalinity	<750 mg/L
Total dissolved solids	<2500 mg/L
Conductance	<4000 uS/cm @ 25^{o}C
NO3	<50 mg/L
pH	>6.0 and <9.5
Standards	
Total residual Cl	<0.02 mg/L
Unionized NH3	<0.04 mg/L
Dissolved O2	>5.0 mg/L
Undisassociated H2S	<0.002 mg/L
pH	>6.5 and <9.0
TSS	<90 mg/L
Temperature	<80^{o}F
Fecal Coliforms	200/100 ml as geometric mean/400/100ml as one
Total alkalinity	<750 mg/L
Total dissolved solids	<2500 mg/L
Conductance	<4000 uS/cm @ 25^{o}C
NO3	<50 mg/L

Whitewood Lake

Like Lake Thompson, Whitewood Lake was once a cattail marsh but filled rapidly during the middle eighties. This basin is shallower and covers approximately one-third the area covered by Lake Thompson (Table 2). Water depth within this basin fluctuates seasonally around an average value of (2.5 meters). Water in Lake Whitewood basin is managed for warmwater marginal fish life propagation, immersion contact recreation, limited contact recreation, wildlife propagation and stock watering. These uses are supported by the water quality criteria and standards listed below (Table 4).

Table 4. Water quality criteria and standards for Lake Whitewood, SD.

WW Marginal Fish Life Propagation	**Criterion**
Total residual Cl	<0.02 mg/L
Unionized NH3	<0.05 mg/L
Dissolved O2	>4.0 mg/L
Undisassociated H2S	<0.002 mg/L
pH	>6.0 and <9.0
TSS	<150 mg/L
Temperature	<90oF
Immersion Contact Recreation	
Dissolved oxygen	>5.0 mg/L
Fecal Coliforms	200/100 ml as geometric mean/400/100ml as one
Limited Contact Recreation	
Dissolved oxygen	>5.0 mg/L
Fecal Coliforms	1000/100ml as geom mean/2000/100ml as one
Wildlife Prop and Stock Watering	
Total alkalinity	<750 mg/L
Total dissolved solids	<2500 mg/L
Conductance	<4000 uS/cm @ 25^{o}C
NO3	<50 mg/L
pH	>6.0 and <9.5
Standards	
Total residual Cl	<0.02 mg/L
Unionized NH3	<0.05 mg/L
Dissolved O2	>4.0 mg/L
Undisassociated H2S	<0.002 mg/L
pH	>6.0 and <9.0
TSS	<150 mg/L
Temperature	<90oF
Fecal Coliforms	200/100 ml as geometric mean/400/100ml as one
Total alkalinity	<750 mg/L
Total dissolved solids	<2500 mg/L
Conductance	<4000 uS/cm @ 25^{o}C
NO3	<50 mg/L

Lake Preston

Lake Preston is not currently classified as a lake by the South Dakota Department of Environment and Natural Resources. However, Lake Preston covers roughly the same area and is slightly shallower than Lake Whitewood. The state record perch (*Perca flavescens*) was caught from Lake Preston. In fact, the performance and protection of the fishery has led some state biologists to suggest reclassification of this basin as a lake. Lake Preston is currently classified as a semipermanent wetland and should be protected under 74:51:01:11 (Protection of wetlands as waters of the state).

- Discharge of visible pollutants.
- Discharge of acids and alkalis
- Discharge of taste and odor-producing materials
- Introducing nuisance aquatic life
- Discharge of petroleum products
- Protection of biological integrity

Lake Henry

While not listed for TMDL development, Lake Henry does contribute water to Lake Thompson within the designated project area. Water within Lake Henry is managed for warmwater marginal fish life propagation, immersion contact recreation, limited contact recreation, fish and wildlife propagation and stock watering. Thus, water quality criteria and standards for this basin are the same as those listed above for Lake Whitewood (Table x). One basin site and the Lake Henry outlet were sampled to facilitate load estimation to Lake Thompson.

Streams Contributing Water to Lakes

The eastern portion of the watershed generally drains to Lakes Preston and Whitewood and then to Lake Thompson. The western portion of the drainage area contributes water to Lake Henry and then to Lake Thompson. A few small intermittent stream channels contribute water directly to Lake Thompson during snowmelt runoff and following intense rainfall events. None of the streams within the study watershed are listed as perennial flowing channels. Water within these channels is designated for use to support fish and wildlife propagation, recreation, stock watering and irrigation. Water quality criteria and standards to support these uses are shown below in Table 5.

Table 5. Water quality criteria and standards for streams contributing water to Lake Thompson, Kingsbury County, South Dakota.

Variable	Other (9)	Irrigation (10)
pH	6.0-9.5	
Alkalinity	750/1313 mg/L	
Tot Diss Solid	2500/4375 mg/L	
Conductance	4000/7000 uS/cm	2500/4375 uS/cm
Nitrate-N	50/88 mg/L	
Petroleum	10 mg/L	
Sodium Adsorp Ratio		10

PROJECT OBJECTIVES

The overall goal of the Kingsbury County Assessment Project is to locate and document sources of nonpoint source pollution in three watersheds leading to the proposal of feasible restoration alternatives. Information generated from this study will provide adequate background information needed to drive watershed implementation projects to reduce sedimentation and nutrient enrichment within creeks and lakes in the three study watersheds. This project will result in TMDL reports for Lakes Preston, Thompson and Whitewood.

METHODS

Reference Site Selection

Three reference lake and stream sites were selected for habitat and bioassessment comparison. Lakes Alice, Brant, Cochrane and their associated reference streams were selected based upon (1) existing DENR lakes assessment data for the Northern Great Plains ecoregion and (2) solicited rankings from local natural resource agency personnel representing the South Dakota Department of Environment and Natural Resources and South Dakota Game, Fish and Parks and USDA Natural Resource Conservation Service. Data collected from these reference lakes and streams provided the basis for comparison and scoring the Kingsbury County lakes and streams.

Lake Basin Sampling

Nutrient and solids parameters were sampled monthly at three in-lake sites within each study basin and one Lake Henry site over the period April 1 to October 1, 2001-2003. Nutrient samples were analyzed by the South Dakota State University Water Quality Testing Laboratory (2001-2002) and the State Department of Health Laboratory (2003). Solids samples were analyzed by the South Dakota State University Environmental Biology Laboratory. Samples were collected from 0.5m below the surface and 0.5m above the bottom of lakes Preston, Thompson and Whitewood (n=72) and from the surface of Lake Henry (n=12). Resulting data were combined with tributary data for inclusion in the USACE FLUX and BATHTUB basin eutrophication models.

Water column dissolved oxygen and temperature profiles were collected on a monthly basis. Water samples were collected with a Van Dorn sampler, preserved, packed on ice and shipped to the lab by the most rapid means available. Fecal coliform samples were analyzed by the South Dakota Department of Health Lab in Pierre, SD. Planktonic algae were collected by taking grab samples from Van Dorn water at each location. Benthic invertebrates were collected using an Eckman dredge from each basin location and from random locations around the perimeter of each basin using a D-frame net. Chlorophyll, plankton and benthic invertebrate sample processing was conducted within the South Dakota State University Environmental Biology Laboratory. Macrophyte surveys were conducted from random locations around the perimeter of each basin.

Phytoplankton samples were counted from 1.0 mL subsamples dispersed onto Sedgwick-Rafter counting cells under 400x magnification. The natural unit or clump counting procedure was used to estimate number of individuals per milliliter of subsample (Eaton et al. 1995).

All samples were collected using methods described in the Standard Operating Procedures for Field Samplers by the State of South Dakota Water Resources Assistance Program.

Lake Littoral Zone Sampling

Lake shoreline and littoral zone samples were collected at 5 random points around the perimeter of each basin on each sampling date. This sampling was conducted to (1) characterize lake shoreline conditions and (2) evaluate the condition of lake littoral areas. Shoreline slope, percent vegetative cover, percent bank erosion, canopy cover and predominant land-use within 100m of the lake shoreline were evaluated from each site. Water temperature, specific conductance, pH, dissolved oxygen, substrate particle size, macrophyte percent cover and macroinvertebrate community characteristics were evaluated within each littoral site. Invertebrate samples were collected by taking a 1 minute, timed sweepnet sample using a 250um, D-frame net.

Stream Sampling

Stream sampling was conducted to (1) estimate loadings of nutrients and sediment to each of the target lake basins and (2) evaluate the biotic integrity of stream channels contributing water to those basins. Water grab samples were collected from mid-channel and 60% of total depth. All samples were preserved, packed in iced and shipped to the lab for analysis. Nutrient and solids parameters were sampled from 16 tributary sites in the project area. Nutrient analyses were conducted by the South Dakota State University Water Quality Testing Laboratory during 2001-2002 and by the State Health Department during 2003. Fecal coliform samples were analyzed by the South Dakota Department of Health Laboratory in Pierre, SD throughout the study period.

Channel and riparian zone habitat conditions were evaluated from each tributary location and benthic macroinvertebrates were sampled using a D-Frame net from three locations at each site (composite sample). All lab analyses other than nutrients and fecal coliform bacteria were conducted within the Environmental Biology Laboratory at South Dakota State University.

USACE Modeling

The U.S. Army Corps of Engineers FLUX model was used to estimate annual loadings of total nitrogen, total phosphorus and total solids to each study lake basin. These estimates were generated from continuous stage records, field discharge measurements and field water chemistries taken throughout the sample period. Separate stage-discharge relationships were established for each of the monitored subbasins within the study area. These relationships were used to predict stream flow and estimate nutrient and sediment loads to each site.

Field data collected from tributary and basin sites were utilized within the USACE BATHTUB model to evaluate current lake trophic state and estimate changes in trophic state which might occur as a result of altering phosphorus loads each lake basin. Load scenarios examined with BATHTUB included current load estimates and those resulting from reductions down to 10% of current values. Carlson Trophic State Index values were plotted against phosphorus load reductions to evaluate potential changes in lake trophic state resulting from implementation of best management practices within the watershed.

Annualized AGNPS Modeling

The Kingsbury County Lakes watershed is located in Kingsbury and Lake counties in Eastern South Dakota and includes the towns of: DeSmet, Lake Preston, Arlington, Oldham, Ramona, Hetland, and Erwin. The size of the Kingsbury County Lakes watershed and area modeled was 253,356 acres. The watershed was divided into ten sub-watersheds titled: Lake Preston Trib 1-6 (LPT1-6) and Lake Whitewood Trib 1-4 (LWT1-4) for smaller-scale assessments. An AnnAGNPS dataset was also included for the eastern portion of the watershed (Outlet Into Thompson) sub-watershed.

The computer model selected to evaluate the current conditions of the Kingsbury Lakes Assessment Project area was the Annualized Agricultural Nonpoint Source (AnnAGNPS) model. AnnAGNPS is a continuous simulation watershed-scale program. It was developed by the Natural Resources Conservation Service and Agricultural Research Service. It is an expansion of the capabilities in the single event model AGNPS. To use AnnAGNPS, the watershed is subdivided into homogenous land areas with respect to soil type, land use, and land management. Areas can be of any shape including hydrologically-based or square grid (as was used in AGNPS) (Figure 2). AnnAGNPS simulates quantities of surface water, sediment, nutrients, and pesticides leaving the land areas (cells) and their subsequent travel through the watershed (Figure 3). Some of the sediment, nutrients, and pesticides will reach the watershed outlet while the remainder will be deposited in the stream system. Calculations are done on a daily time step. Runoff quantities are based on runoff curve number while sediment is determined using RUSLE. Special components are included to handle concentrated sources of nutrients (feedlots and point sources), concentrated sediment sources (gullies), and added water (irrigation) (Figures 4-6). Output is expressed on an event basis for selected stream reaches and as source accounting (contribution to outlet) from land or reach components over the simulation period. (Bingner and Theurer 2001)

A daily climate data file was generated using monthly climate data for this area. All watershed and sub-watershed output files were generated using 25-year climate data (Table 6).

The AnnAGNPS model can be used in conjunction with a Geographic Information System computer program ArcView®, as it was in this project. ArcView® was used to digitize field boundaries and assign land use for each of these fields.

In the Kingsbury Lakes Assessment Project the ArcView® Spatial AnnAGNPS interface was used to delineate watershed boundaries and cells, select predominant soils and land use for each cell, and input soils data directly into AnnAGNPS. ArcView® Spatial AnnAGNPS interface is a user-friendly tool developed to assist decision-makers to conduct easier, effective watershed assessments. The Spatial AnnAGNPS interface not only assists users to extract the required soil data from the National Soil Survey Geographic Database (SSURGO) but also helps users organize input files, run the model, and visualize modeling results (Tsou 2003).

Table 6. Monthly climate information used to generate a 25-year daily climate file for ANNAGNPS processing.

Month	Dew Point (^{o} F)	Sky Cover (%)	Wind Speed (mph)
January	6.0	63	12
February	11.0	63	12
March	20.0	70	13
April	32.0	61	14
May	41.0	56	13
June	56.0	55	12
July	60.0	47	11
August	57.0	50	11
September	47.0	50	12
October	37.0	51	12
November	23.0	62	13
December	13.0	62	12

Location of Sub-Watersheds

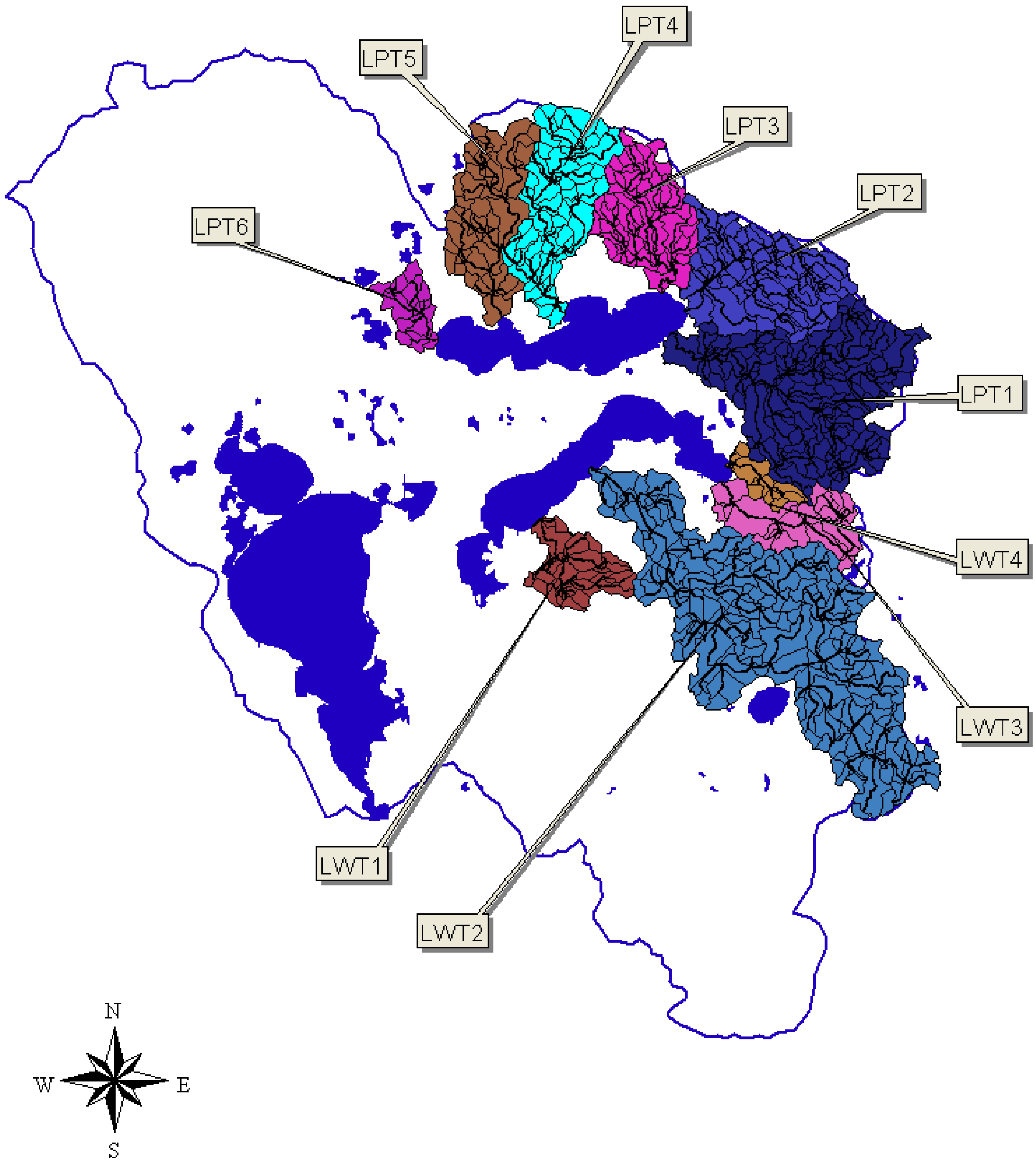

Figure 2. Subwatersheds in the Lake Preston and Lake Whitewood subwatersheds which were modeled with the annualized AGNPS model.

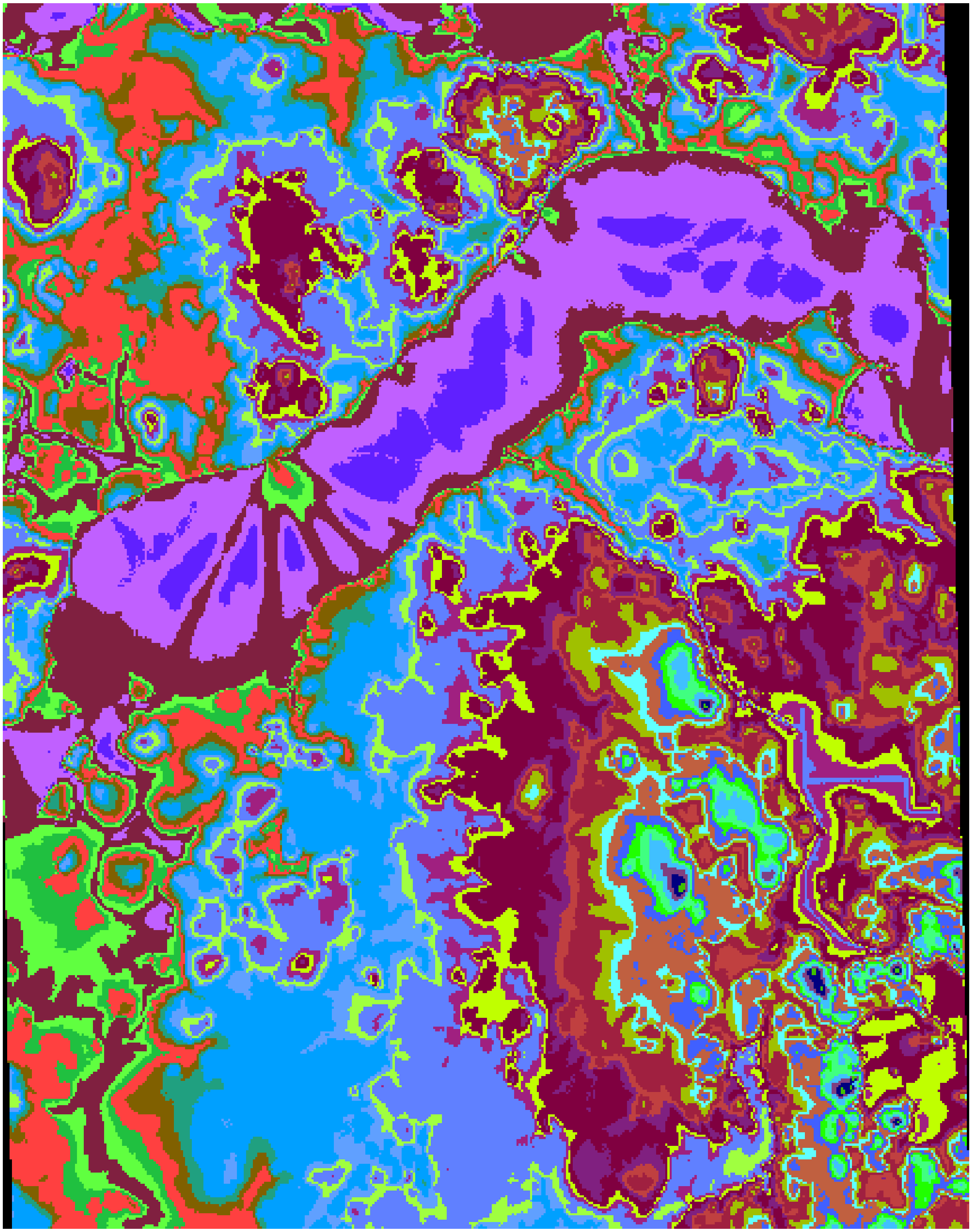

Figure 3. Digital Elevation map use for delineating sub-watersheds with the ARCVIEW spatial ANNAGNPS interface.

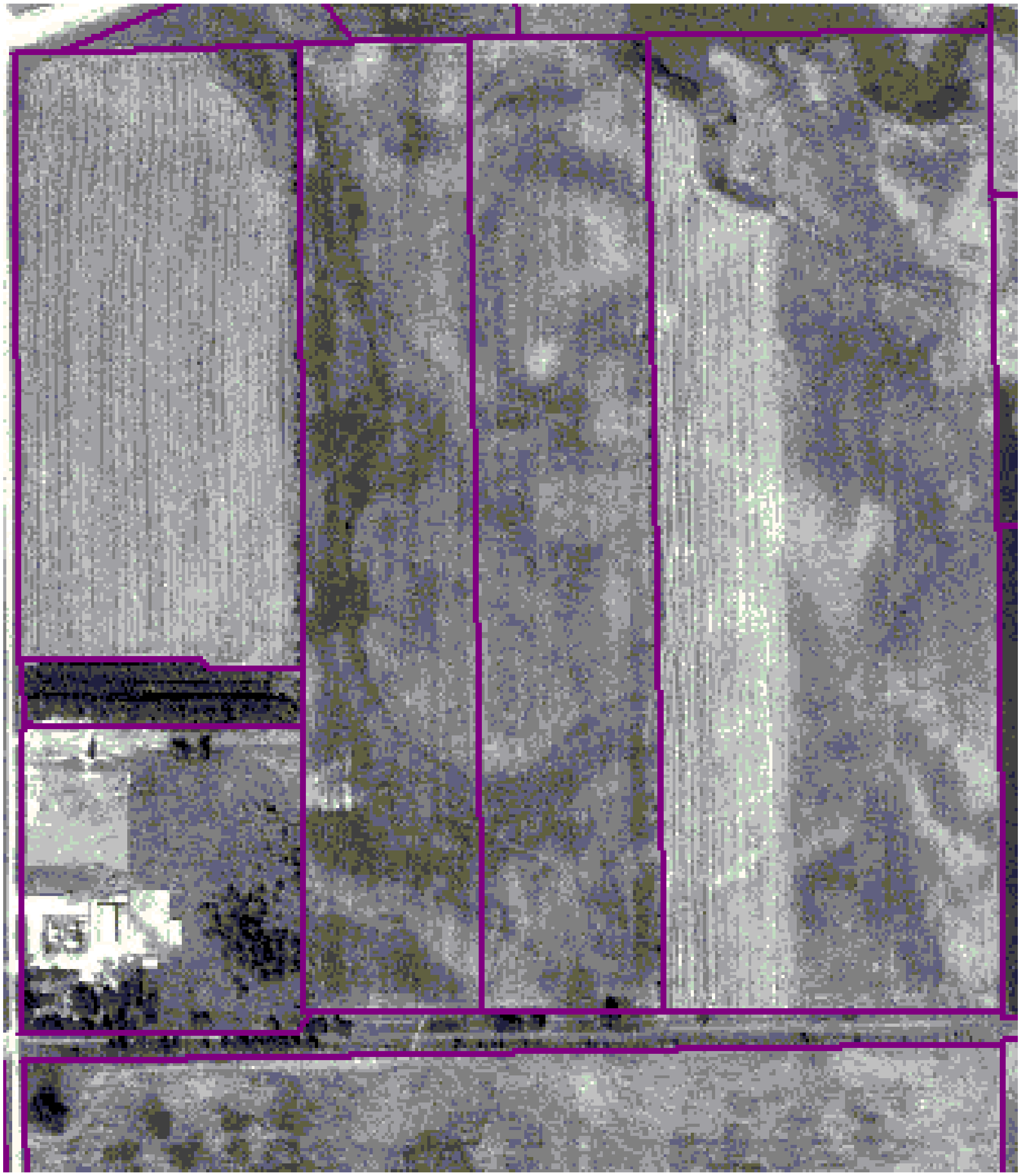

Figure 4. Digital orthophoto quad used in digitizing field boundaries within ARCVIEW.

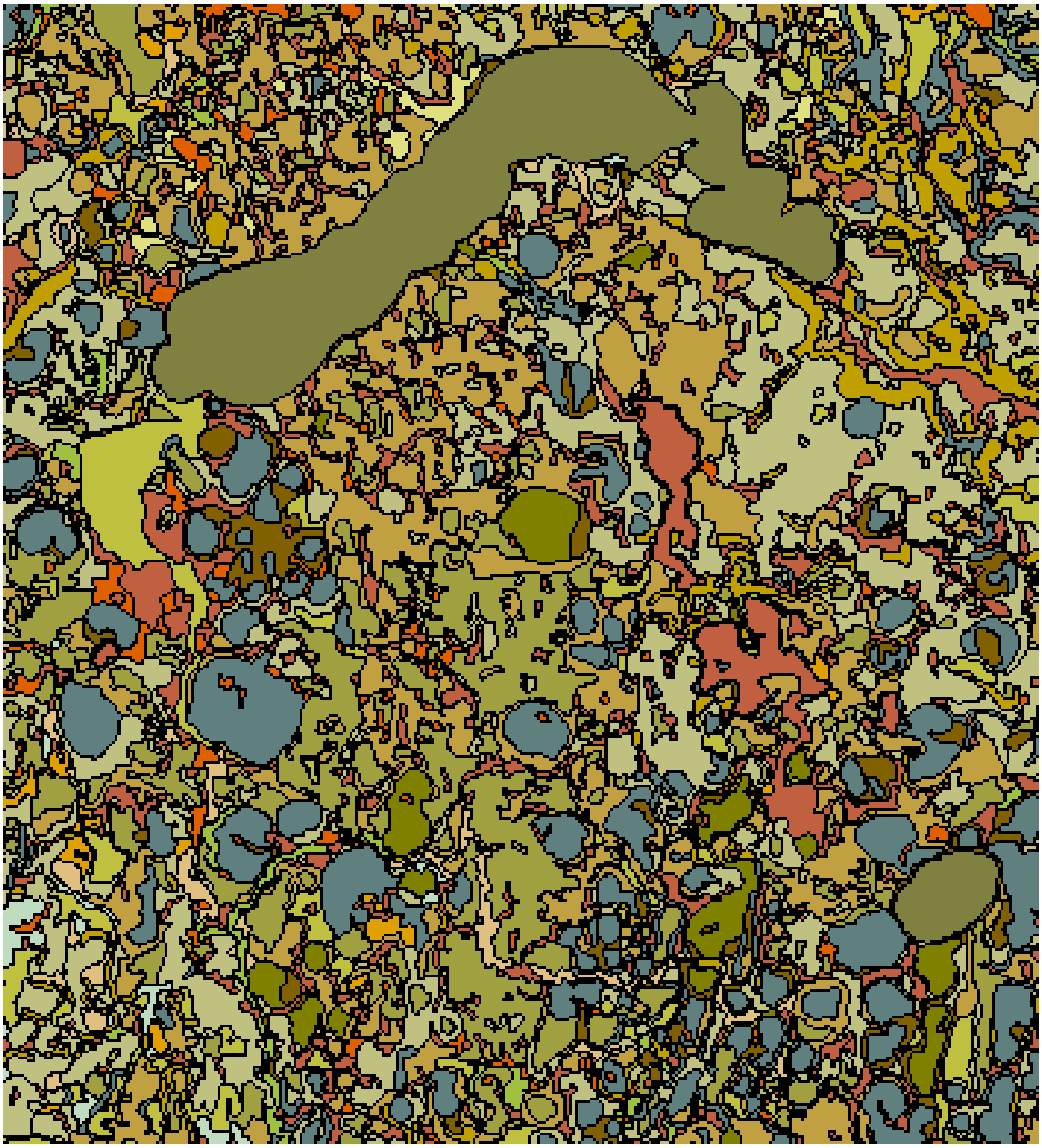

Figure 5. Digital soils map used to select predominant soil cells using the ARCVIEW spatial ANNAGNPS interface.

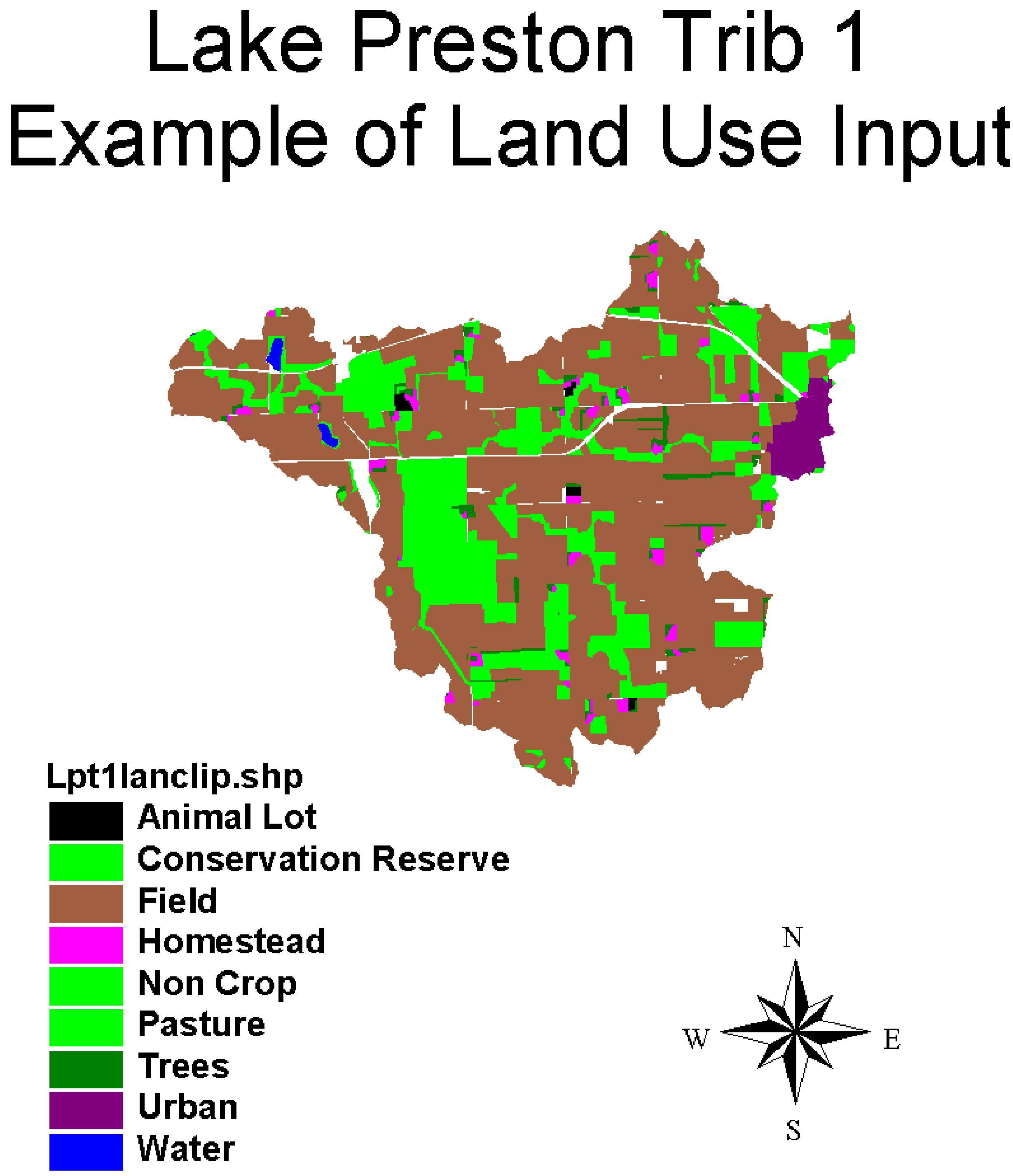

Figure 6. Example of landuse input to the ANNAGNPS model.

City of Lake Preston Wastewater Treatment Facility

Major sediment and nutrient loading sources to the Kingsbury lake basins were identified using stream flow and water chemistry samples collected from the field and from modeling simulations using annualized AGNPS. In addition to numerous nonpoint sources identified throughout the watershed, the City of Lake Preston operates their wastewater treatment facility along the banks of Lake Preston. This treatment facility employs the use of evaporative lagoons and rarely discharges to the lake. However, high annual precipitation may lead to discharge of water from the lagoon system to the lake. This facility is permitted through the NPDES system and the State of South Dakota to discharge into Lake Preston. No discharge was reported during the course of this assessment project. Permission to sample the wastewater within the lagoon system to estimate loads during discharge events was denied. Thus, this loading source could not be quantified during this assessment effort.

Data Comparisons and Analyses

Water quality standards served as our reference for evaluating water chemistry data. Summary statistics are presented for each physical and chemical variable by Lake Basin. Most of the data is not normally distributed. Hence, greater reliance is placed on median values as measures of central tendency and quartiles to evaluate variance. In addition, non-parametric tests of significance (Kruskal Wallace ANOVA) were employed to evaluate differences between study and reference data.

Habitat and invertebrate data for study lake basins were evaluated based upon comparable measurements from reference basins and streams. Lakes Alice, Brant and Cochrane and streams associated with each of these basins were used for reference. These reference sites were selected based upon (1) rankings of trophic state index values of monitored lakes within the Northern Glaciated Plains ecoregion of eastern South Dakota and (2) independent rankings from natural resource managers working within this ecoregion. All data were summarized by lake basin, site and sampling date. Table presentations of summary statistics and selected box and whisker plots were generated to demonstrate these differences.

Algae, macrophyte and invertebrate metrics were calculated monthly and scored relative to reference samples using a modification of the Rapid Bioassessment Protocol III (Plafkin et al. 1989; Larson and Troelstrup 2001). This procedure involves individual scoring of community characteristics relative to average reference site values. Scores of selected metrics are summed to provide an overall site score which is expressed as a percentage (out of a total of 60 points). Because this procedure is new to South Dakota, we evaluated many algae, macrophyte and individual invertebrate metrics. The ten metrics within each group displaying the greatest discriminatory power between study and reference sites and the lowest reference site variability were chosen to be part of an optimized set of metrics for these study sites (Larson and Troelstrup 2001).

Each of the optimized metrics was scored relative to reference site values. Metric scores ranged from 0 – 6. Those with a score approaching zero deviated greatly (>75%) from reference site conditions while those scoring closer to 6 would approach reference site conditions (<25% deviation). Individual scores from each optimized metric were summed to generate an overall site score. The total site score was expressed as a percentage of the score possible if all metrics had achieved the highest score of 6 (possible = 60 pts). Impairment categories (non-impaired, slightly impaired, moderately impaired and severely impaired) were based upon quartile deviations from the average reference condition (Table 7).

Table 7. IBI biocriteria for the assignment of impairment classes to stream and lake sites within the Kingsbury study area.

Site Condition	Criterion
Unimpaired	>75% Similar to Reference
Slightly Impaired	51-75% Similar to Reference
Moderately Impaired	25-50% Similar to Reference
Severely Impaired	<25% Similar to Reference

RESULTS

Watershed Characteristics

Annual Precipitation During Project

Annual precipitation totals were obtained from the National Weather Service for sites near Arlington and Desmet. Annual precipitation during the project period was well above normal during the 2001 growing season but dropped significantly below normal during the 2002 and 2003 growing seasons (Figure 7). When placed in context with long-term records, precipitation during the three years of the project fell around the middle of the distribution.

Lake Elevations During Project Period

Lake elevations were obtained from the South Dakota Department of Environment and Natural Resources, Water Rights Office. Elevations measured from benchmark survey sites indicate decreases in lake elevations for all Kingsbury lakes through the project period (Table 8). These reductions in lake elevation track lower annual precipitation data reported by the National Weather Service. The shallower Lake Preston and Lake Whitewood basins displayed greater reductions in elevation than the deeper Thompson and Henry basins. Also evident in the long-term elevation data is the period over which these basins filled during the early 1980's. This period of filling corresponds with three of the wettest years on record (Figure 8).

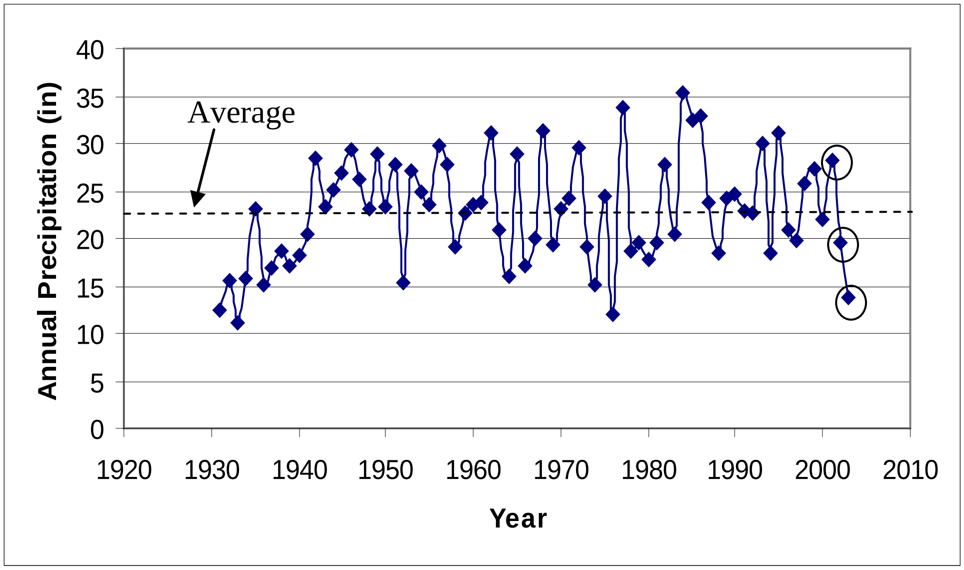

Figure 7. Annual precipitation records for the DeSmet station of the National Weather Service over the period 1930 to 2003. Circled data points are the precipitation amounts during the project period. The dotted line is the average annual precipitation over the period of record.

Table 8. Changes in lake surface elevation of the Kingsbury study basins during the project period (2001-2003).

Lake	**Spring Lake Surface Elevation (ft)**			
	2001	**2002**	**2003**	**Change**
Preston	1695.6	1693.1	1692.0	-3.6
Whitewood	1692.9	1691.4	1690.2	-2.7
Henry	1690.9	1689.5	1688.8	-2.1
Thompson*	1688.7	1688.6	1686.3	-2.4

*Elevations for Lake Thompson were taken from 2002-2004 due to a missing value in the state's data set for 2001.

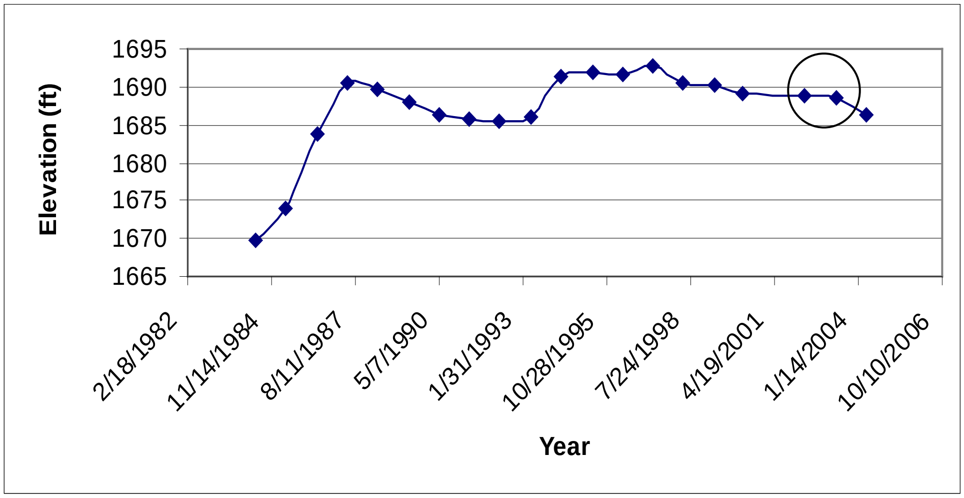

Figure 8. Changes in elevation for Lake Thompson recorded over the period 1984-2004. Circled years occurred during the project period. Note that 2001 is missing.

Watershed Management Descriptions

The entire Lake Thompson watershed includes 234,420 acres (94,866 ha) of drainage area to Lakes Henry, Preston, Whitewood and a small area immediately around Lake Thompson. The bulk of this drainage area is up-gradient from Lakes Henry, Preston and Whitewood. Only a small portion of the watershed area contributes directly to Lake Thompson.

Lake Perimeter Management

Land around the perimeter of reference lake basins was primarily residential with some agricultural land (Figure 9). In contrast, land surrounding the study lakes was primarily managed for cultivated crops. Wetland areas were the second (by frequency) adjacent to study lakes.

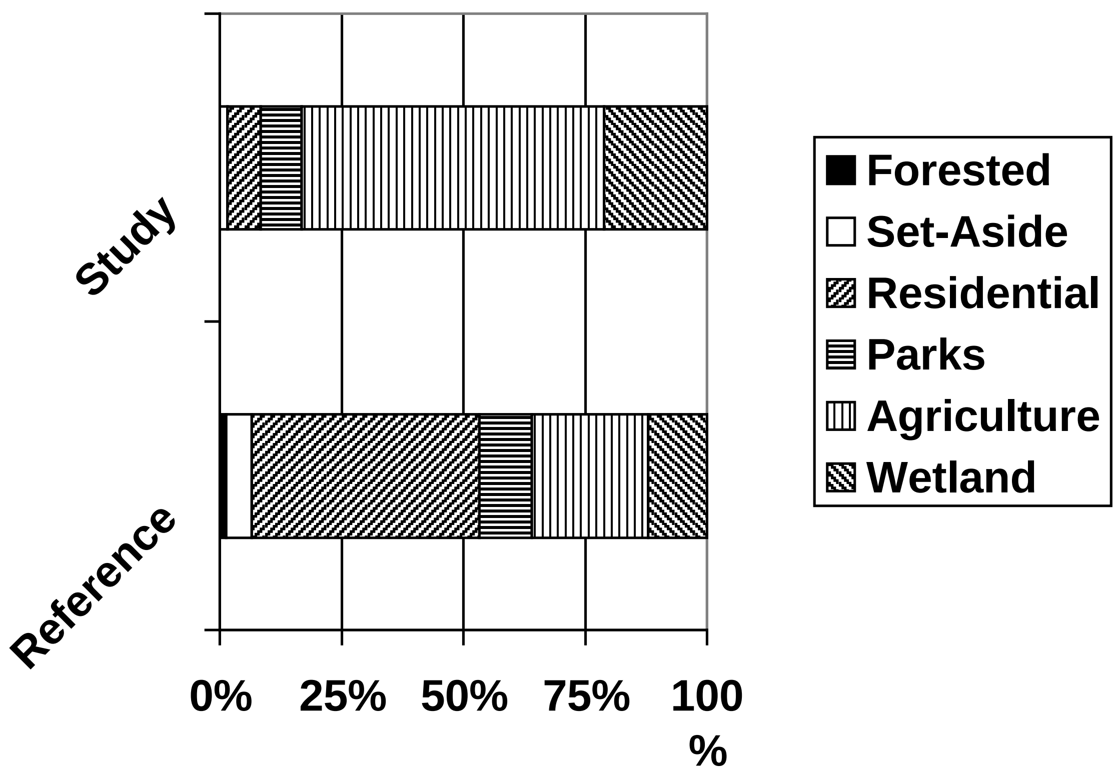

Figure 9. Land use within 30m of the shoreline around the perimeter of reference and study lake basins.

Stream Physical and Chemical Characteristics

Instantaneous Stream Flow

Instantaneous stream flows were measured from monitored inlet and outlet channels during spring snowmelt, rainfall runoff events and base flow conditions throughout the project period. These flow measurements were taken concurrently with chemical grab samples to facilitate nutrient and sediment load estimation from each site (Table 9). Streams normally displayed their greatest flows during spring snowmelt runoff and following spring runoff events. These channels would become progressively drier throughout the growing season, normally drying entirely by mid-July. Drought conditions became evident later in the 2002 growing season and became severe during the summer of 2003. Nearly all of the inlet and outlet channels dried throughout the project period due to progressively lower precipitation. By the end of the project period, even the Lake Thompson outlet had dried.

Most of the monitored stream channels demonstrated negative minimum values. These minimums represent backflow situations not uncommon to low gradient channels. In addition, mean flows were greater than median flows for all monitored channels. Thus, flows are not normally distributed. The ratio of maximum to median flows provides an indicator of stream flashiness (Table 9). Maximum flows ranged from 4 to 20,470 times median flows with the highest values observed among inlets and the lowest among outlet sites, as expected. Median flows ranged from 0.000 to 0.662 m^3 sec^{-1}.

Table 9. Summary of instantaneous flow from monitored inlet and outlet streams sampled throughout the Kingsbury study area (n – number of instantaneous flow measurements, mean, minimum, 25th, 50th and 7th percentiles, maximum and ratio of maximum to median flow for each site).

Site	n	Mean	Min	25th	50th	75th	Max	Max/Med
				m^3 sec^{-1}				
LPT1	19	0.583	-0.079	0.001	0.026	0.080	4.915	189
LPT2	12	0.065	-0.014	0.000	0.001	0.087	0.533	533
LPT3	16	0.079	-0.185	-0.034	0.000	0.095	0.657	6570
LPT4	12	0.490	-0.018	0.000	0.005	0.094	5.088	1018
LPT5	12	0.253	0.000	0.000	0.026	0.073	2.598	100
LPT6	13	0.409	-0.052	-0.031	0.012	0.091	5.040	420
LPO	16	0.386	-0.408	0.000	0.194	0.821	1.813	9
LWT1	19	0.125	-0.147	0.000	0.000	0.048	2.047	20470
LWT2	20	0.439	0.000	0.013	0.051	0.266	4.360	85
LWT3	20	0.095	-0.022	0.000	0.009	0.103	0.862	96
LWT4	11	0.226	-0.003	0.000	0.002	0.099	1.762	881
LWO	16	0.409	-0.052	-0.031	0.012	0.091	5.040	420
LHO	17	0.352	-1.011	0.000	0.029	0.294	2.504	86
LTO	19	0.850	-0.385	0.092	0.662	1.575	2.556	4

Continuous Stream Flow

Continuous stream flow estimates during the ice-free period were generally poor due to low gradient within the watershed and drying conditions throughout the study period. Stage recorders were placed at each of the major inlets and outlets of Lakes Preston and Whitewood and the outlets of Lakes Henry and Thompson. All stage recorders were monitored during the ice-free season.

In some cases, stage-discharge relationships were improved by regressing the log of stream discharge onto the stage. In addition, outlying data points within the relationship were sometimes omitted from the regression to improve fit. Separate stage-discharge relationships were generated for each year of the study period due to drying of the channel and the need for recalibration of equipment following each winter period (Table 10).

Table 10. Stage-discharge relationships for tributary streams entering the Kingsbury County study lakes.

Tributary	Year	Regression Equation
LPT1	2001	Flow = 2.1185*Stage – 1.9532; R^2 = 0.98, $p < 0.01$
	2002	Log Flow = 0.6771*Stage – 0.8501; R^2 = 0.98, $p < 0.01$
	2003	Log Flow = 22.7967*Stage – 5.7307; R^2 = 0.84, $p < 0.01$
LPT2	2001	Flow = 0.1483*Stage – 0.0542; R^2 = 0.42, p = 0.218 (Poor)
	2002	Log Flow = 4.8047*Stage – 4.9246; R^2 = 0.80, p = 0.070
	2003	Flow during snowmelt in March only.
LPT3	2001	Flow = 1.0184*Stage – 1.2975; R^2 = 0.99, $p < 0.01$
	2002	Log Flow = 25.4646*Stage – 14.1276; R^2 = 0.97, $p < 0.01$
	2003	Flow during snowmelt in March only.
LPT4	2001	Flow = 3.3829*Stage – 1.8690; R^2 = 0.99, $p < 0.01$
	2002	Flow = 0.8270*Stage – 0.4386; R^2 = 0.55, p = 0.01 (Poor)
	2003	Flow during snowmelt in March only.
LPT5	2001	Flow = 3.9474*Stage-1.4503; R^2 = 0.95, $p < 0.01$
	2002	Flow = 0.7567*Stage – 0.1910; R^2 = 0.94, $p < 0.01$
	2003	Log Flow = 12.2359*Stage – 5.2266; R^2 = 0.281,p = 0.41(Poor)
LPT6	2001	Flow = 4.8403*Stage-3.5319; R^2 = 0.93, p = 0.02
	2002	Flow = 6.9311*Stage – 3.6654; R^2 = 0.97, p = 0.08
	2003	Flow = 0.0208*Stage + 0.0037; R^2 = 0.998, p = 0.02
LPO	2001	Poor Stage-Discharge Relation; Average Flow = 1.28 cms
	2002	Flow = 0.4444*Stage + 0.0395; R^2 = 0.28, p = 0.16
	2003	No flow during 2003.
LWT1	2001	Flow = 0.3016*Stage-0.2737; R^2 = 0.95, p = 0.02
	2002	Flow = 3.9763*Stage – 3.4797; R^2 = 0.96, $p < 0.01$
	2003	Log Flow = 6.6675*Stage – 5.4084; R^2 = 0.899; p = 0.01
LWT2	2001	Log Flow = 0.6777*Stage – 0.0769; R^2 = 0.72, p=0.01
	2002	Log Flow = 2.5688*Stage = 1.8878; R^2 = 0.92, $p < 0.01$
	2003	Flow = 1.9527*Stage – 0.3183; R^2 = 0.803; $p < 0.01$
LWT3	2001	Log Flow = 0.1713*Stage – 0.1468; R^2 = 0.46, p=0.201(Poor)
	2002	Log Flow = 5.6034*Stage – 7.7420; R^2 = 0.94, p = 0.10
	2003	Log Flow = 7.3700*Stage – 5.8827; R^2 = 0.68, $p < 0.01$
LWT4	2001	Flow = 1.8547*Stage – 0.5962; R^2 = 0.99, $p < 0.05$
	2002	Log Flow = 4.0056*Stage – 4.0160; R^2 = 0.90, $p < 0.01$
	2003	Only 2 dates with positive flow in 2003.
LWO	2001	Flow = 9.7817*Stage – 6.2363; R^2 = 0.89, $p < 0.01$
	2002	Log Flow = 0.7216*Stage – 0.0986; R^2 = 0.72, $p < 0.01$
	2003	No measurable flow in 2003.
LHO	2001	Flow = 3.9849*Stage – 2.8089; R^2 = 0.83, p = 0.06
	2002	Log Flow = 2.7576*Stage – 1.2167; R^2 = 0.83, $p < 0.01$
	2003	Log Flow = 22.7967*Stage - 5.7307; R^2 = 0.870, p = 0.013
LTO	2001	Flow = 14.0143*Stage – 9.4402; (Poor, Regression on 2 Points)
	2002	Flow = 4.8734*Stage – 1.3362; R^2 = 0.86, $p < 0.01$
	2003	Log Flow = 13.4516*Stage – 3.8173; R^2 = 0.95, p = 0.017

Most of the monitored channels within the study area were dry during more than 50% of the period of record (Table 11). Three of the outlets (LWO, LHO and LTO) had recordable median flow values. The high frequency of low flows suggest that most channels within the study area are temporary or intermittent. Thus, most of the sediment and nutrient loads within this watershed are delivered during event-based episodes (snowmelt runoff and/or runoff from heavy rainfall).

Table 11. Continuous stream discharge (cubic meters per second) estimated from continuous stage recording equipment on Kingsbury County tributary stream sites.

Site	*Stream Flow Statistic**						
	n	*Mean*	*Min*	*25%*	*50%*	*75%*	*Max*
LPT1	407	0.243	0.000	0.000	0.001	0.292	5.509
LPT2	409	0.022	0.000	0.000	0.000	0.005	0.610
LPT3	407	0.375	0.000	0.000	0.000	0.031	26.994
LPT4	407	0.101	0.000	0.000	0.000	0.000	4.104
LPT5	407	0.024	0.000	0.000	0.000	0.002	5.668
LPT6	411	0.114	0.000	0.000	0.000	0.032	2.026
LP0	407	0.355	0.000	0.000	0.000	0.237	1.866
LW1	409	0.041	0.000	0.000	0.000	0.005	1.940
LW2	407	0.124	0.000	0.000	0.001	0.033	6.842
LW3	409	0.014	0.000	0.000	0.003	0.016	0.181
LW4	407	0.005	0.000	0.000	0.000	0.000	0.890
LWO	407	0.413	0.000	0.000	0.148	0.607	3.545
LHO	398	0.245	0.000	0.000	0.003	0.298	2.578
LTO	393	0.789	0.000	0.009	0.525	1.169	2.597

*flow statistics generated over the period of record for each gauging station

Stream Bank Characteristics

Vegetative ground cover was evaluated by density board readings on each bank of each stream reach. Density board scores range from 0-21 with high values indicating low percent ground cover. Average density board scores ranged from 0.6 to 21 with LWT2 and LBT having less vegetative ground cover than most of the other assessed sites (Figure 10).

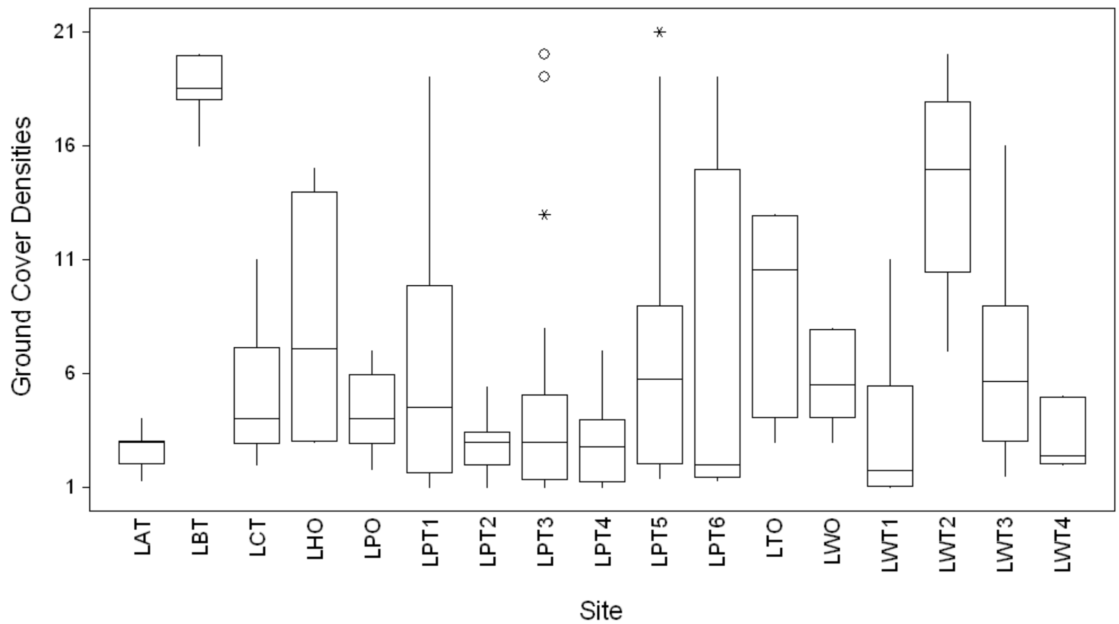

Figure 10. Ground cover densities measured with a density board throughout the project period. Density board measurements range from 0-21. High numbers indicate low percent ground cover.

Canopy cover from taller woody vegetation along stream banks was extremely limited from both reference and study reaches. Only LPT1 and LWT2 had measurable canopy cover within sampled reaches. Percent canopy cover within these two reaches ranged from 0% to 100% with median values of 0% for LPT1 and 26% from LWT2 (Figure 11).

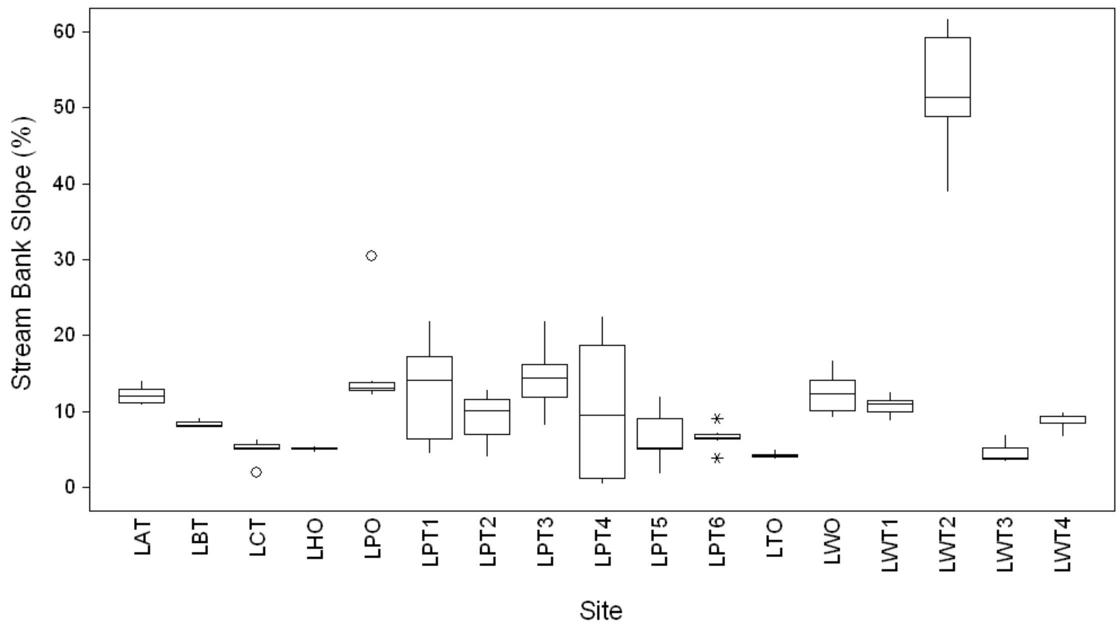

Figure 11. Stream bank slope adjacent to each stream site within the project area.

Stream bank slopes ranged from 0.6% to 61.6% from sampled reference and study stream reaches. Median stream slopes observed from reference streams ranged between 5% - 12% while those from study streams ranged from 0.6% to 61.6%. Highest stream bank slopes were observed from LWT2.

Bank erosion and undercut banks were encountered from both reference and study stream sites (Table 12). However, low gradient channels within the Kingsbury County study area were often well vegetated with little evidence of undercut. LPT1-4 and LWT2 sites were most influenced by bank erosion.

Table 12 Minimum, median and maximum percentage of eroded and undercut banks at each monitored stream site within the Kingsbury study area.

Site	% Erosion			% Undercut		
	Min	Med	Max	Min	Med	Max
LAT	43.0	48.5	65.5	6.5	7.8	15.0
LBT	27.5	34.0	36.0	0.0	0.0	0.0
LCT	0.0	0.0	0.0	0.0	0.0	0.0
LPT1	0.0	25.0	85.0	0.0	1.5	10.0
LPT2	0.0	30.0	100.0	0.0	0.0	0.0
LPT3	0.0	55.0	85.0	0.0	0.0	45.0
LPT4	0.0	33.8	80.0	0.0	12.5	30.0
LPT5	0.0	0.0	20.0	0.0	0.0	0.0
LPT6	0.0	30.0	45.0	0.0	0.0	0.0
LPO	0.0	0.0	0.0	0.0	0.0	0.0
LWT1	0.0	7.5	50.0	0.0	0.0	0.0
LWT2	30.0	70.0	100.0	0.0	0.0	50.0
LWT3	0.0	0.0	0.0	0.0	0.0	0.0
LWT4	0.0	0.0	0.0	0.0	0.0	0.0
LWO	0.0	25.0	32.0	0.0	0.0	0.0
LHO	0.0	0.0	0.0	0.0	0.0	0.0
LTO	0.0	0.0	0.0	0.0	0.0	0.0

Stream Substrate

Stream substrate characteristics were estimated visually from 100 locations within each sampled reach. Silt/clay mineral particle sizes and emergent macrophyte vegetation were the most frequently encountered substrate types from sampled stream reaches. LPT4, LWT1, LWT2, LHO and LAT sites all had higher substrate diversity than that observed from other sampled reaches (Table 13).

The degree to which larger substrate particles were embedded by fine sand, silt and clay varied tremendously among the sampled stream sites (Figure 12). LCT and LWT3 displayed the lowest embeddedness among sampled sites. Outlet site substrates were all highly embedded as were those from LPT2-LPT4 and LWT1-LWT2.

Table 13. Average occurrence (%) of boulder, cobble, gravel, fine gravel, sand, silt/clay, wood, emergent macrophyte vegetation and submerged macrophyte vegetation substrate within sampled stream reaches.

Site	Bld	Cob	Grv	FGr	Snd	SlCl	Wod	EMV	SMV
LPT1	0	0	0	0	0.8	38	0.9	28	8
LPT2	0	0	0	0	0	81	0.6	11	2
LPT3	0	0	0	1	10	78	0.2	6	4
LPT4	0.6	0.1	0.1	3	1	45	0	26	0
LPT5	0	0	0	0.2	0	18	0	36	0
LPT6	0	0	0	0	0	36	0	52	0
LPO	0	0	0	0	0	87	0	13	0
LWT1	0	0.3	0.1	0	0	44	0.1	19	0.6
LWT2	0	0.7	3	6	14	55	19	0.6	0
LWT3	0	0	0	0	0	2	0	80	0
LWT4	0	0	0	0	0	32	0	43	5
LWO	0	0	0	0	0	73	10	3	3
LHO	0	0	3	17	24	48	3	0	4
LTO	0	0	0	0	0	85	0	15	0
LAT	0.5	2	2	6	15	51	2	7	3
LBT	0	0	0	0	0	100	0	0	0
LCT	0	0	0	0	0	0	0	66	0

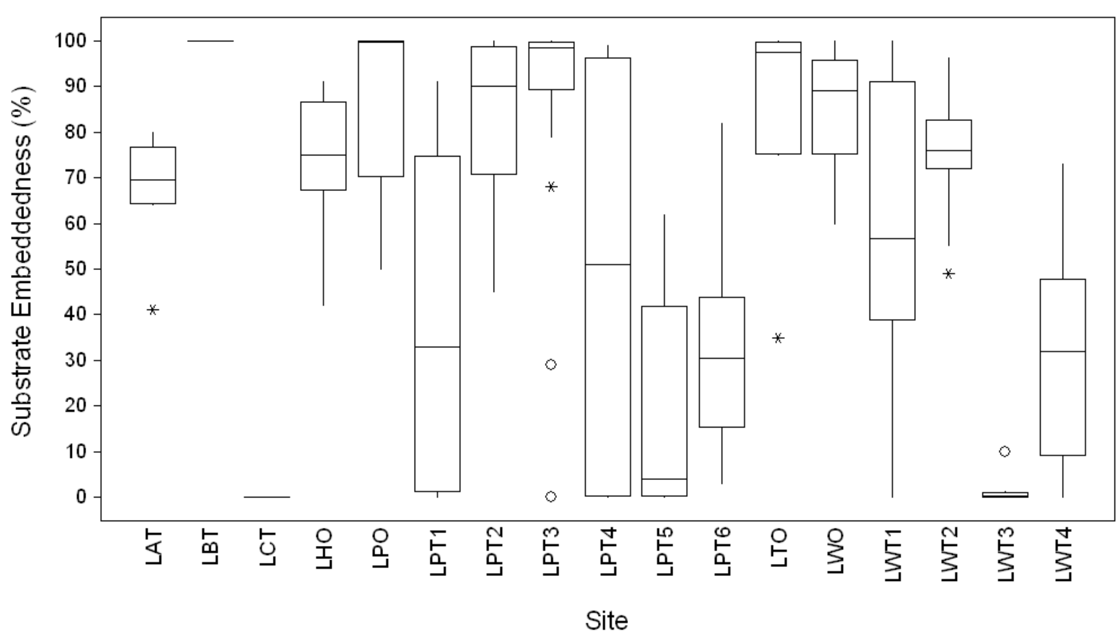

Figure 12. Percent embeddedness of larger substrate particles within each sampled stream reach.

Stream Temperatures

Water temperatures ranged averaged 14.5^{o}C and ranged from near 0^{o}C to 31^{o}C throughout the project period. No consistent spatial pattern in water temperatures was observed among sampled sites.

Stream Alkalinities

Stream alkalinities should be less than 750 mg/L (as $CaCO_3$) as a 30 day average of results from several samples or 1313 mg/L in any individual observation to support fish and wildlife propagation, recreation and stock watering uses. All alkalinity measurements were within water quality standards (Table 14).

Table 14. Stream alkalinity values (mg/L as $CaCO_3$) from inlet and outlet streams associated with Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	94	76	14	27
Mean	175.1	201.0	289.8	266.4
Minimum Value	46.0	54.0	247.0	191.0
25th Percentile	83.5	99.5	252.0	228.0
50th Percentile	167.5	192.5	282.5	273.0
75th Percentile	246.5	276.3	324.0	291.0
Maximum Value	382.0	477.0	358.0	325.0
% Non-Compliance	0.0	0.0	0.0	0.0

Stream pH

Stream water should maintain pH between 6.0 and 9.5 to support fish and wildlife propagation, recreation and stock watering uses. Most stream pH measurements were in compliance with water quality standards (Table 15). A small number of pH measurements exceeded the upper end of the pH standard (>9.5) in samples collected from Lake Preston, Henry and Thompson streams. In all cases, these exceedances were less than 0.5 units from the standard.

Table 15. Stream pH values from inlet and outlet streams associated with Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	94	78	14	27
Minimum Value	6.74	6.78	7.38	7.39
25th Percentile	7.38	7.49	7.97	8.11
50th Percentile	7.82	7.89	8.51	8.37
75th Percentile	8.26	8.28	8.74	8.78
Maximum Value	9.86	9.43	9.55	9.61
% Non-Compliance	2.1	0.0	5.6	5.3

Stream Solids

Streams within the study area should maintain total dissolved solids concentrations below 2500 mg/L as a 30 day average of several observations or 4375 mg/L in any individual measurement to support fish and wildlife propagation, recreation and stock watering uses.

Table 16. Total dissolved solids values (mg/L) from inlet and outlet streams associated with Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	94	76	14	27
Mean	963.9	1220.9	970.0	1170.7
Minimum Value	159.0	19.3	821.5	642.0
25th Percentile	418.6	514.6	879.8	842.0
50th Percentile	1009.2	981.5	942.3	937.0
75th Percentile	1270.4	1411.6	1055.6	1016.0
Maximum Value	2608.5	4903.0	1181.0	7205.3
% Non-Compliance	0.0	1.3	0.0	3.7

There is no state standard for suspended solids within the streams of the study area. However, suspended solids have been used as a surrogate variable with instantaneous stream discharge to estimate sediment load within aquatic systems. Thus, measurements of suspended solids were included to facilitate these load estimates (Tables 16 and 17).

Table 17. Total suspended solids values (mg/L) from inlet and outlet streams associated with Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	94	76	14	27
Mean	51.3	83.6	56.9	134.4
Minimum Value	2.0	4.0	7.0	7.0
25th Percentile	14.0	13.5	26.3	23.0
50th Percentile	25.8	27.3	59.5	49.0
75th Percentile	51.0	89.6	71.5	159.0
Maximum Value	862.7	1006.0	136.0	692.0

Stream Conductance

Streams within the study area should maintain conductivity values below 2500 uS cm^{-1} as a 30 day average of several observations or 4375 uS cm^{-1} in any one observation to support irrigation uses of stream water. None of our specific conductance measurements exceeded the water quality standard (Table 18).

Table 18. Conductance values (uS cm^{-1} @ 25^{o}C) from inlet and outlet streams associated with Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	94	78	14	27
Mean	1254	1488	1307	1248
Minimum Value	195	275	1114	935
25th Percentile	648	1051	1214	1147
50th Percentile	1339	1287	1271	1214
75th Percentile	1593	1730	1345	1283
Maximum Value	2629	3707	1698	1688
% Non-Compliance	0.0	0.0	0.0	0.0

Nitrate Nitrogen (NO_3-N)

Streams within the study area should maintain nitrate-nitrogen concentrations below 50 mg/L as a 30 day average of several observations or 88 mg/L in any individual measurement in order to support fish and wildlife propagation, recreation and stock watering uses. Nitrate-N concentrations ranged from 0.02 mg/L to 7.90 mg/L from all stream sites and dates (Table 19). None of our measurements exceeded the standard of 88 mg/L.

Table 19. Nitrate-N concentrations (mg/L) from inlet and outlet streams associated with Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	94	76	14	27
Mean	0.79	0.73	0.05	0.13
Minimum Value	0.02	0.02	0.03	0.02
25th Percentile	0.05	0.05	0.04	0.05
50th Percentile	0.15	0.13	0.05	0.07
75th Percentile	1.15	0.93	0.05	0.10
Maximum Value	7.90	4.82	0.08	1.20
% Non-Compliance	0.0	0.0	0.0	0.0

Unionized Ammonia

Unionized ammonia is extremely toxic to aquatic life at low concentrations. While no standard exists for study streams within the project area, the lakes receiving water from these streams are all managed to support warmwater fisheries. Levels of unionized ammonia are generally below the concentration accepted as a standard for water bodies supporting warmwater fish life propagation (0.05 mg/L). However, greater than 25% of observations from the Lake Thompson outlet and 9.4% of observations from all stream samples combined exceeded this concentration (Table 20).

Table 20. Unionized ammonia concentrations (mg/L) from inlet and outlet streams associated with Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	94	76	14	27
Mean	0.016	0.017	0.013	0.045
Minimum Value	0.000	0.000	0.000	0.000
25th Percentile	0.001	0.001	0.001	0.002
50th Percentile	0.003	0.003	0.003	0.033
75th Percentile	0.008	0.012	0.008	0.078
Maximum Value	0.333	0.307	0.117	0.172

Total Nitrogen

Total nitrogen concentrations from stream water ranged from 1.11 mg/L to 11.10 mg/L during the study period. While there is no water quality standard for total nitrogen in our study streams, this parameter is used to estimate the total nitrogen load to various points within the watershed. It is also important information for calculating N:P ratios and may be a limiting nutrient for growth of rooted aquatic plants and/or algae in surface waters. Median total nitrogen concentrations were lowest from Lake Henry and highest from Lake Thompson. However, the highest maximum concentrations were observed from Lakes Preston and Whitewood (Table 21).

Table 21. Total nitrogen concentrations (mg/L) from inlet and outlet streams associated with Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	94	78	14	27
Mean	3.55	3.22	2.62	3.22
Minimum Value	1.13	1.11	1.30	1.92
25th Percentile	2.01	1.91	1.79	2.34
50th Percentile	2.68	2.60	2.14	3.19
75th Percentile	4.53	4.55	2.78	3.65
Maximum Value	11.10	7.02	6.15	6.45

Total Phosphorus

At present, there is no standard for total phosphorus in South Dakota streams and lakes. However, phosphorus may be a limiting nutrient for algal growth in lakes. Total phosphorus concentrations ranged from 0.055 mg/L to 2.811 mg/L across all stream sites and sampling dates. Median concentrations were highest from Lake Preston streams and lowest from the Lake Henry outlet (Table 22).

Table 22. Total phosphorus concentrations (mg/L) from inlet and outlet streams associated with Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	94	78	14	27
Mean	0.817	0.668	0.423	0.582
Minimum Value	0.139	0.055	0.069	0.063
25th Percentile	0.432	0.341	0.175	0.331
50th Percentile	0.626	0.592	0.401	0.482
75th Percentile	1.084	0.957	0.609	0.760
Maximum Value	2.811	1.956	1.060	1.260

Nitrogen:Phosphorus Ratios

Nitrogen and/or phosphorus may be limiting nutrients for growth of rooted aquatic plants and/or algae within aquatic systems. Nitrogen contributes a larger percentage of plant dry weight than phosphorus (ratio in aquatic plant and algal tissues average 7:1; Wetzel 2002). Comparison of nitrogen:phosphorus ratios in algal and plant tissue with that available in water provides an indication of which might be limiting primary production. Because the study lakes were 303d listed due to concerns regarding trends in productivity, the N:P ratio of waters entering these basins from the watershed is especially important.

Median N:P ratios were greatest from the Lake Henry outlet (less N limited) and lowest from Lake Preston streams (more N limited) (Table 23). Over 50% of N:P ratios from all study streams fell below 7:1 and more than 75% of N:P ratios from Lake Preston streams fell below 7:1.

Table 23. Nitrogen:phosphorus ratios from inlet and outlet streams associated with Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	94	78	14	27
Mean	5.05	7.51	8.53	7.47
Minimum Value	1.67	1.02	2.58	2.46
25th Percentile	3.28	3.68	5.20	3.70
50th Percentile	4.40	5.17	6.66	6.45
75th Percentile	6.32	7.23	9.88	8.32
Maximum Value	14.61	97.11	26.26	31.38

Dissolved Oxygen

There is no standard for dissolved oxygen in the streams of our study area. However, dissolved oxygen is for the support of fish and wildlife propagation and also for the ecological service of organic matter decomposition.

Only 6.1% of dissolved oxygen measurements fell below the standard of 4.0 mg/L to support warmwater marginal fish life propagation (Table 24). While these streams are not protected by that standard, Lakes Henry and Whitewood are managed to support a warmwater marginal fishery while Lake Thompson is managed to support a warmwater permanent fishery (standard is higher). Thus, this benchmark seems appropriate for these streams as they contribute water to these basins.

Table 24. Dissolved oxygen concentrations from inlet and outlet streams associated with Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	94	78	14	27
Mean	9.5	9.8	11.7	9.1
Minimum Value	2.6	2.4	4.9	3.4
25th Percentile	7.2	7.0	8.0	5.7
50th Percentile	9.3	9.4	9.7	8.6
75th Percentile	11.7	11.9	14.6	11.3
Maximum Value	21.2	23.7	26.3	25.2

FLUX Model Loading Estimates

Total nitrogen, total phosphorus and suspended solids fluxes and loadings to each study lake were estimated using the USACE FLUX model (Table 25). Fluxes are quantities contributed to a point within a drainage over a period of time. Loadings are quantities per acre contributed to a point within a drainage over a period of time. Flux estimates identify that source contributing the greatest overall quantity of material while loads identify the source contributing the greatest quantity per unit area of land surface. Both numbers are important for identifying sources of contaminant loading.

Precipitation over the study period varied from moderately wet (2001) to moderate drought (2003). Long-term precipitation data obtained from both National Weather Service sites within Kingsbury County suggest that precipitation during the 2001 and 2002 sampling seasons approximated long-term averages for the study area (Figure 13). Thus, nutrient and suspended solids loads generated from 2001-2002 instantaneous and continuous stream discharge and water chemistries may be more reflective of long-term average precipitation records (Table 26).

Table 25. Nutrient and suspended solids flux and loading estimates by subwatershed (2001-2003).

	Flux (lbs/yr)			*Loads (lbs/acre/yr)*		
	Total P	*Total N*	*TSS*	*Total P*	*Total N*	*TSS*
LPT1	13209	48728	94232775	1.10	4.08	789.0
LPT2	1114	6532	550530	0.16	0.91	76.9
LPT3	1137	4598	976149	0.28	1.15	244.6
LPT4	911	5992	563523	0.18	1.15	108.6
LPT5	1873	6739	534473	0.44	1.56	125.0
LPT6	950	7040	941264	0.81	6.01	804.1
LPO	21808	59127	37259870	0.39	1.06	666.5
LWT1	1251	5673	1123448	0.66	2.99	591.3
LWT2	1660	5960	1273257	0.10	0.37	79.6
LWT3	1054	5298	1083460	0.30	1.52	311.5
LWT4	997	6696	1049428	1.22	8.21	1286.3
LWO	868	3515	1519676	0.01	0.02	10.0
LHO	697	3308	1538369	0.01	0.06	28.4
LTI	1565	6823	3058045	0.01	0.03	14.9
LTO	913	5033	1896446	0.00	0.02	8.1

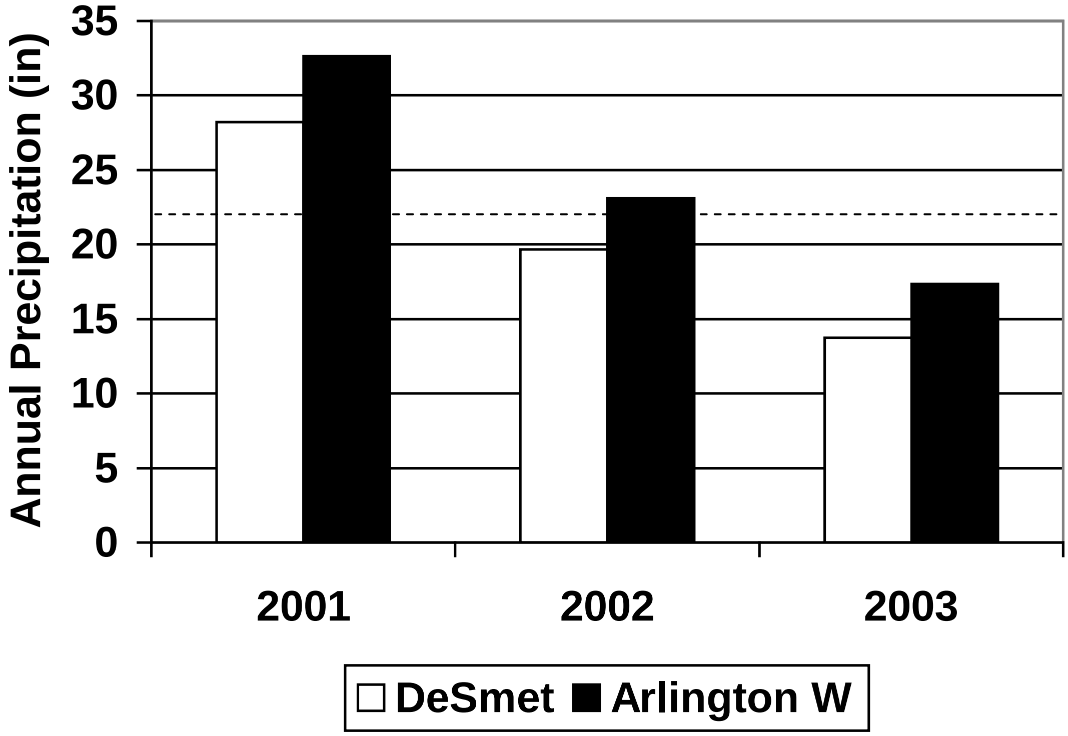

Figure 13. Total annual precipitation reported from DeSmet and Arlington W monitoring stations of the National Weather Service during the project period. The dotted line on this figure is the norm for the DeSmet station.

Table 26. Nutrient and suspended solids flux and loading estimates by subwatershed (2001-2002).

	Flux (lbs/yr)			*Loads (lbs/acre/yr)*		
	Total P	*Total N*	*TSS*	*Total P*	*Total N*	*TSS*
LPT1	18459	73207	1382223	1.54	40.83	1043.1
LPT2	1239	8558	80253	0.17	2.51	8.2
LPT3	26669	113292	1197878	6.68	8.22	65.8
LPT4	6311	42682	341336	1.22	28.39	300.2
LPT5	3053	10726	35086	0.71	1.19	11.2
LPT6	5814	47791	1221099	4.97	6.12	115.6
LPO	30861	91530	2419697	0.55	1.64	43.3
LWT1	3206	14748	1442962	0.43	2.87	759.4
LWT2	17629	61273	7744702	0.12	1.13	484.2
LWT3	408	3922	34071	1.10	3.83	9.8
LWT4	354	2341	110376	1.69	7.76	135.3
LWO	27015	96606	1249719	0.18	0.64	8.2
LHO	11124	55929	2047546	0.21	1.03	37.8
LTI	38139	152535	3297265	0.19	0.74	16.0
LTO	18313	135586	4767405	0.17	1.28	44.8

Annualized AGNPS Nutrient and Sediment Loading Results

Nutrient and sediment loads generated from annualized AGNPS simulations displayed similar spatial patterns to those generated from field collected data. LPT1, LPT3, LPT4 and LPT6 were predicted to yield the greatest phosphorus and nitrogen loads from the Lake Preston watershed (Table 27). Whitewood stream load patterns were not as consistent but values generated were within the range of those observed from actual field measurements. Annualized AGNPS simulations were also used to generate the locations of critical nutrient and solids loading cells within the watershed (Appendix II). These cells will constitute the focus for implementation practices.

Annualized AGNPS Animal Feeding Operations Results

A total of 84 animal feeding areas were identified as potential non-point sources during this assessment project. The animal feeding areas were first evaluated using the AGNPS 3.65 model and then entered into the AnnAGNPS model. Immediately following are the AGNPS 3.65 output and rating for each of these animal feeding areas. Of these, 28 were found to have an AGNPS 3.65 rating of 50 or greater (Table 28). AGNPS 3.65 ranks feeding areas from 0 to 100 with a 0 ranked feeding area yielding very little nutrients and 100 ranking yielding large amounts of nutrients to the receiving water.

Table 27. ANNAGNPS loading estimates for subwatersheds and the Lake Thompson watershed.

Tributary	Total P (lbs/acre/yr)	Total N (lbs/acre/yr)	TSS (lbs/acre/yr)
LPT1	1.08	5.97	22.0
LPT2	0.13	0.90	14.8
LPT3	1.21	8.25	38.8
LPT4	1.61	8.24	31.0
LPT5	0.85	1.96	33.0
LPT6	1.21	6.84	44.0
LWT1	1.17	7.20	13.4
LWT2	1.38	3.99	20.4
LWT3	0.44	1.39	53.8
LWT4	0.40	2.63	29.2
Outlet Into Thompson	0.14	0.76	11.4
Kingsbury Watershed	0.21	1.43	7.2

Table 28. Feedlot outputs and ratings using the AGNPS 3.65 model.

ID #	N conc. (ppm)	P conc. (ppm)	COD conc. (ppm)	N mass (lbs.)	P mass (lbs.)	COD mass (lbs.)	Rating
64	163.636	46.364	2454.545	2773.82	785.916	41607.3	86
33	127.66	36.17	1914.894	2311.516	654.93	34672.75	83
34	196.078	55.556	2941.176	2311.516	654.93	34672.75	82
37	190	53.833	2850	2205.409	624.866	33081.13	81
77	300	85	4500	2311.516	654.93	34672.75	80
23	300	85	4500	1756.753	497.747	26351.29	75
81	300	85	4500	1733.637	491.197	26004.56	75
36	65.885	18.145	943.459	1225.783	337.578	17553.02	73
71	300	85	4500	1456.255	412.606	21843.83	72
62	300	85	4500	1386.91	392.958	20803.65	71
20	100	28.333	1500	908.162	257.313	13622.43	68
60	250	70.833	3750	1114.646	315.816	16719.69	68
46	300	85	4500	924.607	261.972	13869.1	65
47	300	85	4500	924.607	261.972	13869.1	65
52	266.667	75.556	4000	937.895	265.737	14068.43	65
78	262.5	74.375	3937.5	809.031	229.225	12135.46	63
15	150	42.5	2250	693.455	196.479	10401.82	62
14	225	63.75	3375	659.375	186.823	9890.617	60
18	17.146	3.35	207.995	608.612	118.913	7382.964	60
22	27.833	7.886	417.5	386.023	109.373	5790.349	57
39	109.091	30.909	1636.364	476.438	134.991	7146.565	57
79	102	28.9	1530	471.549	133.606	7073.241	57
31	133.333	37.778	2000	462.303	130.986	6934.549	56
57	107.143	30.357	1607.143	462.303	130.986	6934.55	56
5	112.5	31.875	1687.5	346.728	98.239	5200.913	52
28	177	50.15	2655	364.398	103.246	5465.972	51
55	32.25	7.65	540	248.488	58.944	4160.73	51
49	53.93	15.233	804.934	279.466	78.939	4171.152	50

2	31.875	9.031	478.125	237.542	67.303	3563.124	49
24	36.182	9.624	488.978	280.619	74.645	3792.416	49
54	18.55	4.829	253.125	235.955	61.421	3219.73	49
76	29.645	8.372	442.302	228.804	64.615	3413.781	48
32	109.091	30.909	1636.364	231.152	65.493	3467.275	46
6	30	8.5	450	184.921	52.394	2773.82	45
7	120	34	1800	231.152	65.493	3467.275	45
21	28.125	7.969	421.875	173.364	49.12	2600.456	44
41	33.684	9.007	473.684	191.33	51.161	2690.584	44
53	28.125	7.969	421.875	173.364	49.12	2600.456	44
1	24	6.4	337.5	168.549	45.069	2370.219	43
11	16.32	4.364	229.5	160.787	42.994	2261.062	43
16	165	46.75	2475	203.413	57.634	30581.202	43
8	51	14.45	765	166.192	47.088	2492.879	42
13	14.123	3.612	206.654	141.465	36.185	2069.963	42
42	75	21.25	1125	173.364	49.12	2600.456	42
74	104.309	28.824	1502.036	194.474	53.739	2800.39	42
30	62.813	17.797	942.187	154.872	43.88	2323.074	41
44	150	42.5	2250	173.364	49.12	2600.456	41
70	75.938	18.288	949.219	187.233	45.092	2340.411	41
82	6.692	1.896	100.385	120.89	34.252	1813.353	41
66	26.954	6.864	303.227	181.131	46.123	2037.663	40
9	43.714	12.386	655.714	136.659	38.72	2049.883	39
68	13.875	3.74	196.875	124.086	33.447	1760.678	39
4	21.429	6.071	321.429	115.576	32.746	1733.637	38
12	25.32	6.531	342	130.921	33.772	1768.368	38
25	25	7.083	375	115.576	32.746	1733.637	38
35	63.375	8.288	1316.25	97.662	12.771	2028.356	38
59	21.429	6.071	321.429	115.576	32.746	1733.637	38
73	40.768	11.122	574.751	129.409	35.304	1824.408	38
43	44.118	12.5	661.765	115.576	32.746	1733.637	37
65	13.62	3.714	195.75	104.943	28.614	1508.265	37
69	147.857	35.609	1848.214	159.495	38.412	1993.683	37
17	13.636	3.864	204.546	95.685	27.111	1435.268	36
48	52.2	13.592	712.5	120.661	31.417	1646.955	36
83	22.65	3.953	396	84.397	14.728	1475.552	35
3	13.2	3.577	188.438	81.365	22.051	1161.537	33
51	75	21.25	1125	89.994	25.498	1349.909	32
67	24.12	5.809	301.5	92.923	22.379	1161.537	32
80	37.44	10.088	531	88.197	23.764	1250.865	32
50	8.325	1.952	89.983	99.474	23.321	1075.25	30
84	68.25	8.925	1417.5	50.342	6.583	1045.57	28
10	49.19	12.287	629.346	69.586	17.381	890.289	27
75	51.151	13.49	681.315	69.46	18.319	925.18	27
61	170.357	41.028	2129.464	73.506	17.703	918.828	26
63	35.2	9.667	510	55.798	15.324	808.438	26
38	300	85	4500	59.271	16.793	889.063	25
40	38.363	8.986	453.907	57.856	13.551	684.547	24
45	3.655	0.88	45.682	41.895	10.09	523.684	23
72	24.231	5.836	302.885	48.542	11.691	606.773	23
58	23.04	5.549	288	44.381	10.688	554.764	22
56	16.575	3.57	164.511	48.573	10.461	482.109	18

26	6.84	1.647	85.5	29.288	7.054	366.106	17
29	2.6	0.737	39	18.014	5.104	270.209	13
27	10.581	2.26	95.467	34.481	7.365	311.096	9
19	165	46.75	2475	6865.205			

Stream Biological Characteristics

Fecal Coliform Bacteria

Streams within the study area are not protected by a fecal coliform standard. However, this measurement is important as fecal coliform bacteria indicate the presence of fecal contamination by warmblooded animals and a higher probability of infectious disease organisms. Waters intended to support human recreation (esp. immersion) or water supply for other warm blooded animals are at risk from fecal contamination. Furthermore, streams with high coliform numbers may pose a threat to intended uses of receiving waters.

More than 25% of fecal coliform samples from Lake Preston and Lake Whitewood streams exceeded the state standard of 200/100 ml to support immersion contact recreation (Table 29). While these streams do not have that designated use, they do contribute water to basins and shoreline areas that are designated for that use. Streams associated with all four basins had at least one violation of this standard. Greater than 75% of observations from streams associated with Lakes Henry and Thompson fell within this standard.

Table 29. Fecal coliform counts (MPN/100 ml) from inlet and outlet streams associated with Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	57	53	9	13
Mean	2860	2861	112	6202
Minimum Value	10	10	10	10
25th Percentile	20	30	10	10
50th Percentile	110	170	40	20
75th Percentile	690	960	115	95
Maximum Value	58000	57000	620	80000

*measurements below detection were not included in the summaries above

Stream Invertebrates

Overall Abundance

Stream invertebrates were collected from all sites except LPT6 due to dry channel conditions during the collection dates. Total invertebrate abundance was greater from the streams of Lakes Henry, Thompson and the reference basins (Figure 14). However, significant differences were observed only between streams from Lake Preston and Lakes Whitewood and Henry (KW ANOVA, $p < 0.01$).

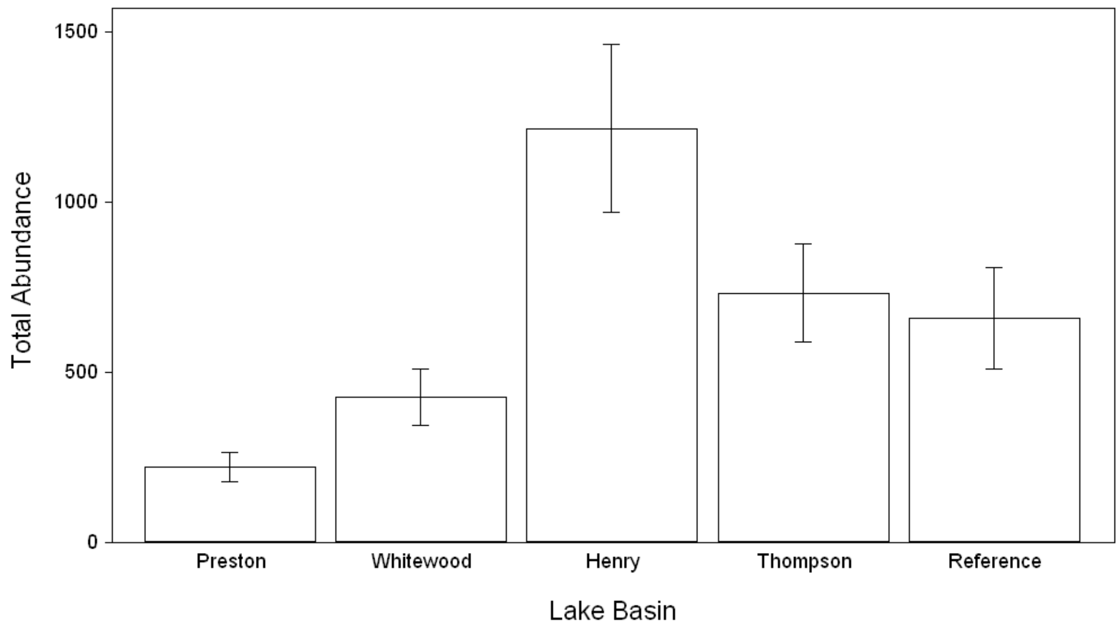

Figure 14. Average total invertebrate abundance from streams of each lake basin.

Optimal Metric Set and IBI

Ten invertebrate metrics were selected for low gradient, intermittent streams within the study watershed based upon average differences between study and reference data (discriminatory power) and reference site variability (Table 30). Of the ten optimal metrics selected for IBI development and scoring, four were descriptors of community composition, three were descriptors of invertebrate tolerance to organic pollution, two were descriptors of community diversity and one metric was a descriptor of habitat use.

Table 30. Optimal invertebrate metrics used to create an Index of Biotic Integrity for intermittent, prairie pothole streams in the Kingsbury County study area (* denotes statistical difference between stream groups). Values generated from D-Frame net samples.

Optimal Metric	Class	Study Area Mean	Reference Mean
% Diptera	Composition	47.1	39.7
% Chironomidae	Composition	42.9	36.2
% Coleoptera and Corixidae	Composition	11.3	10.9
% Ephemeroptera	Composition*	4.4	7.8
No. Diptera Taxa	Richness	3.0	3.2
No. Chironomidae Taxa	Richness*	2.6	2.7
% Swimmers	Habit*	23.2	31.3
Fr Tolerant Individuals	Tolerance*	0.7	0.7
No. Intolerant Taxa	Tolerance*	0.5	0.8
Hilsenhoff BI	Tolerance*	7.6	7.2

Stream invertebrate IBI values generated from D-frame net and Hester-Dendy samples indicate slight impairment relative to reference stream data (Figures 15 and 16). Invertebrate communities within stream channels entering Lakes Preston and Whitewood had lower overall IBI scores than those from Lakes Henry and Thompson. However, no statistically significant differences in IBI scores were observed between study basins (KW ANOVA, p = 0.198). Most of the separation between study and individual reference stream invertebrate communities appears to be associated with five of the ten metrics. Chironomidae taxa, intolerant taxa, percent Ephemeroptera and swimmers were fewer in number from Lakes Preston and Whitewood compared to the other basins.

Invertebrate IBI values were quite variable within and between stream sites (Figure 17 and 18). No D-frame net data were available for LPT6 due to dry channel conditions during sampling dates. In addition, no Hester-Dendy samples were collected from LPT6 and LWT2 due to dry conditions within those channels during the colonization period. However, average IBI scores for LPT2, LPT4 and LWT3 fell within the moderately impaired range. All remaining stream IBI scores fell within the slightly impaired range relative to reference stream values. Due to high variability among and within individual stream sites, no significant differences were observed between sites (KW ANOVA, p = 0.233). It is also interesting to note that individual sites contributing the greatest nutrient and solids loads were not those with the lowest invertebrate IBI scores.

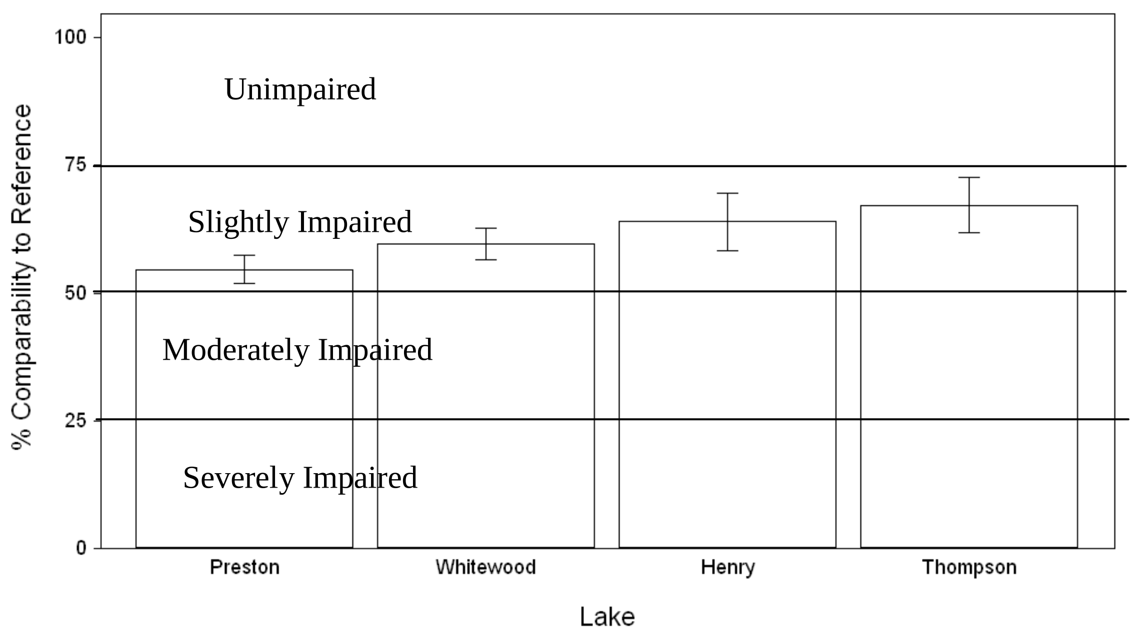

Figure 15. Invertebrate Index of Biotic Integrity values (mean +/- 1 s.e.) generated from D-frame net samples from streams entering each lake basin within the Kingsbury Co. study area.

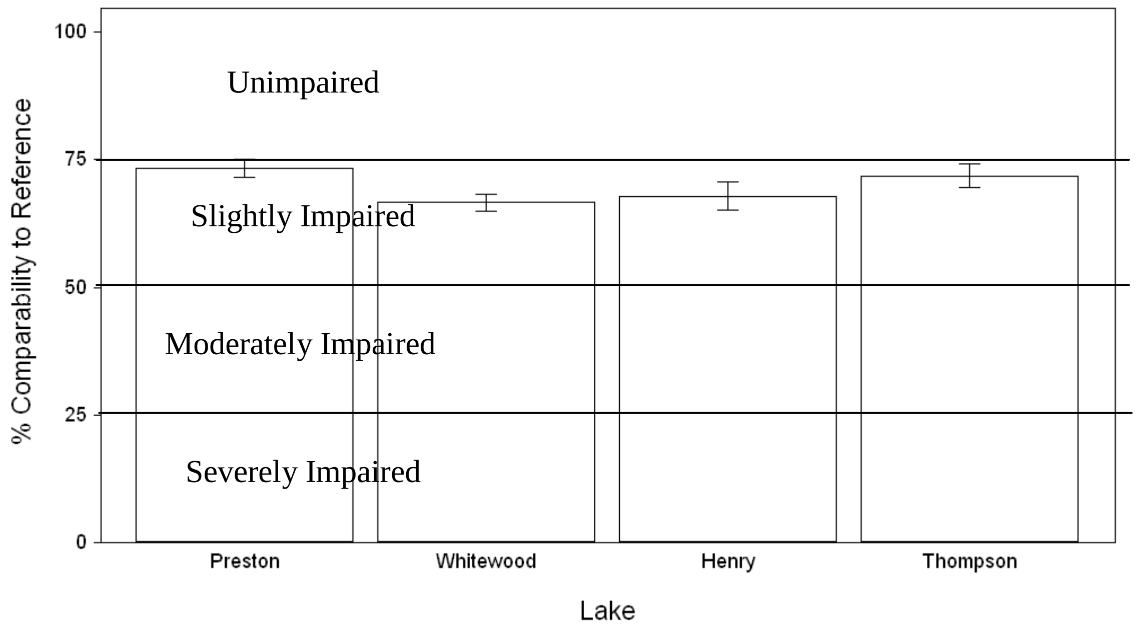

Figure 16 Invertebrate Index of Biotic Integrity values (mean+/-1 s.e.) generated from Hester-Dendy samplers entering each lake basin within the Kingsbury Co. study area.

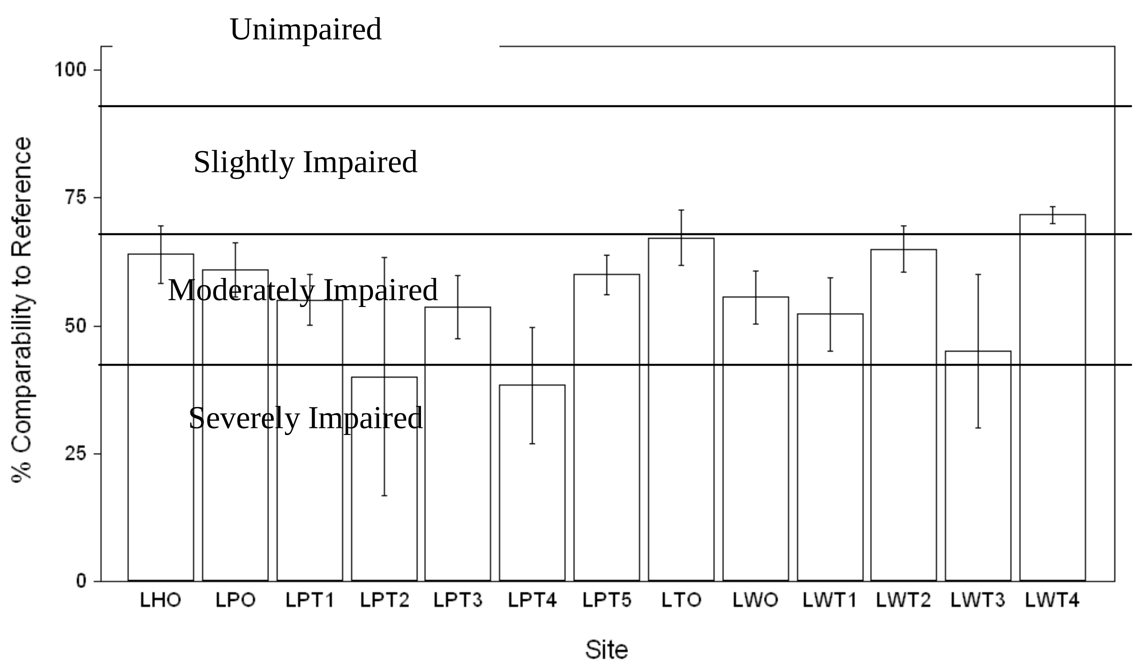

Figure 17. Invertebrate Index of Biotic Integrity values (mean +/- 1 s.e.) generated from D-frame net samples for each monitored stream site (except LPT6) within the Kingsbury Co. study area.

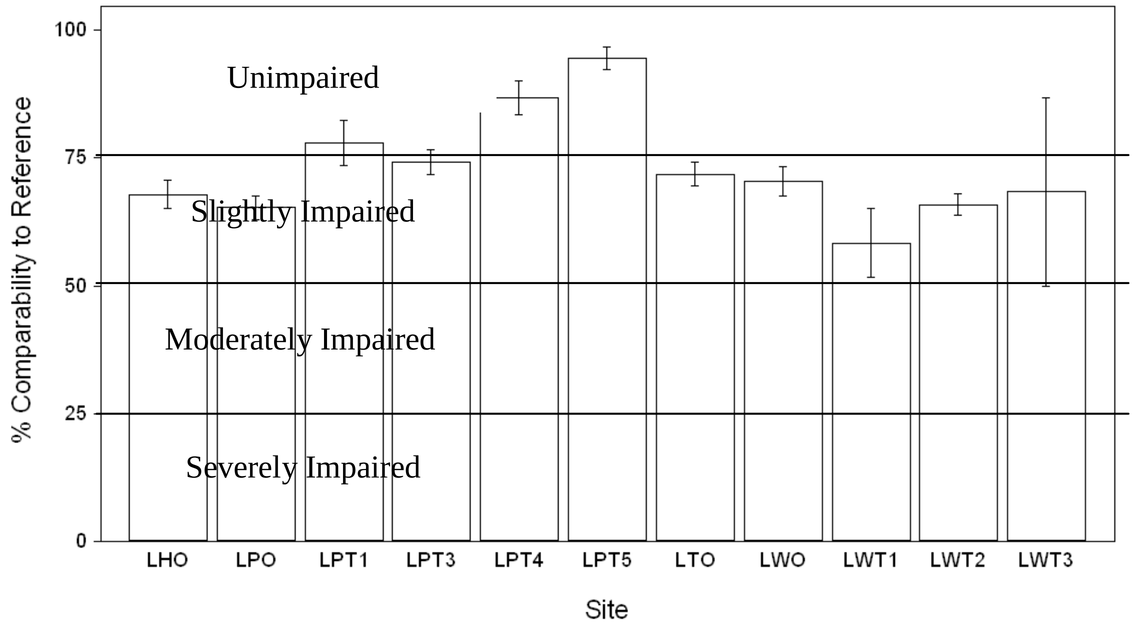

Figure 18 Invertebrate Index of Biotic Integrity values (mean +/- 1 s.e.) generated from Hester-Dendy samplers for monitored stream sites. Missing sites were those which dried during the colonization period.

Lake Basin Physical and Chemical Characteristics

Lake Alkalinities

Lake alkalinities ranged from 180 to 399 mg/L (as $CaCO_3$). No significant differences were observed between study lake basins. The water quality standard for alkalinity within the study lakes is 1313 mg/L (as $CaCO_3$). All alkalinity measurements were within that standard (Table 31).

Table 31. Alkalinity values (mg/L as $CaCO_3$) from Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	72	72	12	72
Mean	296	269	275	310
Minimum Value	180	183	207	194
25^{th} Percentile	272	253	264	291
50^{th} Percentile	298	275	273	315
75^{th} Percentile	327	291	291	337
Maximum Value	399	310	327	373
% Non-Compliance	0	0	0	0

Lake pH

State water quality legislation requires surface waters used to support warmwater fish life propagation to have pH values between 6.0 and 9.0. Lake pH values ranged from 7.44 to 9.29. Maximum values for Lakes Whitewood and Thompson exceeded the fishery standard (Table 32). Lake Preston's pH values fell within standards for fish and wildlife propagation, recreation and stock watering.

Table 32. pH values from Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	72	72	12	72
Minimum Value	7.91	7.54	7.74	7.44
25th Percentile	8.23	8.29	8.27	8.31
50th Percentile	8.49	8.61	8.59	8.67
75th Percentile	8.83	8.89	8.70	8.85
Maximum Value	9.05	9.29	8.75	9.23
% Non-Compliance	0	12.5	0	8.4

Lake Solids

Total dissolved solids should be less than 4375 mg/L in any individual sample to support fish and wildlife propagation, recreation and stock watering uses. Values observed in sampled lake water ranged from 38 to 3523 mg/L (Table 33). Lowest values were observed from Lake Henry and the highest values were observed from Lake Preston.

Table 33. Total dissolved solids values (mg/L) from Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	72	72	12	72
Mean	1181	938	871	823
Minimum Value	649	111	38	129
25th Percentile	997	918	837	853
50th Percentile	1151	959	904	896
75th Percentile	1294	1006	942	931
Maximum Value	3523	1495	1410	1105
% Non-Compliance	0	0	0	0

Total suspended solids ranged from 1 to 480 mg/L within sampled lake water. Highest suspended solids values were observed from Lake Preston and the lowest were observed from Lake Thompson. The water quality standard to support warmwater permanent fish life propagation in Lake Thompson is 158 mg/L and the standard to support warmwater marginal fish life propagation in Lakes Whitewood and Henry is 263 mg/L. Neither standard was violated in samples collected from these lakes (Table 34).

Table 34. Total suspended solids values (mg/L) from Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	72	72	12	72
Mean	73.5	31.3	13.5	14.5
Minimum Value	9.6	7.6	8.0	1.0
25th Percentile	35.4	23.6	9.8	8.0
50th Percentile	63.0	29.5	12.1	13.8
75th Percentile	87.0	40.8	13.5	19.0
Maximum Value	480.0	72.0	29.5	61.5
% Non-Complianced	NA	0	0	0

Lake Conductance

Water conductance should be less than 7000 uS/cm to support fish and wildlife propagation, recreation and stock watering. Lake water conductance ranged from 1034 to 1754 uS/cm during the study period. The lowest conductance values were observed from Lake Henry and the highest from Lake Preston. None of our specific conductance measurements exceeded the water quality standard (Table 35).

Table 35. Conductance values (uS cm^{-1} @ 25^{o}C) from Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	72	72	12	72
Mean	1468	1277	1158	1254
Minimum Value	1287	1155	1034	1159
25th Percentile	1332	1215	1104	1216
50th Percentile	1478	1257	1144	1259
75th Percentile	1591	1315	1212	1281
Maximum Value	1754	1431	1278	1352
% Non-Compliance	0.0	0.0	0.0	0.0

Nitrate Nitrogen (NO_3-N)

Nitrate-N concentrations should fall below 88 mg/L in any individual measurement to support fish and wildlife propagation, recreation and stock watering. Most nitrate-N concentrations were very low from lake samples. Values ranged from 0.006 to 0.280 mg/L with lowest values found from Lake Whitewood and highest values from Lake Thompson (Table 36).

Table 36. Nitrate-N concentrations (mg/L) from Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	72	72	12	72
Mean	0.067	0.045	0.059	0.060
Minimum Value	0.012	0.006	0.008	0.016
25th Percentile	0.035	0.020	0.041	0.034
50th Percentile	0.050	0.050	0.050	0.050
75th Percentile	0.096	0.055	0.078	0.060
Maximum Value	0.242	0.170	0.164	0.280
% Non-Compliance	0.0	0.0	0.0	0.0

Unionized Ammonia

Unionized ammonia is extremely toxic to aquatic life at low concentrations. Average concentrations from study lakes ranged from 0.018 to 0.033 mg/L. High concentrations in all study lakes exceeded the standards to support warmwater permanent (0.04 mg/L) and warmwater marginal (0.05 mg/L) fish life propagation (Table 37). No unionized ammonia standard is defined for Lake Preston.

Table 37. Unionized ammonia concentrations (mg/L) from Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	72	72	12	72
Mean	0.018	0.028	0.024	0.033
Minimum Value	0.0001	0.00006	0.001	0.0001
25th Percentile	0.003	0.002	0.005	0.005
50th Percentile	0.012	0.015	0.017	0.020
75th Percentile	0.029	0.041	0.045	0.046
Maximum Value	0.066	0.168	0.073	0.156
% Non-Compliance	NA	15.3	33.3	26.4

Total Nitrogen

Total nitrogen concentrations from lake water ranged from 1.35 to 4.76 mg/L during the study period. While there is no water quality standard for total nitrogen, this parameter is used to estimate the total nitrogen load to various points within the watershed. It is also important information for calculating nitrogen:phosphorus ratios and may be a limiting nutrient for growth of rooted aquatic plants and/or algae in surface waters. Median total nitrogen concentrations were lowest from Lake Thompson and highest from Lake Preston. The highest maximum concentrations were observed from Lakes Preston and Whitewood (Table 38).

Table 38. Total nitrogen concentrations (mg/L) from Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	72	72	12	72
Mean	2.57	2.51	2.15	1.98
Minimum Value	1.68	1.38	1.47	1.35
25th Percentile	2.06	1.88	1.70	1.64
50th Percentile	2.34	2.30	1.91	1.88
75th Percentile	2.86	3.34	2.82	2.28
Maximum Value	4.76	4.04	3.36	3.04

Total Phosphorus

At present, there is no standard for total phosphorus in South Dakota streams and lakes. However, phosphorus may be a limiting nutrient for algal growth in lakes. Total phosphorus concentrations ranged from 0.078 to 1.493 mg/L from all study lakes (Table 39). Median concentrations were highest from Lake Preston and lowest from Lake Thompson. Highest concentrations were observed from Lake Preston.

Table 39. Total phosphorus concentrations (mg/L) from Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	72	72	12	72
Mean	0.683	0.575	0.309	0.304
Minimum Value	0.146	0.227	0.078	0.123
25th Percentile	0.525	0.297	0.241	0.258
50th Percentile	0.659	0.610	0.332	0.308
75th Percentile	0.796	0.843	0.394	0.351
Maximum Value	1.493	1.061	0.450	0.432

Nitrogen:Phosphorus Ratios

Nitrogen and/or phosphorus may be limiting nutrients for growth of rooted aquatic plants and/or algae within aquatic systems. Nitrogen contributes a larger percentage of plant dry weight than phosphorus (ratio in aquatic plant and algal tissues average 7:1; Wetzel 2002). Comparison of nitrogen:phosphorus ratios in algal and plant tissue with that available in water provides an indication of which might be limiting primary production. Because the study lakes were 303d listed due to concerns regarding trends in productivity, the N:P ratio of waters entering these basins from the watershed is especially important. Median N:P ratios were greatest from Lake Henry (less N limited) and lowest from Lake Preston (more N limited) (Table 40). The lowest ratios were observed from Lake Preston and the highest were observed from Lake Henry.

Table 40. Nitrogen:phosphorus ratios from Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	72	72	12	72
Mean	4.37	4.99	8.12	6.85
Minimum Value	2.37	2.45	3.93	3.91
25th Percentile	3.07	3.58	5.48	5.53
50th Percentile	3.62	4.67	6.96	6.39
75th Percentile	4.60	5.92	8.54	8.04
Maximum Value	18.78	9.99	18.80	15.73

Dissolved Oxygen

Dissolved oxygen concentrations within Lakes Whitewood , Henry and Thompson should fall above 5.0 mg/L to support swimming and wading uses. Dissolved oxygen concentrations in study lakes ranged from 3.5 to 16.9 (Table 41). A small number of measurements (2.6%) from Lakes Whitewood and Thompson fell below this standard.

Table 41. Dissolved oxygen concentrations from Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	72	72	12	72
Mean	9.2	8.7	9.0	8.9
Minimum Value	5.1	3.5	6.5	2.5
25th Percentile	7.6	7.5	7.9	7.6
50th Percentile	8.8	8.7	8.7	8.8
75th Percentile	10.8	10.0	10.2	10.2
Maximum Value	14.1	16.0	13.1	16.9

Lake Littoral Zone and Shoreline Characteristics

Lake littoral zone and shoreline characteristics were evaluated from random locations around the perimeter of each lake basin. Canopy cover (%) was significantly higher from reference lake shorelines than those from Lakes Henry, Whitewood and Preston (Figure 19, KW $p<0.01$). Vegetative growth below the canopy was also greater from reference shoreline sites (Figure 20, KW $p<0.01$). This difference in vegetative growth was undoubtedly linked to higher shoreline erosion from study basin sites (Figure 21).

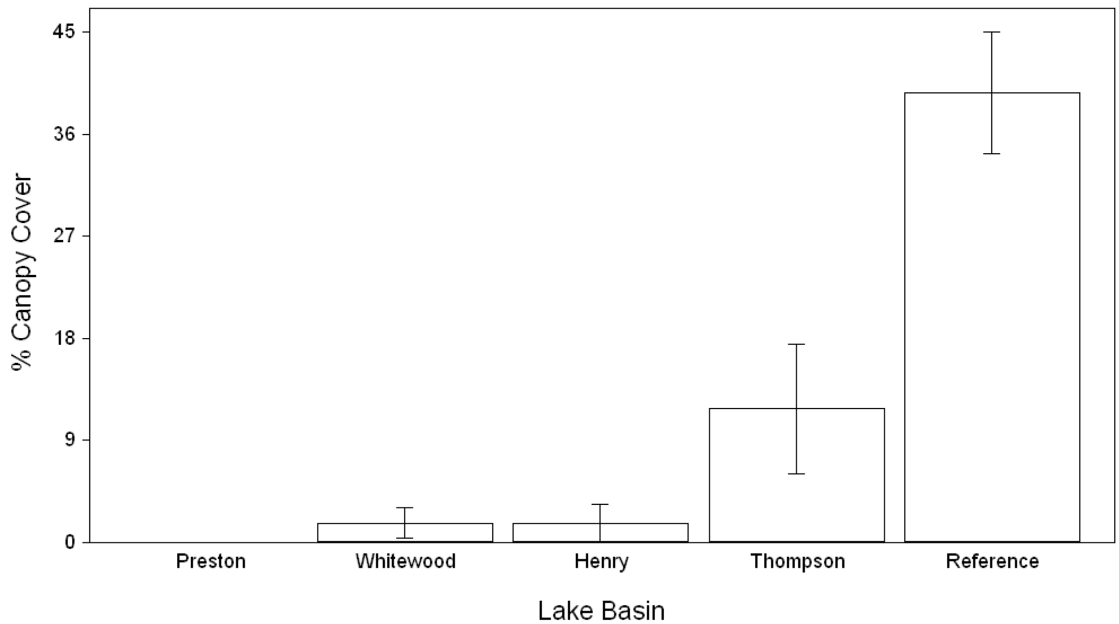

Figure 19 Percent canopy cover of woody vegetation (mean+/-1 s.e.) along the shorelines of lakes evaluated within the Kingsbury assessment project.

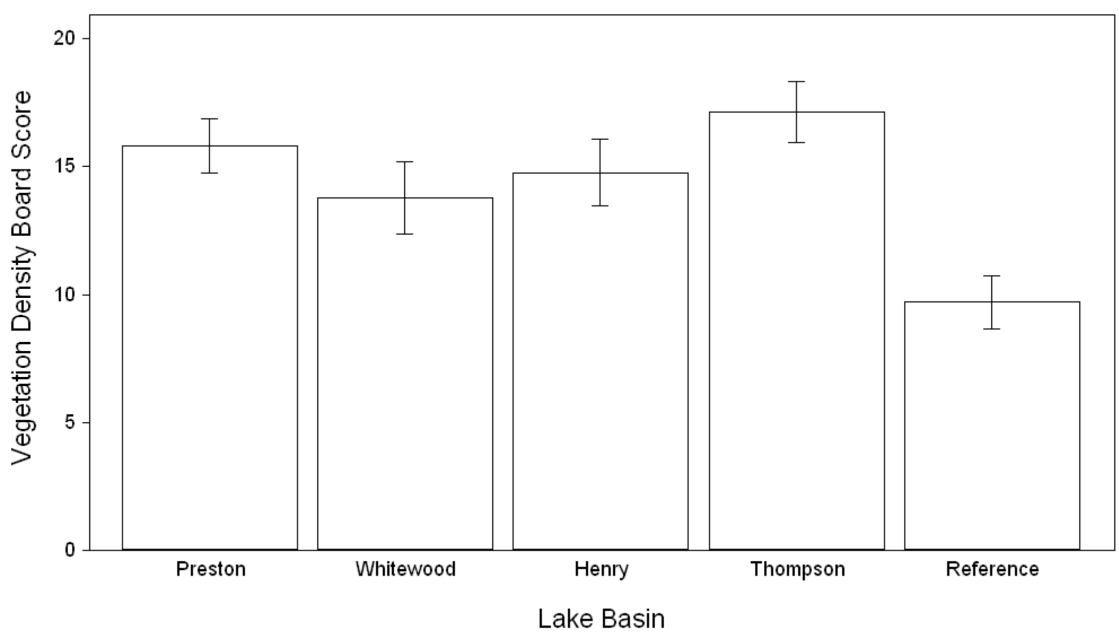

Figure 20 Undergrowth density board values (mean+/-1 s.e.) along the shorelines of lakes evaluated within the Kingsbury assessment project. Scores range from 0-21 with low scores indicating high vegetative cover.

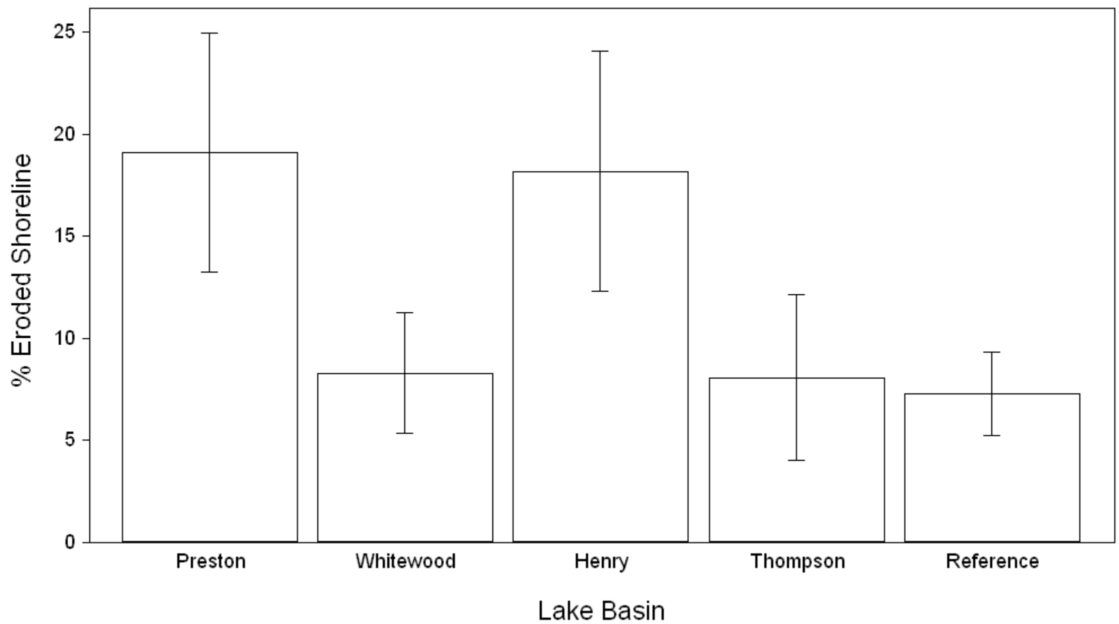

Figure 21 Percent of shoreline around the perimeter of each basin (mean+/-1 s.e.) showing visible evidence of soil erosion.

Physical habitat attributes also varied significantly between study and reference lake basin sites. Macrophytic vegetative cover averaged 15% from reference basin sites but was rarely found from study basin sites. Inorganic substrates were coarser from Lake Thompson and Reference basin sites. Cobble and boulder particle sizes predominated at reference sites while sand and gravel were the dominant substrate types from study stream littoral areas. Silt and clay were more prevalent from Lakes Preston and Henry littoral zones.

Lake Biological Characteristics

Fecal Coliform Bacteria

Lakes Whitewood, Henry and Thompson are managed for immersion contact recreation and have fecal coliform bacteria standards to help protect that use. Fecal coliform bacteria are found within the digestive tracts of all warm blooded animals. Their presence in a water sample indicates fecal contamination of that water body by a warm blooded animal. The presence of high numbers of fecal coliforms in a water sample also indicates a higher probability of transmissible disease organisms. The water quality standard for fecal coliform bacteria is 200 MPN/100 ml.

Fecal numbers from most lake water samples were below detection. However, four water samples from Lake Preston (11.1%), two samples from Lake Whitewood (5.6%) and one sample from Lake Henry (8.3%) contained fecal coliform numbers exceeding the water quality standard. None of our Lake Thompson water samples contained fecal numbers in excess of the standard.

Phytoplankton Abundance and Composition

Phytoplankton numbers averaged 5710 CU/mL and ranged from 1662 to 39548 CU/mL across all lakes and dates. Lakes Preston and Whitewood had the greatest numbers of phytoplankton. No significant differences in total phytoplankton counts were observed between Lakes Henry, Thompson and Reference basins. However, numbers observed from Lakes Preston and Whitewood were consistently higher than those from reference lakes (Figure 22).

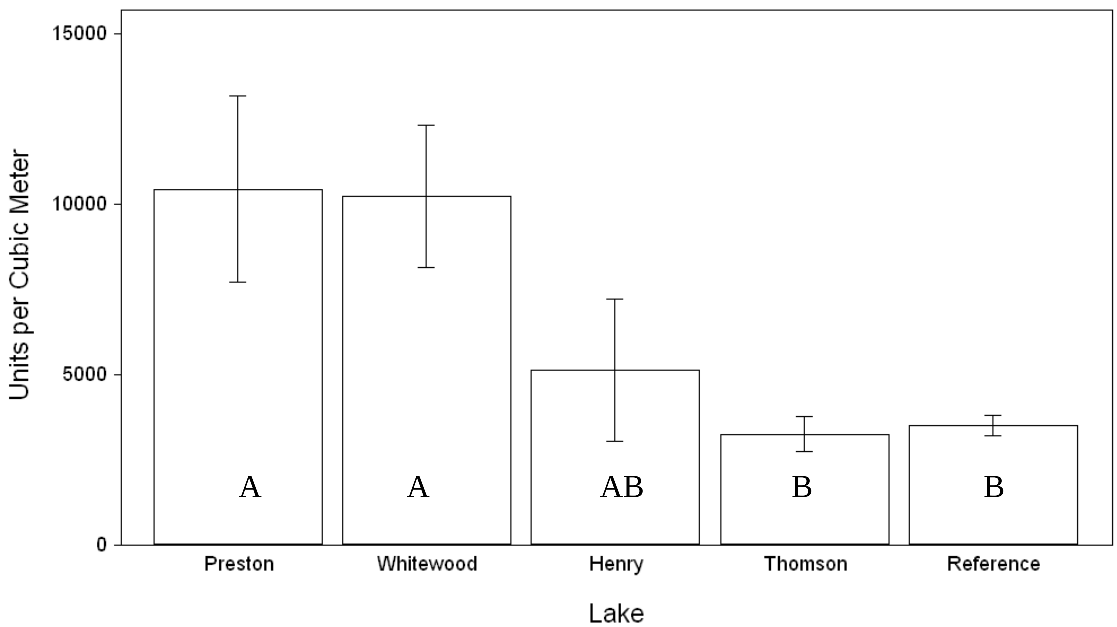

Figure 22. Phytoplankton total abundance from study and reference lakes. Bars with the same letter are not significantly different (KW ANOVA, $p > 0.05$).

A total of 34 phytoplankton species were observed from study and reference basin samples. Twenty eight species were found from study site samples and 27 were found from reference basins. The Cyanobacteria contributed the largest number of species (12), followed by the Chrysophyta (9) and Chlorophyta (8). *Peridinium wisconsinense* and *Ceratium hirundinella* (Pyrrhophyta) were found only from reference basin samples. *Aphanizomenon flos aquae* was most frequently encountered and most abundant phytoplankton species from all samples.

Number of phytoplankton species in each sample ranged from 1 to 11 and averaged 4.8 throughout the study period. However, species richness did not vary significantly between the study lakes. There were significantly more species observed from Lake Preston samples than reference basins (Figure 23, KW $p < 0.01$). This was not a pattern that we would expect, as phytoplankton diversity often decreases in hypereutrophic basins relative to those under a lower trophic status.

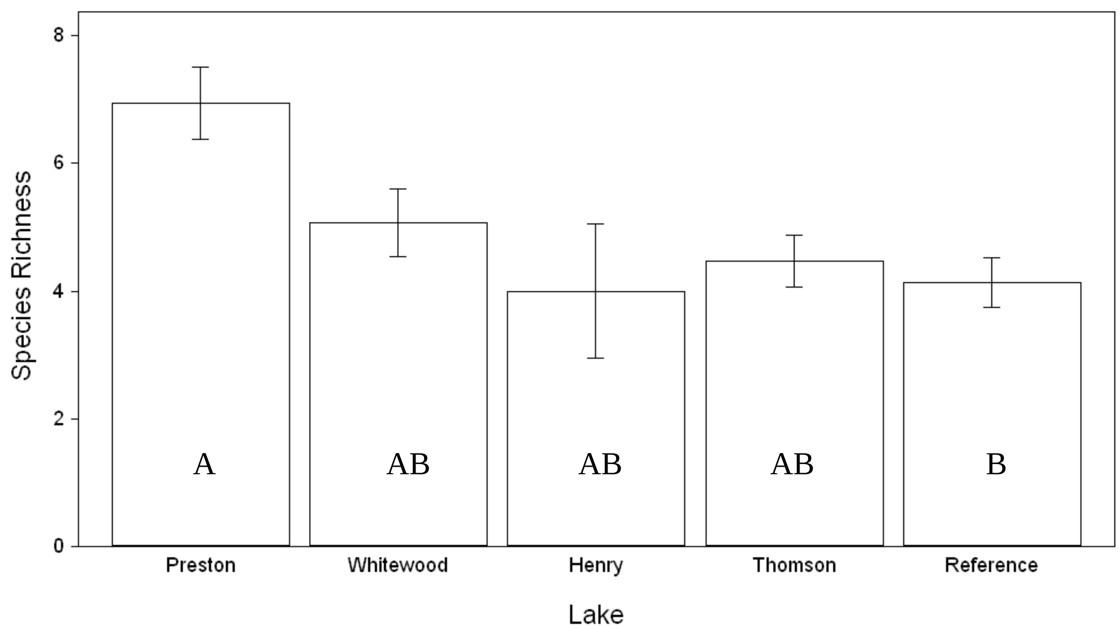

Figure 23. Differences in phytoplankton species richness among sampled lake basins. Basins with the same letter were not significantly different. Lake Preston samples had significantly more species than those from the reference basins (KW, p < 0.01).

Chlorophyll a is a measure of algal biomass. Values ranged from 1.1 to 181.6 ug/L from study lake samples throughout the study period. Highest values were observed from Lakes Preston and Whitewood and lowest were observed from Lakes Henry and Thompson (Table 42).

Table 42. Corrected chlorophyll a concentrations from Lakes Preston, Whitewood, Henry and Thompson (2001-2003).

Statistic	*Preston*	*Whitewood*	*Henry*	*Thompson*
Number of Observations	72	72	12	72
Mean	61.9	63.1	28.0	27.9
Minimum Value	8.5	7.1	1.1	1.6
25th Percentile	40.1	34.7	5.9	8.4
50th Percentile	56.1	49.8	16.8	18.2
75th Percentile	76.8	79.1	34.4	41.9
Maximum Value	180.2	181.6	138.0	113.2

Indicators of Lake Trophic Status

Lakes Preston, Whitewood, Henry and Thompson have been listed for TMDL development due to concerns regarding nutrient loading and trends in lake trophic state. Water column transparency, nutrient concentrations and phytoplankton chlorophyll concentrations provide insight into the trophic condition of each lake. In addition to these variables, nitrogen:phosphorus ratios provide a measure of nutrient balance within the water column.

Carlson (1977) developed the Trophic State Index (TSI) for lake basins based upon Secchi transparency, total phosphorus concentration and corrected chlorophyll a concentrations. While TSI values may be estimated from any one of these variables, the best evaluation of lake trophic state is gained from information from all three. Index criteria used to define lake trophic state are shown below in Table 43. No total phosphorus data was collected for reference lakes. TSI values generated from transparency and chlorophyll data were compared with those generated from reference basins.

Table 43. Estimation of lake trophic state using the Carlson Trophic State Index and criteria for defining different lake states.

Equations	Lake Category	Criterion
	Oligotrophic	<30
TSI (SD) = 60- 14.41 x ln(SD)[1]	Mesotrophic	30-50
TSI (Chl) = 9.81 x ln(Chl) + 30.6[2]	Eutrophic	50-70
TSI (TP) = 14.42 x ln(TP) + 4.15[3]	Hypereutrophic	>70

[1]Secchi depths (SD) measured in meters
[2]Chlorophyll a (Chl) measured in mg/m^3
[3]Total phosphorus measured in mg/m^3

Carlson TSI values generated from Secchi transparency data suggest hypereutrophic conditions within lakes Preston and Whitewood and eutrophic conditions within lakes Henry and Thompson (Figure 24). Lakes Henry and Thompson have Secchi TSI values very similar to those observed from the reference lakes.

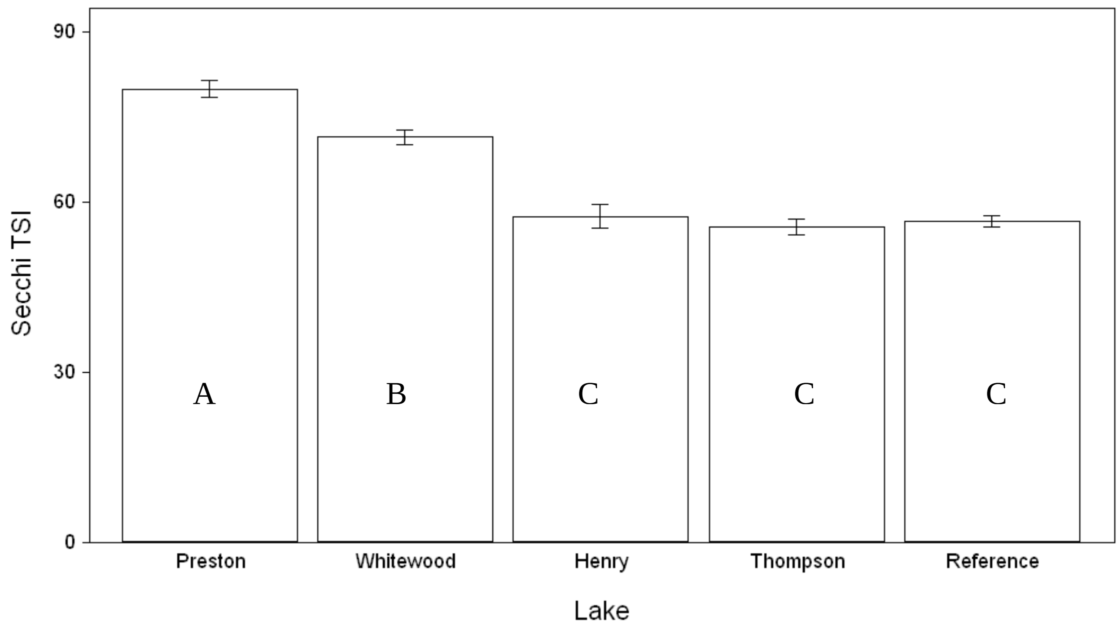

Figure 24. Trophic State Index values for study and reference lakes based upon Secchi transparency data. Bars with the same letter were not significantly different (KW ANOVA, $p < 0.01$).

The median total phosphorus TSI value was 91 and values ranged from 67 to 110. Thus, total phosphorus TSI values were higher than those generated from transparency or chlorophyll measurements for any of the study basins. These data suggest that total phosphorus concentrations within these basins far exceed those levels required to elevate these basins to a hypereutrophic level (excessive phosphorus loading). Among the study lakes, Preston and Whitewood displayed significantly higher total phosphorus TSI values than Lakes Henry and Thompson (Figure 25).

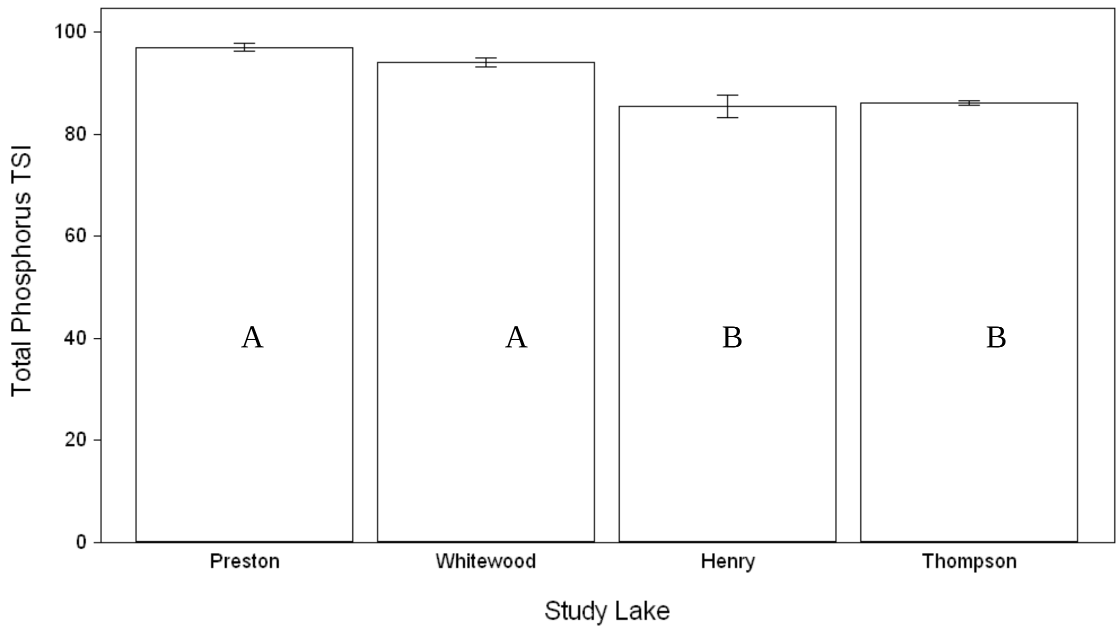

Figure 25. TSI values generated from total phosphorus data collected from study lakes in Kingsbury Co. Bars with the same letter were not significantly different (KW ANOVA, $p > 0.05$).

Corrected chlorophyll a values within the study basins averaged 49.8 ug/L and ranged from 1.1 to 181.6 ug/L. Highest values were observed from Lakes Preston and Whitewood. These chlorophyll data were applied to the TSI chlorophyll equation, generating the TSI patterns observed below (Figure 26). Mean chlorophyll TSI values suggest that Lakes Preston and Whitewood would fall in the hypereutrophic range while Lakes Henry and Thompson would fall in the eutrophic range. Chlorophyll TSI values from Lakes Preston and Whitewood were significantly greater than those observed from the other lakes.

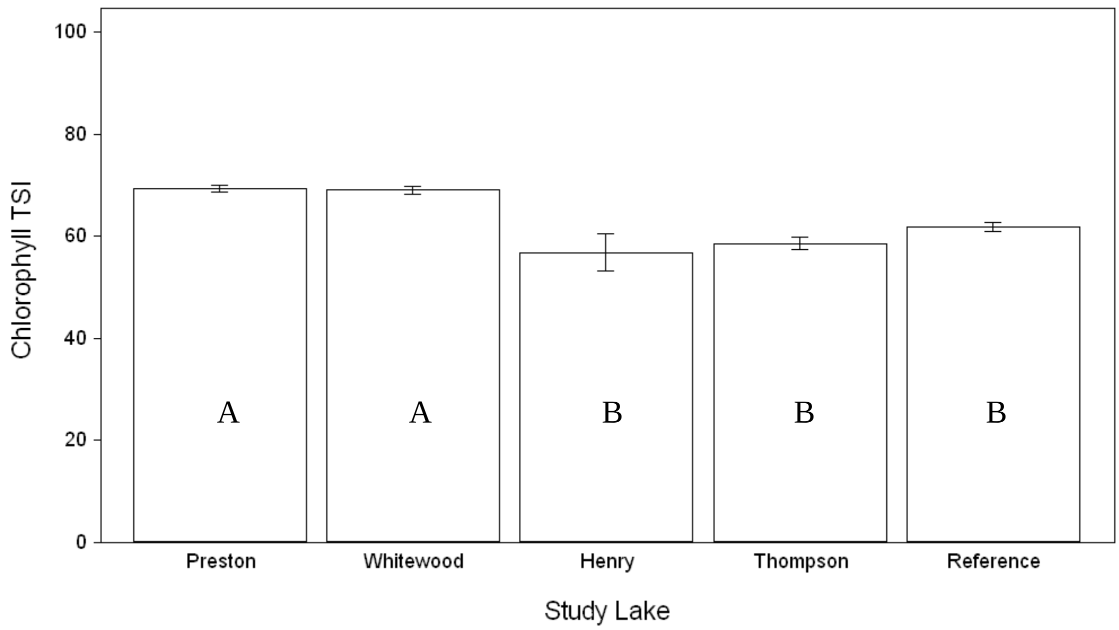

Figure 26. Trophic State Index values generated from corrected chlorophyll a data for the Kingsbury Co. study lakes. Those bars with the same letter were not significantly different (KW ANOVA, p > 0.05).

Overall TSI values were estimated by taking the average of Secchi transparency, total phosphorus and chlorophyll a TSI estimates (Figure 27). Overall TSI values ranged from 48 to 93 and averaged 71 from all measurements. Overall TSI values varied significantly between study and reference lakes. In addition, Lake Preston and Lake Whitewood overall TSI values were significantly greater than those estimated from Lakes Henry and Thompson.

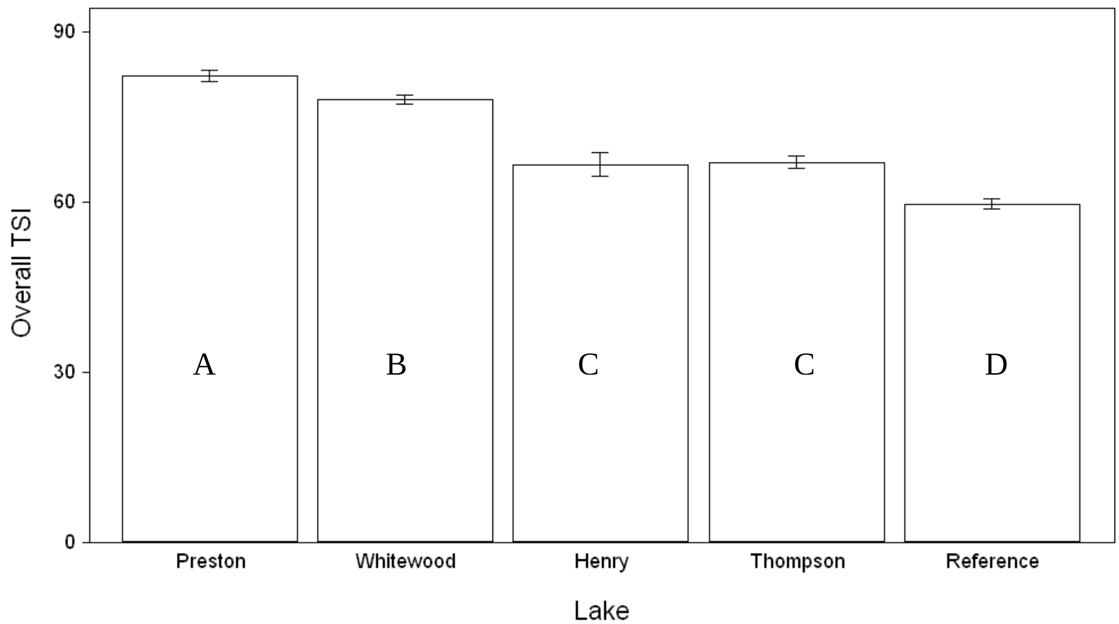

Figure 27. Overall TSI estimates were significantly greater from all study lakes versus reference lakes. Bars with the same letter were not significantly different (KW ANOVA, $p < 0.01$).

Carlson (1992) also developed a graphical method for interpreting the condition of lakes evaluated with the Trophic State Index (Figure 28). Lakes falling in the upper left quadrant of this graph are phosphorus limited and have high inorganic turbidity. Those falling in the upper right quadrant are phosphorus limited and have low inorganic turbidity. Those falling in the lower left quadrant are not phosphorus limited but have high inorganic turbidity while those in the lower right quadrant are not limited by phosphorus and have low inorganic turbidity. Lakes Preston and Whitewood definitely fall into the lower left quadrant, suggesting conditions of high phosphorus and high inorganic turbidity. Lakes Henry and Thompson fall in the lower half of the graph suggesting high phosphorus concentrations but either fall along the line between the lower quadrants (Lake Henry) or in the right quadrant. These lakes are deeper, experience less resuspension of bottom materials and generally have greater water transparency.

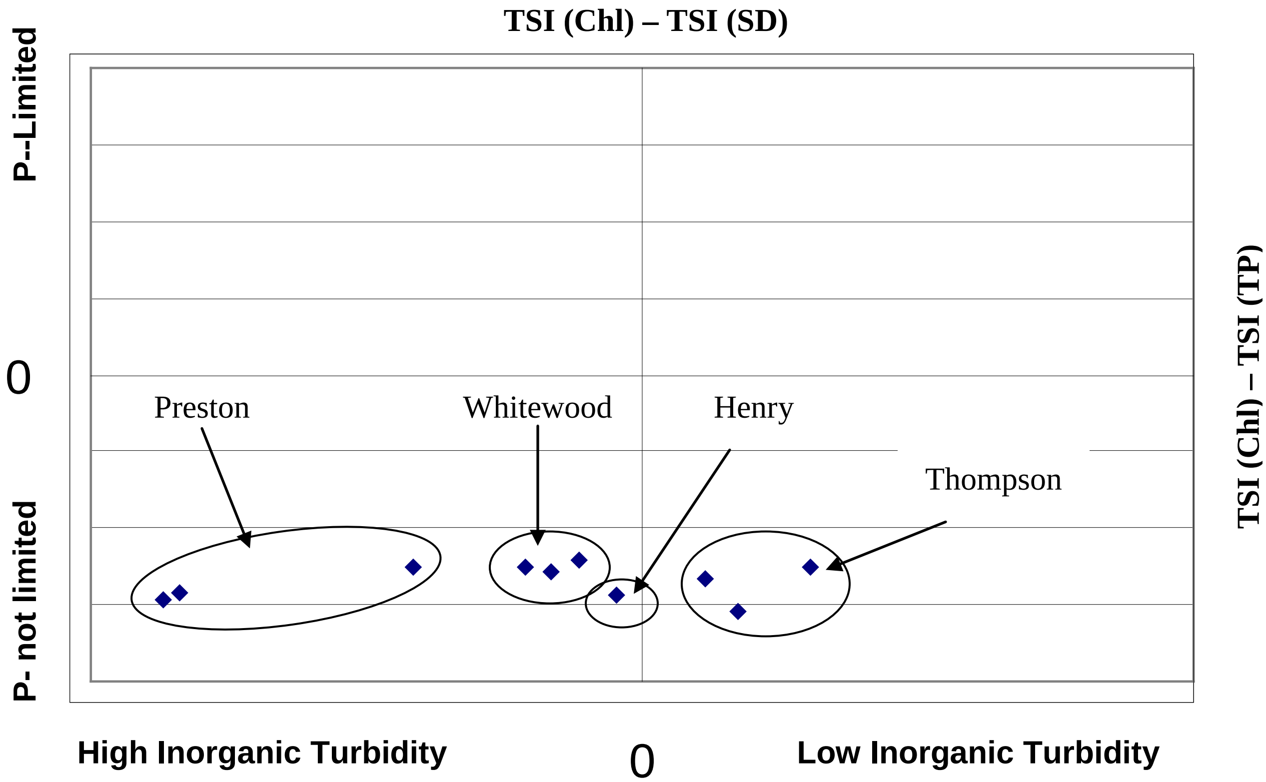

Figure 28. Interpretive plot of Trophic State Index values generated from Kingsbury Co. study lakes.

Stueven et al. (2000) defined target TSI criteria for natural lakes and reservoirs within the Northern Glaciated Plains of South Dakota. Natural lakes should have average TSI values less than 65 to fully support the trophic state criterion. Lakes with average TSI values between 65.01 and 70.00 would partially support the criterion while those with average TSI values greater than 70.00 would be classified as non-supporting. While measured TSI values varied throughout the growing season, a large percentage of observations from Lakes Preston and Whitewood failed to support the TSI criterion (Table 44).

Table 44. Percentage of average TSI values fully supporting, partially supporting and failing to support the trophic state criterion for natural lake basins.

Lake	Fully Supporting (% < 65)	Partially Supporting (% 65 to 70)	Non-Supporting (% > 70)
Lake Preston	0.0	5.6	94.4
Lake Whitewood	0.0	8.3	91.7
Lake Henry	50.0	25.0	25.0
Lake Thompson	30.6	30.6	38.8
Reference Basins	80.0	15.6	4.4

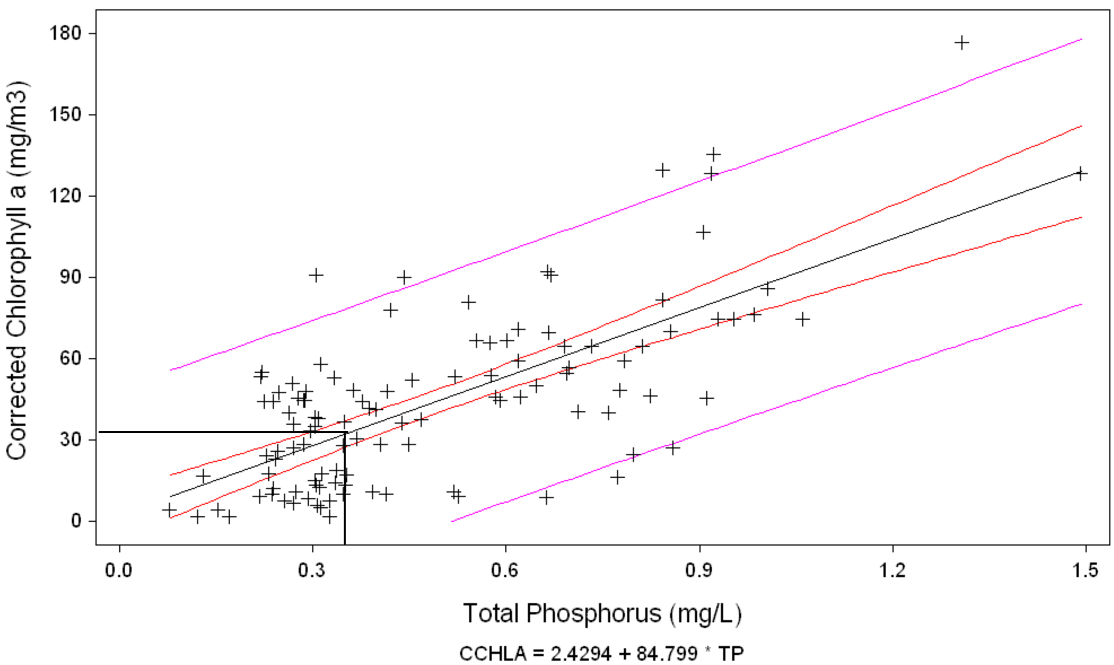

Figure 29. Relationship between surface chlorophyll a values and total phosphorus concentrations within the Kingsbury County study lakes.

Corrected chlorophyll a values were significantly correlated with total phosphorus concentrations which explained 49% of the variability in surface chlorophyll concentrations (Figure 29).

Phytoplankton IBI Scores

Ten phytoplankton metrics were selected from the total list of 24 for IBI development based upon high discriminatory power and low reference site variability (see above; Table 45). These optimal metrics represented indicators of community composition, diversity and trophic function. The Carlson Trophic State Index was the top ranking phytoplankton metric for both discriminatory power and reference site variability.

Table 45. Top 10 optimized phytoplankton metrics (DP = discriminatory power, CV = coefficient of variation).

Metric	Group	DP	DP Rank	C.V.	CV Rank	Overall Rank
TSI	Trophic	363.17	1	10.37	1	1
Cchla	Trophic	202.03	2	85.59	10	2
NoSpec	Richness	76.27	8	63.93	4	3
CyanoRich	Richness	64.82	11	61.48	3	4
SWIndex	Richness	77.40	7	67.46	8	5
PctChrys	Composition	195.49	3	162.46	15	8
Evenness	Richness	62.22	12	69.00	9	10
PctPyrrh	Composition	75.21	9	148.67	14	14
PctCent	Composition	53.00	13	132.02	13	15
ChlorRich	Richness	28.12	15	293.88	19	18

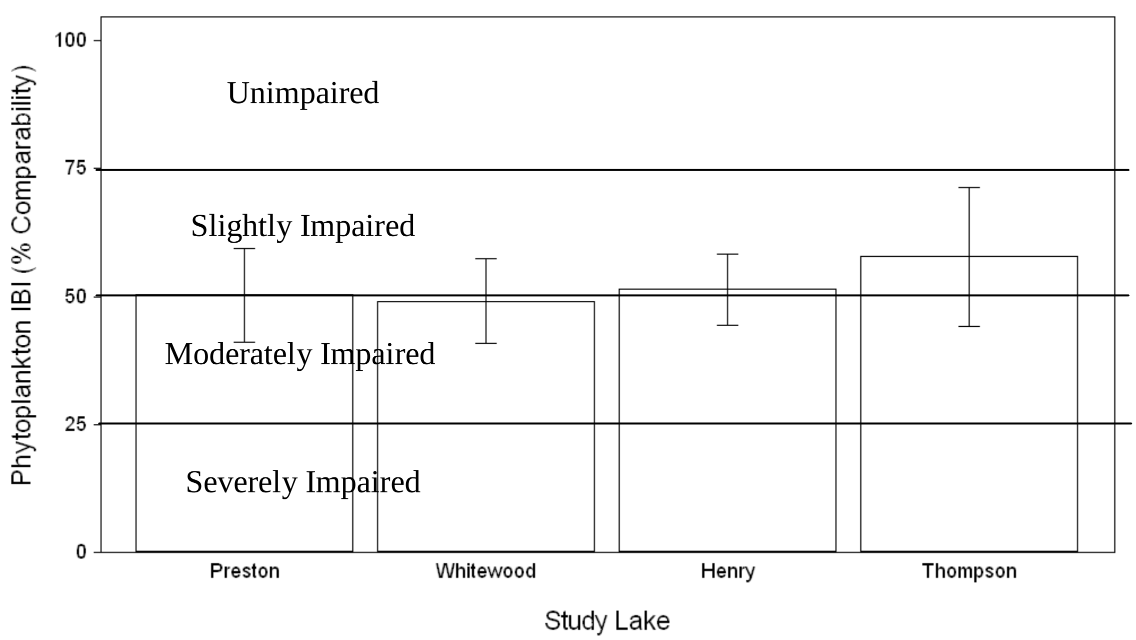

Figure 30. Phytoplankton IBI score percent comparability for the four Kingsbury County study lakes relative to reference basin values.

IBI scores generated from these ten metrics suggest that all four study basins are slightly to moderately impaired with respect to the phytoplankton community (Figure 30). There was no significant difference in phytoplankton IBI scores among the basins (KW ANOVA, $p = 0.11$).

Basin Macrophyte Survey

Macrophytes were surveyed from random transects and quadrat sampling around the perimeter of each reference and study lake. These samples were collected within 100m of the shoreline. Macrophytes appeared from samples of only two study lakes, Lakes Henry and Whitewood, while reference lakes all had some littoral vegetation. Basin vegetation was significantly greater for reference lakes than study lakes (KW ANOVA $p<0.01$). Reference lakes were dominated by *Chara vulgaris* and *Potamogeton pectinatus*, while study lakes were dominated by *P. pectinatus*.

Seven macrophyte species were identified from transect and littoral sampling. The Potamogetonaceae family was represented by two of the seven species, while all other families were represented by one species. All seven species were observed at reference sites, while only four species (*P. pectinatus*, *P. richardsonii*, *Ceratophyllum demersum* and *Utricularia vulgaris*) were found within study lakes. *P. pectinatus* was observed from 43% of reference samples (mean biomass = 350 grams WW) and 46% of all study lake samples (mean biomass = 168 grams WW). *U. vulgaris*, *P. richardsonii* and *C. demersum* were observed infrequently at study sites. *C. vulgaris*, found only within reference basins, displayed the highest mean biomass with an average of 4487 grams WW per sample.

Littoral vegetation in reference lakes consisted primarily of *P. pectinatus*, but also included *C. vulgaris*, *Ruppia maritima* and *U. vulgaris*. Small collections of *P. pectinatus* were collected from Lakes Henry and Whitewood within the littoral zone.

Basin Lake Invertebrate IBI

Ten basin invertebrate community metrics were selected from the total list of 64 for IBI development based upon high discriminatory power and low reference site variability (see above; Table 46). These optimal metrics represented indicators of community composition, diversity, guild structure and tolerance to organic pollution and sedimentation. The percentage of invertebrates by number within an individual sample that were intolerant to sedimentation was the highest ranking metric overall.

Table 46. Top 10 optimized invertebrate metrics for basin sites (DP = Discriminatory power, CV = Coefficient of variation).

Metric	Group	DP	DP Rank	CV	CV Rank	Overall Rank
PctSedIntol	Tolerance	133.72	8	49.31	9	4
TolTaxa	Tolerance	130.80	9	53.01	11	5
PctOrthoc	Composition	138.98	5	146.31	21	10
OligoRichness	Richness	134.88	6	155.54	22	14
PctPR	Feeding	111.89	15	54.55	13	15
Total taxa	Richness	117.39	14	55.53	15	17
PctCG	Feeding	125.75	13	92.66	18	21
PctBU	Habit	109.66	17	55.94	16	22
PctChiron	Composition	107.04	19	112.87	19	24
PctTanyp	Composition	72.48	26	125.52	20	26

Invertebrate basin IBI comparability scores suggest that all four study lakes are slightly impaired relative to reference basin invertebrate communities (Figure 31). Average comparability for lakes Henry and Thompson were higher than those for Preston and Whitewood. Significant differences were observed in IBI scores between lakes Preston and Henry (KW ANOVA, $p = 0.020$).

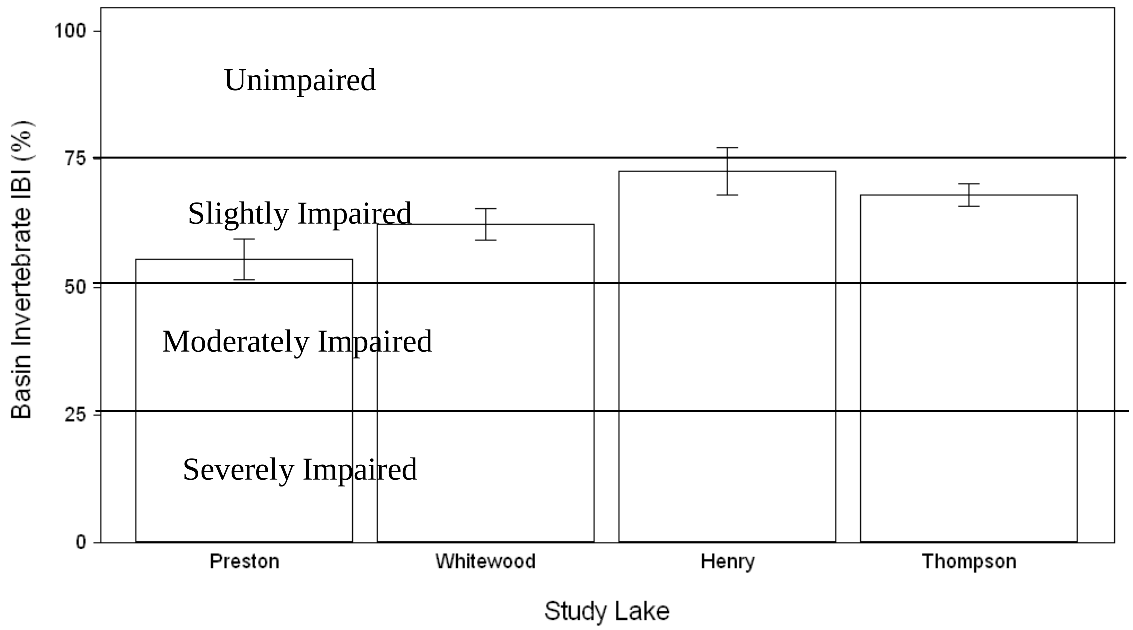

Figure 31. Study basin invertebrate IBI percent comparability to reference basins.

Littoral Lake Invertebrate IBI

Ten littoral invertebrate community metrics were selected from the total list of 64 for IBI development based upon high discriminatory power and low reference site variability (see above; Table 47). These optimal metrics represented indicators of community composition, diversity, guild structure and tolerance to organic pollution. The modified Hilsenhoff Biotic Index of tolerance to organic pollution was the highest ranking littoral invertebrate metric.

Table 47. Top 10 optimized littoral invertebrate metrics (DP = Discriminatory power, CV = Coefficient of variation).

Metric	Group	DP	DP Rank	CV	CV Rank	Overall Rank
HBI	Tolerance	144.31	7	16.51	1	1
Even	Richness	152.45	6	41.43	5	2
PctDom	Composition	141.17	8	38.17	4	3
PctCG	Feeding	131.79	9	49.46	7	4
SWIndex	Richness	128.38	10	49.83	8	5
PctSWMR	Habit	102.40	17	43.42	6	7
PctPR	Feeding	178.38	2	110.85	25	8
TolTaxa	Tolerance	94.27	21	55.26	10	12
TotalTaxa	Richness	89.72	25	57.36	11	14
PctHemip	Composition	205.77	1	159.28	38	16

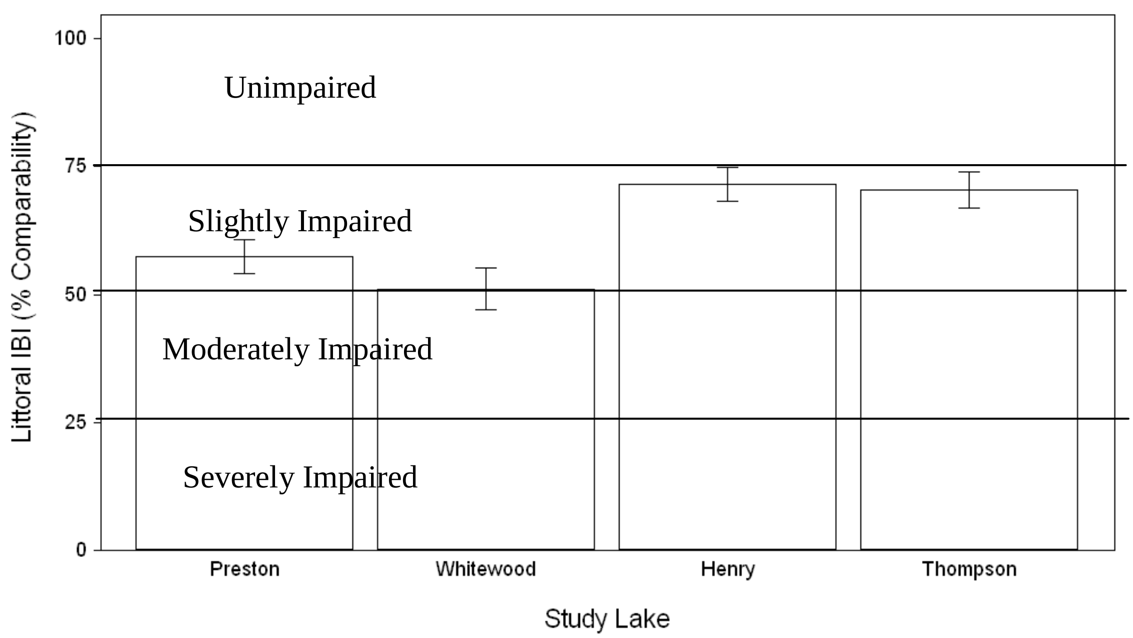

Figure 32. Littoral invertebrate IBI percent comparability to reference basins.

Littoral invertebrate IBI scores again suggest that slight to moderate impairment of invertebrate communities among the study basins relative to reference basin samples (Figure 32). Lakes Preston, Henry and Thompson all fell within the slightly impaired class while Lake Whitewood fell on the borderline between slightly and moderately impaired. Whitewood IBI scores were found to be significantly lower than those for Henry and Thompson while Lake Preston scores were significantly lower than those for Lake Henry alone (KW ANOVA, $p < 0.01$).

Integrated Basin IBI

An integrated Index of Biotic Integrity was developed using phytoplankton, basin invertebrate and littoral invertebrate metrics. Optimal metrics were defined as above using the combined data for all three groups. The resulting 10 metric set includes both littoral and open water metrics (Table 48).   Metrics within this integrated set also include measures of community composition, diversity, guild structure and basin trophic condition.

Table 48. Integrated optimal set of metrics for IBI use (DP = Discriminatory power, CV = Coefficient of variation).

Metric	Group	DP	DV Rank	CV	CV Rank	Sum Rank	Rank No	KW p-value
TSI	Phytoplankton	365.81	1	13.17	2	3	1	<0.001
Evenness	Littoral	152.45	14	41.43	12	26	4	<0.001
PctDom	Littoral	141.17	16	38.17	11	27	5	0.002
PctCG	Littoral	131.79	22	49.46	17	39	8	0.002
SWIndex	Littoral	128.38	27	49.83	18	45	11	<0.001
Cchla	Phytoplankton	270.32	4	113.27	56	60	18	<0.001
PctSWMR	Littoral	102.40	47	43.42	13	60	19	<0.001
PctPR	Basin	111.89	38	55.74	25	63	22	0.001
Evenness	Phytoplankton	123.11	31	66.62	33	64	24	0.006
PctCG	Basin	125.75	30	92.66	46	76	34	<0.001

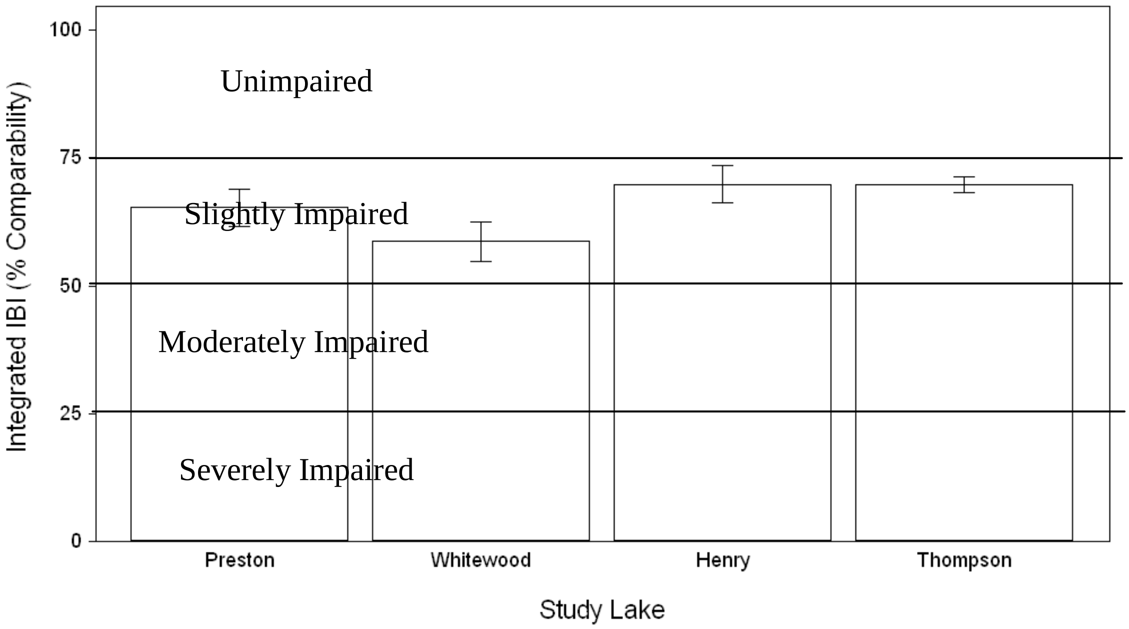

Figure 33. Integrated phytoplankton, basin invertebrate and littoral invertebrate IBI scores for study basins relative to reference sites.

The integrated metric data suggest slight impairment of all study basins relative to reference sites (Figure 33). This metric set provides an integrated measure of biotic integrity for pelagic and littoral areas within each of the study lakes.

DISCUSSION

Impairment Summary for the Kingsbury County Lakes

All four of the Kingsbury County study basins are slightly to moderately impaired relative to reference lake data, regional state trophic state criteria and water quality standards. Principle sources of impairment include high sediment and nutrient loading and fecal contamination.

Lakes Preston, Whitewood and Thompson were 303d listed for TMDL development due to trophic state concerns. Field assessment data would classify Lakes Preston and Whitewood as hypereutrophic and Lakes Henry and Thompson as eutrophic. Total phosphorus TSI values exceed the regional criterion of 65 for all four of the Kingsbury study basins. In addition, chlorophyll and Secchi transparency TSI values exceed the regional criterion in lakes Preston and Whitewood. Overall Carlson TSI values from all four basins exceed the state criterion of 65 for the Northern Glaciated Plains ecoregion. Overall TSI values for these basins would have to come down between 1.7% and 22.2% to achieve this criterion (Table 49).

Current total phosphorus concentrations and corresponding TSI values were high for all four study basins. Reductions necessary to achieve the total phosphorus criterion range from 77.9% in Lake Thompson to 89.7% in Lake Preston.

In addition to these trophic state concerns, several other indicators suggest slight impairment to the Kingsbury study basins. Streams within study and reference basins are low-gradient, intermittent channels. A small number of pH measurements from several stream sites exceeded the water quality standard of 9.0. In addition, 9.4% of study stream samples had unionized ammonia concentrations exceeding 0.05 mg/L and more than 25% of fecal coliform bacteria samples collected from Lake Preston and Whitewood stream samples exceeded 200/100 ml. While these streams are not protected under ammonia and fecal standards, high levels of these contaminants may impair receiving lake waters at points of confluence. Invertebrate IBI scores suggest that study streams from Lakes Preston, Whitewood, Henry and Thompson are slightly impaired relative to reference streams within the same ecoregion.

The pH standard of 9.0 was exceeded by 12.5% of Lake Whitewood samples and 8.4% of Lake Thompson samples. Unionized ammonia in excess of state standards was also observed from 15.3% of Lake Whitewood, 33.3% of Lake Henry and 26.4% of Lake Thompson samples. Lake stratification rarely occurred throughout the study period in any of the study basins. However, 2.6% of bottom dissolved oxygen samples fell below standards to support warmwater fisheries in Lakes Whitewood and Thompson. Fecal coliform bacteria exceeded the state standard in 11.1% of Lake Preston, 5.6% of Lake Whitewood and 8.3% of Lake Henry samples. Study lake shorelines were dominated by agricultural development while reference lake shorelines exhibited greater residential development. Study lake shorelines had lower vegetative cover and exhibited greater evidence of bank erosion than reference shorelines. Furthermore, study lake littoral zones were dominated by fine sediments with little macrophyte vegetation relative to reference littoral zones. Integrated phytoplankton and invertebrate IBI values suggest slight impairment of all study lakes relative to reference lake basins.

Table 49. Median Secchi, chlorophyll a and total phosphorus values found from each of the Kingsbury study lakes. Target values and percent reductions needed to achieve the state TSI criterion are reported with current median values.

Parameter	Preston	Whitewood	Henry	Thompson
Med Secchi	24	44	115	122
Target Secchi	71	71	71	71
% Incr	195.8	61.4	-	-
Med Chl a	56.1	49.8	16.8	18.2
Target Chl a	33.3	33.3	33.3	33.3
% Red	40.6	33.1	-	-
Med Total P	0.659	0.610	0.332	0.308
Target Total P	0.068	0.068	0.068	0.068
% Red	89.7	88.9	79.5	77.9
Overall TSI	83.5	77.6	66.1	68.6
Target TSI	65	65	65	65
% Red	22.2	16.2	1.7	5.2

Annualized AGNPS Estimated Load Reductions

Annualized AGNPS was utilized to estimate load reductions that might be anticipated from each monitored subwatershed of the study basins following implementation of best management practices. Four principle management practices were considered during these simulations. Those cells within the watershed contributing the greatest loads of nitrogen and phosphorus (top 25%) were converted from cropland to pasture during the simulation. This conversion was intended simulate implementation of riparian buffer strips to the most serious cells within each subwatershed. Those cells ranking in the next 25^{th} percentile were either converted from conventional tillage to no-till or fertilizer applications were reduced to one half the current level if the cell was already in a no-till condition. All feedlots within each subwatershed with annualized AGNPS ratings of 50 or greater modeled with livestock waste management systems.

Cropland Conversion

In subwatersheds LPT1-6 and LWT1-4, converting the most seriously loading crop ground to grass pasture had the greatest effect on reductions in nitrogen and phosphorus loadings. To model this change, critical cell (the top 25% in terms of loading) land use was converted from fields to pastureland in fair condition (Table 50). Tilled cells within each subwatershed falling within the 26^{th} to 50^{th} percentile in terms of nitrogen and phosphorus loading were either converted to no-till (if conventionally tilled) or fertilizer applications were reduced by half if in a no-till condition (Tables 51 and 52).

Table 50. Estimated nitrogen, phosphorus and sediment load reductions from conversion of cropland to pasture within each of the Kingsbury study subwatersheds.

Subwatershed	% Nitrogen Reduction	% Phosphorus Reduction	% Sediment Reduction
LPT1	36%	25%	25%
LPT2	33%	22%	21%
LPT3	36%	25%	25%
LPT4	42%	29%	25%
LPT5	29%	22%	20%
LPT6	59%	48%	31%
LWT1	45%	33%	24%
LWT2	36%	25%	28%
LWT3	31%	21%	28%
LWT4	31%	21%	27%
Outlet Into Thompson	21%	20%	20%
Kingsbury Watershed	21%	20%	20%

Table 51. Estimated nitrogen, phosphorus and sediment load reductions from conversion of tilled cropland to no-till cropland within each of the Kingsbury study subwatersheds.

Subwatershed	% Nitrogen Reduction	% Phosphorus Reduction	% Sediment Reduction
LPT1	1%	5%	15%
LPT2	1%	3%	13%
LPT3	1%	3%	30%
LPT4	3%	10%	25%
LPT5	1%	4%	25%
LPT6	5%	15%	50%
LWT1	3%	7%	18%
LWT2	2%	5%	18%
LWT3	2%	3%	35%
LWT4	2%	3%	25%
Outlet Into Thompson	1%	3%	11%
Kingsbury Watershed	1%	3%	11%

Riparian Buffers

Grassed waterways and riparian buffers were not modeled directly using the AnnAGNPS model because the model lacks the ability to recognize the installation of these practices. An attempt was made to estimate nitrogen and phosphorus load reductions due to riparian management by altering the land use of the top nitrogen and phosphorus loading cells within each subwatershed from cropland to pasture (Table 50, above).

Reductions in Fertilizer Application

Annualized AGNPS simulations were conducted in the sub-watersheds to estimate nitrogen and phosphorus load reductions which might results from lower fertilizer applications in those cropland areas identified as moderately critical cells. Applications were reduced from a high level (200-300 pounds per acre of product) down to a medium level (100-200 pounds per acre of product). Total nitrogen and phosphorus load reductions would be greatest for LPT2, LPT3, LPT6 and LWT4 (Table 52).

Table 52. Estimated total nitrogen and phosphorus load reductions from each subwatershed resulting from lower simulated applications of fertilizer (200-300 pounds to 100-200 pounds per acre) in each subwatershed.

Subwatershed	% Nitrogen Reduction	% Phosphorus Reduction
LPT1	4	1
LPT2	6	2
LPT3	6	2
LPT4	4	1
LPT5	2	1
LPT6	9	3
LWT1	4	1
LWT2	4	1
LWT3	2	1
LWT4	5	3
LWO	2	1
LTO	2	1

Animal Waste Management Systems

Feedlots with an AGNPS 3.65 ranking of over 50 were removed on both a sub-watershed and complete watershed basis. This scenario was meant to reflect installation of livestock waste management systems on each of these production facilities. Reductions on a sub-watershed basis ranged from 1% to 10% reductions in phosphorus and 0% to 15% for reductions in nitrogen (Table 53). On a complete watershed basis, the removal of these feedlots did not produce a significant reduction in either phosphorus or nitrogen.

Table 53. Estimated total nitrogen and phosphorus load reductions from each subwatershed resulting from removal of feedlots with an AGNPS 3.65 ranking over 50 within the Kingsbury study area.

Subwatershed	% Nitrogen Reduction	% Phosphorus Reduction
LPT1	N/A	N/A
LPT2	N/A	N/A
LPT3	5%	7%
LPT4	15%	10%
LPT5	1%	4%
LPT6	N/A	N/A
LWT1	N/A	N/A
LWT2	N/A	N/A
LWT3	2%	3%
LWT4	N/A	N/A
Outlet Into Thompson	0%	0%
Kingsbury Watershed	1%	2%

Total Load Reduction Estimates

Total nitrogen and phosphorus load reductions were calculated based upon installation of animal waste systems, reductions in fertilizer application from 200-300 lbs/acre to 100-200 lbs/acre and conversion of tilled acreage to no-till practices (Figure 34). Greatest total load reductions were estimated for LPT3, LPT4 and LPT6. However, overall reductions in nitrogen and phosphorus load to Lake Thompson were expected to reach only 4% and 6%, respectively.

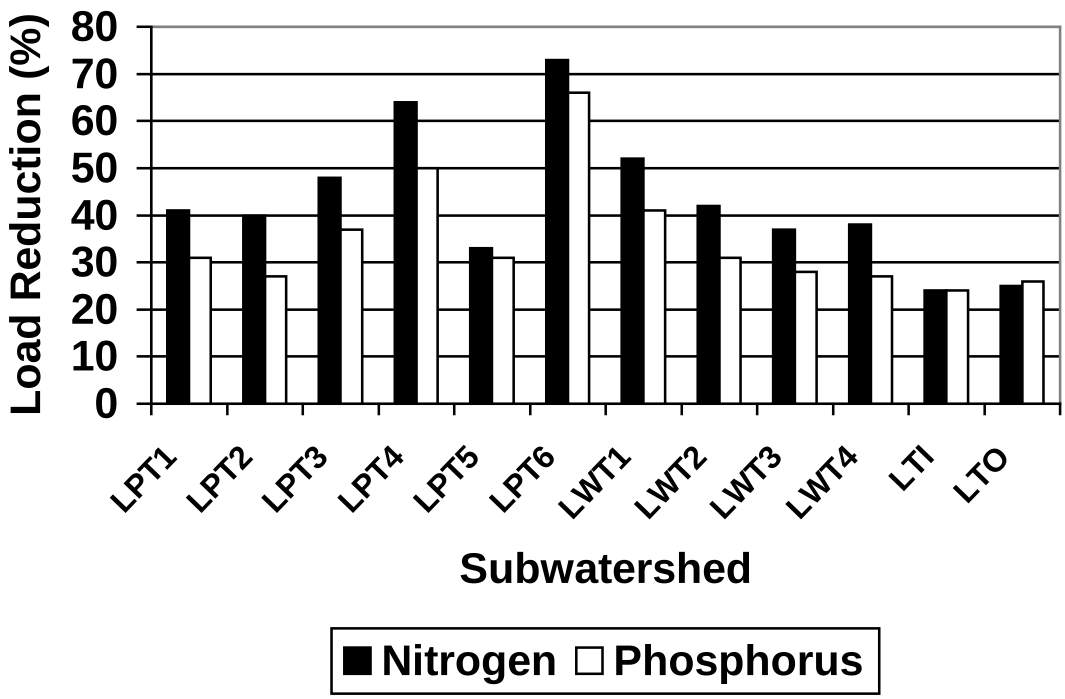

Figure 34. Total estimated load reductions in total nitrogen and total phosphorus resulting from installation of recommended animal waste systems, reduction of fertilizer applications by half and landuse conversions within the Lake Thompson watershed.

Recommended Best Management Practice Strategies

Best management practices recommended for each subwatershed within the Kingsbury study area were generated from aerial photo evaluation, identification of critical loading cells and annualized AGNPS output (Table 54).

The increase of crop residue by conversion of conventional-tillage systems to no-till systems and conservation crop rotation would also greatly reduce erosion, sediment and nutrient loadings within the watershed. Producers within the watershed should be encouraged to participate in educational programs to become aware of the advantages of these practices.

Table 54. Proposed number and area devoted to different best management practices for different subwatersheds of the Kingsbury Co. lakes.

Sub-watershed name	Ag Waste systems (number)	Grass/Buffer Strips (acres)	Pasture or CRP Plantings (acres)	Grazing Systems (including water availability for livestock)	Clean water diversion around feeding area (number)
LPT1	-	15	320	320	-
LPT2	-	8	160	-	-
LPT3	1	15	-	160	-
LPT4	1	16	-	-	-
LPT5	2	8	-	400	-
LPT6	-	-	160	-	-
LWT1	-	10	80	-	-
LWT2	1	35	160	-	1
LWT3	-	-	-	-	-
LWT4	-	4	160	-	-
Rest of Kingsbury watershed	16	225	6200	5000	2
Total	**21**	**336**	**7240**	**5880**	**3**

BATHTUB Load Reductions and Trophic State Indicators

Data collected throughout the course of this project suggest that each of the Kingsbury study lakes suffers from high concentrations of total phosphorus. The total phosphorus TSI substantially exceeds TSI values generated from Secchi transparency and corrected chlorophyll a in each of the basins. Since current data suggest slight to severe trophic state impairment for each of the lakes, total phosphorus load reduction simulations were conducted to estimate TSI improvements from stepped reductions in total phosphorus loads to each basin.

The USACE model BATHTUB was used to estimate trophic state changes anticipated from different levels of total phosphorus load reduction to each of the Kingsbury lakes. Phosphorus load reductions served as a focus because (1) the trophic state variable most out of compliance for each of the Kingsbury lakes was total phosphorus and (2) most phosphorus enters surface water habitats adsorbed to particulates.

Carlson Trophic State Index values were estimated following model reductions of total phosphorus load at 10% increments from current levels to 10% of current values. Separate annualized AGNPS modeling was conducted to estimate actual total load reductions anticipated from each monitored subwatershed by implementation of best management practices. Average load reductions to each basin were then used to estimate percent reductions in TSI indicators.

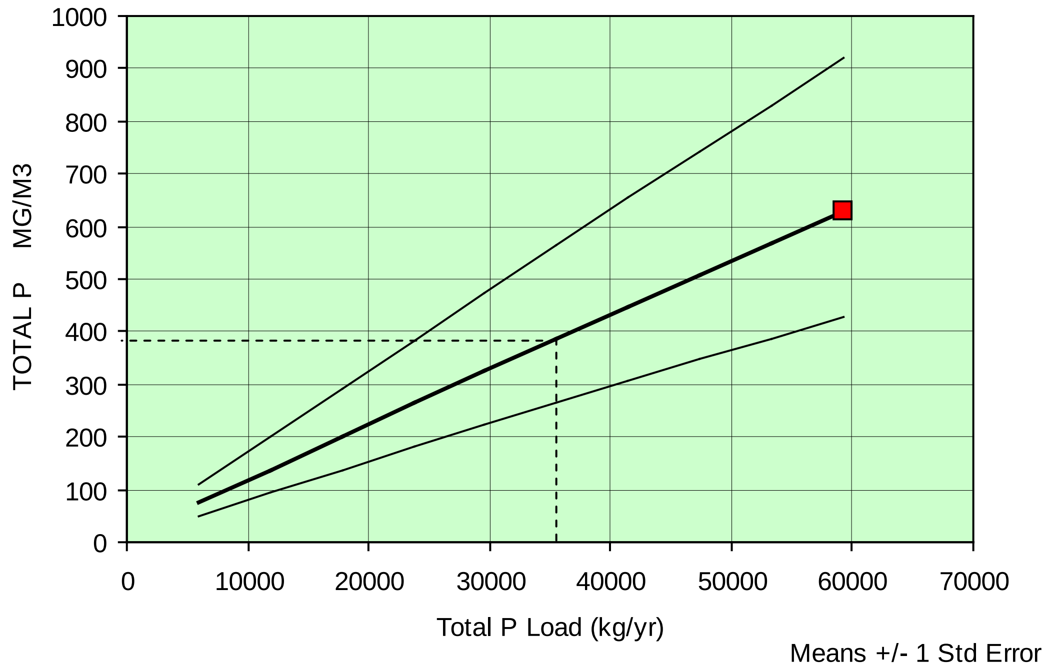

Figure 35. Total phosphorus loads anticipated from 10% stepped reductions in total phosphorus concentration within Lake Preston inlet tributaries. The square indicates current average concentration and resulting loads. The dotted line indicates predicted changes from current levels following BMP implementation.

Reductions in total phosphorus load are predicted to lead toward improved Carlson Trophic State indicator values. Annualized AGNPS best management implementation scenarios are predicted to reduce inlet loads of total phosphorus to Lake Preston by 40.3%. This would reduce the estimated annual load to Lake Preston from 59,234.1 kg per year to 35,540.5 kg per year. In-lake total phosphorus concentrations would be predicted to drop 38.4% from 627.2 ug/L to 386.6 ug/L (Figure 35). The total phosphorus TSI would be predicted to fall 7% from 97.0 to 90.1 (Figure 36). Chlorophyll a TSI and Secchi TSI values would be predicted to fall 2.0% and 1.2% and chlorophyll and Secchi TSI values would average 69.7 and 75.9, respectively (Figures 37 and 38).

Predicted concentrations and indicator values generated by the BATHTUB model display some departure from current conditions, even with calibration factors applied. Thus, percent reductions predicted by the model were applied to current TSI indicator values to estimate actual improvements. Predicted percent reductions applied toward current Lake Preston average indicator values would result in total phosphorus TSI of 90.1, Secchi TSI of 81.3 and chlorophyll a TSI of 67.9. Thus, improvements in Lake Preston trophic state are expected to occur following implementation of best management practices outlined above, but TSI values (particularly total phosphorus and Secchi TSI's) are expected to remain well above the state regional criterion of 65.

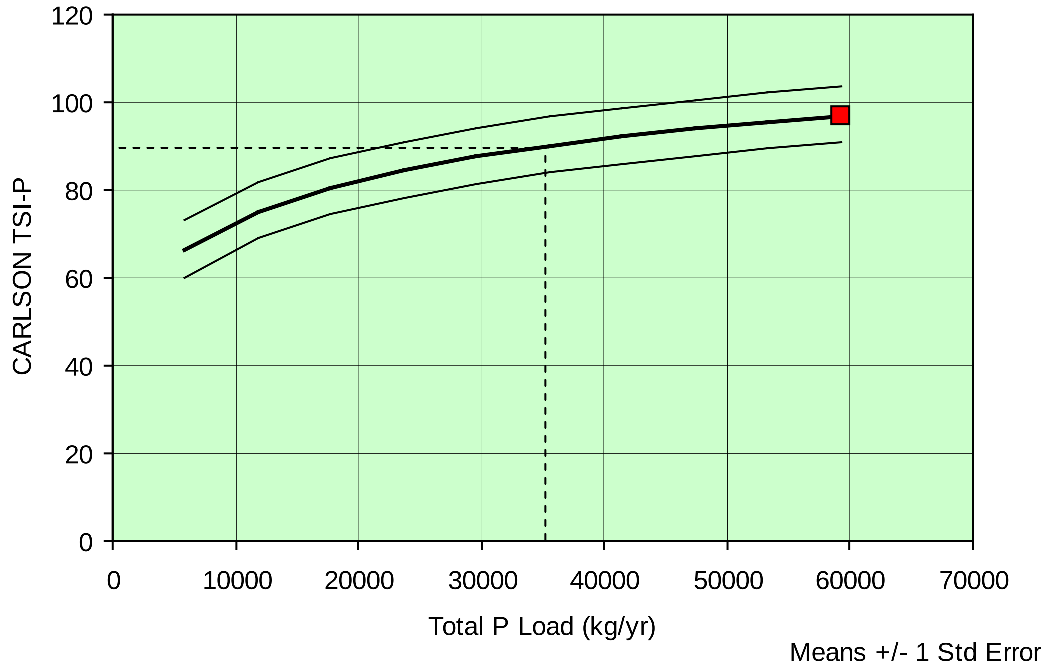

Figure 36. Changes in the total phosphorus Carlson TSI value anticipated from 10% stepped reductions in total phosphorus concentration to Lake Preston. The square on the right side of the graph represents the current total phosphorus TSI value. The dotted line indicates predicted changes from current levels following BMP implementation.

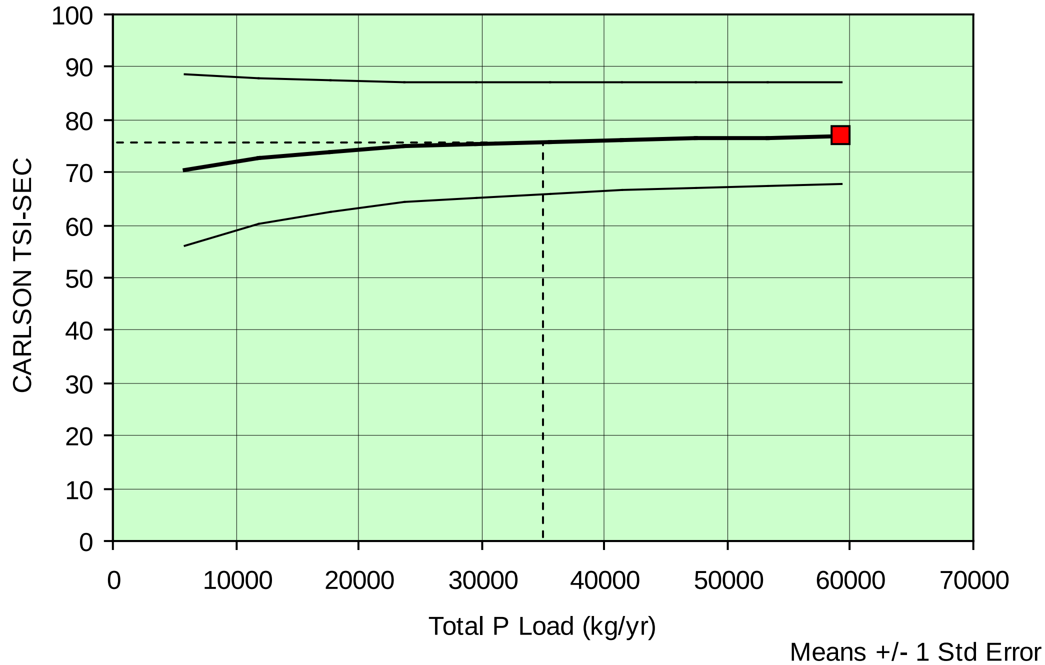

Figure 37. Changes in Secchi depth Carlson TSI values for Lake Preston estimated from 90% reductions in total phosphorus concentrations in inlet streams. The square on the right side of the graph indicates the current Secchi TSI value. The dotted line indicates predicted changes from current levels following BMP implementation.

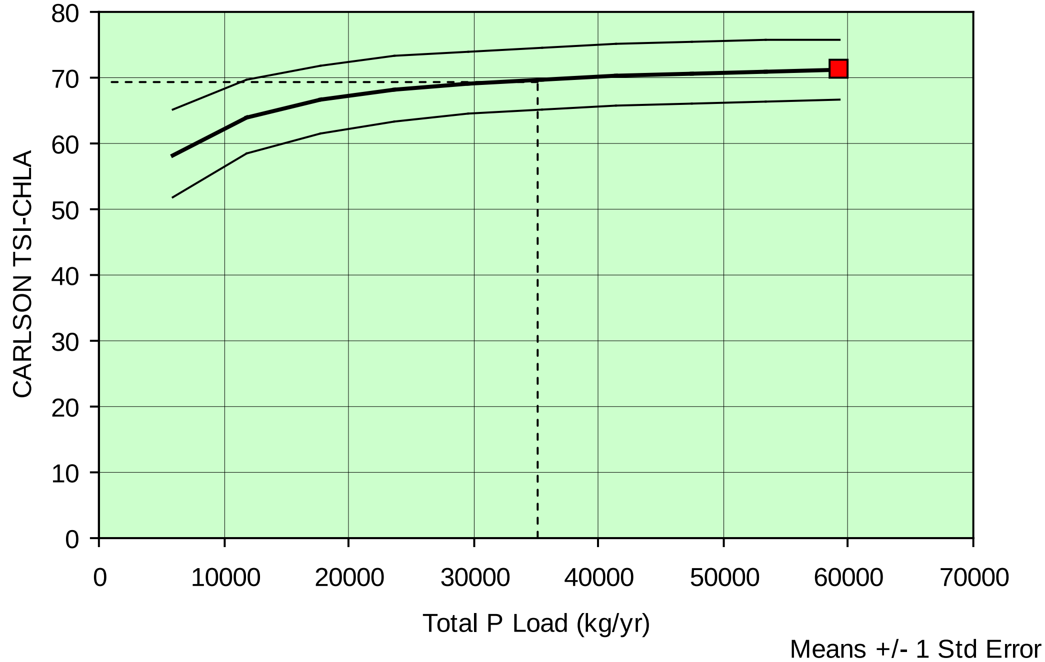

Figure 38. Changes in chlorophyll a Carlson TSI values for Lake Preston estimated from 90% reductions in total phosphorus concentrations in inlet streams. The square on the right side of the graph indicates the current Secchi TSI value. The dotted line indicates predicted changes from current levels following BMP implementation.

Total phosphorus load scenarios were modeled for Lake Whitewood over the range of 87,814 kg per year to 8781 kg per year in 10% steps using the BATHTUB model (Figure 39). This range represents a 90% reduction in total phosphorus loads to this basin.

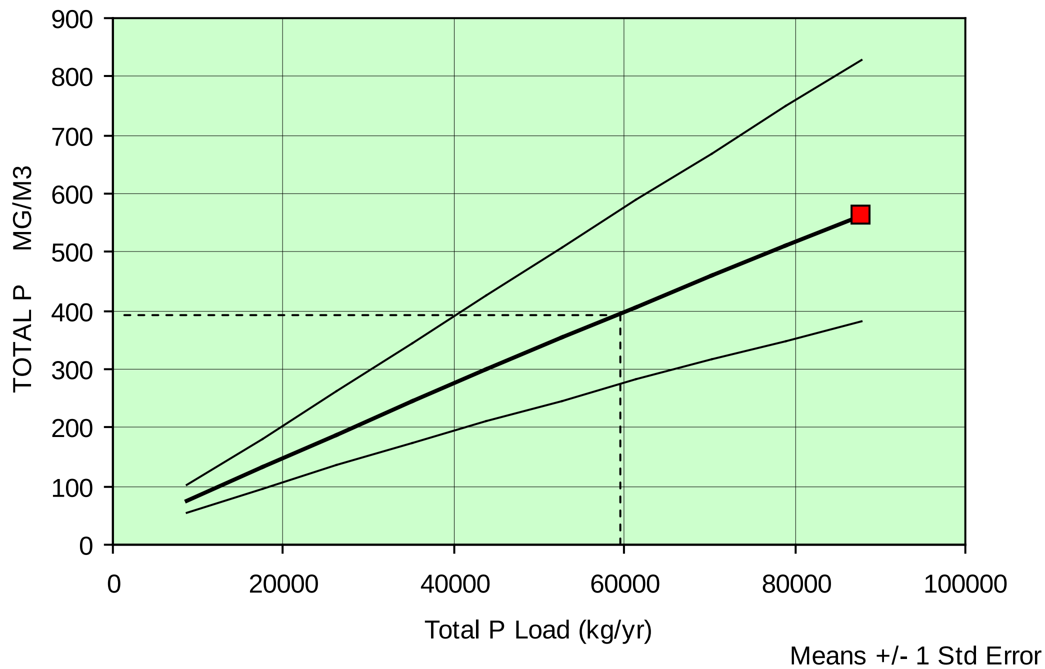

Figure 39. Total phosphorus loads anticipated from 10% stepped reductions in total phosphorus concentration within Lake Whitewood inlet tributaries. The square indicates current average concentrations and resulting loads. The dotted line indicates predicted changes from current levels following BMP implementation.

Annualized AGNPS best management scenarios are predicted to reduce the total phosphorus load from Lake Whitewood inlet streams by an average of 32%. This would represent an average reduction from 87813.8 kg per year to 59713.4 kg per year. A 32% reduction in TP load is predicted to reduce in-basin concentrations from 562.6 ug/L to 417.5 ug/L (25.8%) (Figure 39). The total phosphorus TSI would be predicted to fall 4.6% from 95.5 to 91.1 (Figure 40). Chlorophyll a TSI and Secchi TSI values would be predicted to fall 0.7% and 1.5% and chlorophyll and Secchi TSI values would average 72.4 and 60.3, respectively (Figures 41 and 42).

Predicted concentrations and indicator values generated by the BATHTUB model display some departure from current conditions, even with calibration factors applied. Thus, percent reductions predicted by the model were applied to current TSI indicator values to estimate actual improvements. Predicted percent reductions applied toward current Lake Whitewood average indicator values would result in total phosphorus TSI of 89.8, Secchi TSI of 70.4 and chlorophyll a TSI of 68.5. Thus, improvements in Lake Whitewood trophic state are expected to occur following implementation of best management practices outlined above, but TSI values are expected to remain well above the state regional criterion of 65.

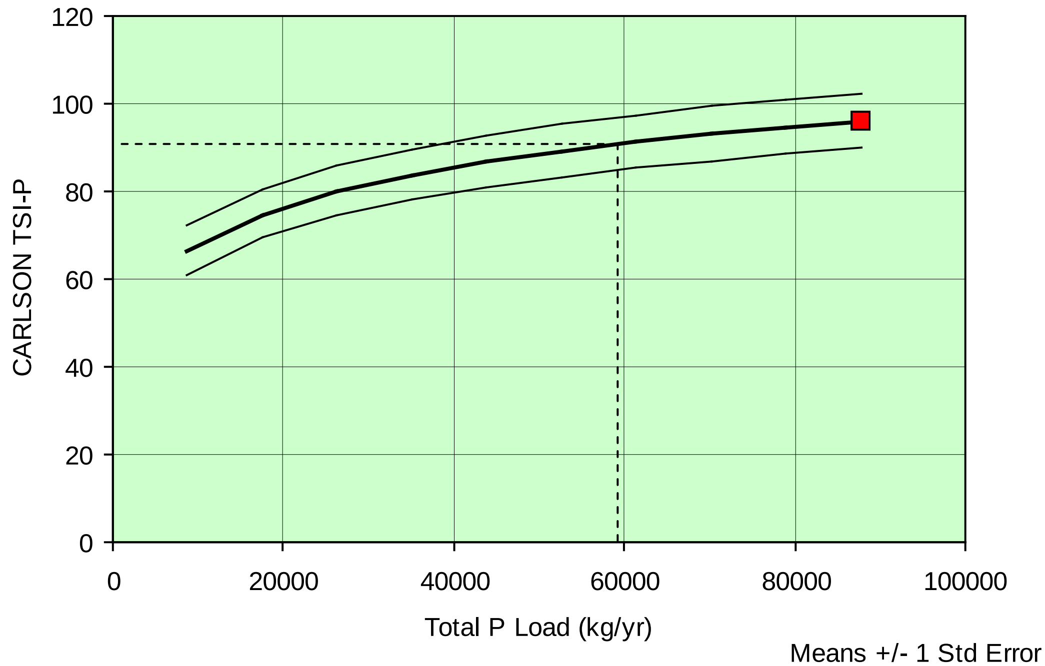

Figure 40. Changes in the total phosphorus Carlson TSI value anticipated from 10% stepped reductions in total phosphorus concentration to Lake Whitewood. The square on the right side of the graph represents the current total phosphorus TSI value. The dotted line indicates predicted changes from current levels following BMP implementation.

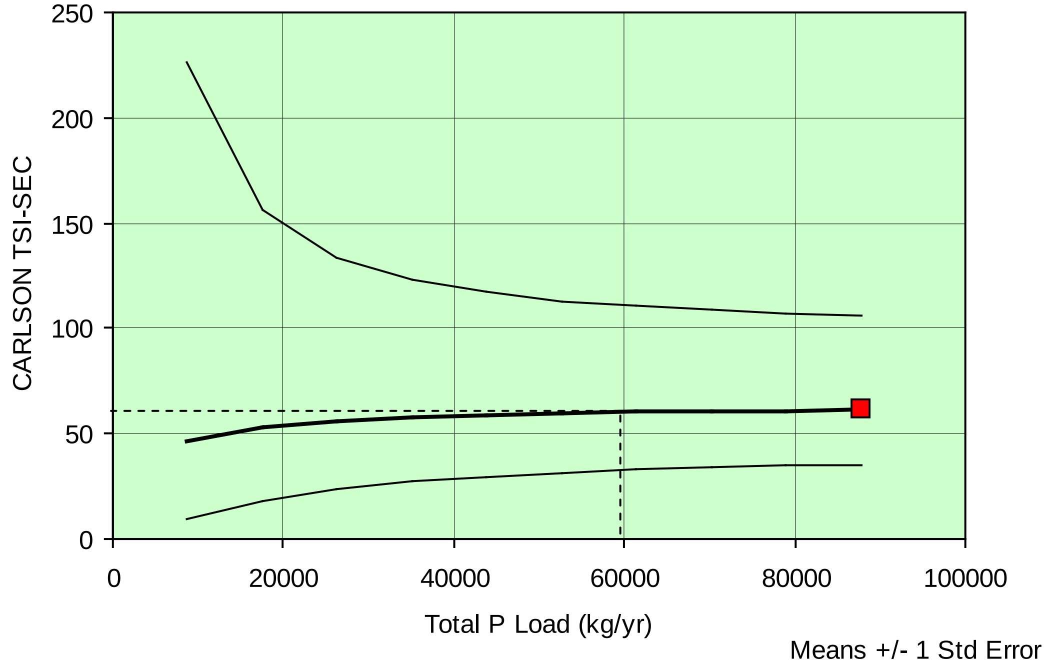

Figure 41. Changes in Secchi depth Carlson TSI values for Lake Whitewood estimated from 90% reductions in total phosphorus concentrations in inlet streams. The square on the right side of the graph indicates the current Secchi TSI value. The dotted line indicates predicted changes from current levels following BMP implementation.

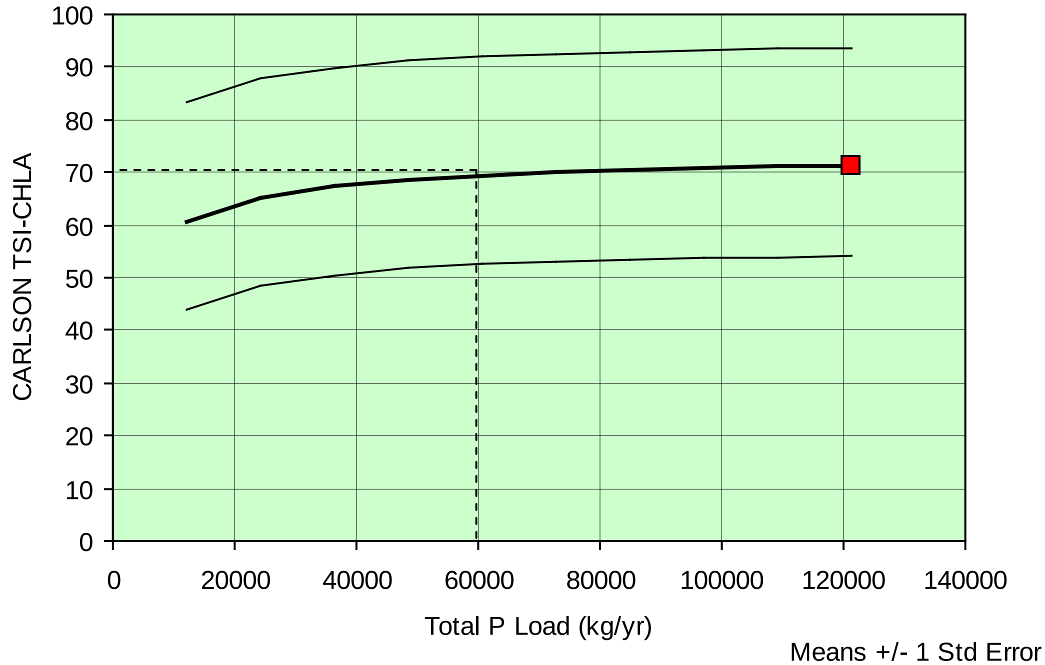

Figure 42. Changes in chlorophyll a Carlson TSI values for Lake Whitewood estimated from 90% reductions in total phosphorus concentrations in inlet streams. The square on the right side of the graph indicates the current Secchi TSI value. The dotted line indicates predicted changes from current levels following BMP implementation.

Total phosphorus load reductions in inlet streams contributing water to Lake Thompson from conversion of tilled land to pasture and no-till agriculture, 50% reductions in fertilizer application and installing animal waste management systems were estimated at 24%. This would represent an average annual reduction from 121184.1 kg per year to 92099.9 kg per year (Figure 43).

Total phosphorus load scenarios were modeled for Lake Thompson over the range of 121184 kg per year to 12118 kg per year in 10% steps using the BATHTUB model (Figure 43). This range represents a 90% reduction in total phosphorus loads to this basin.

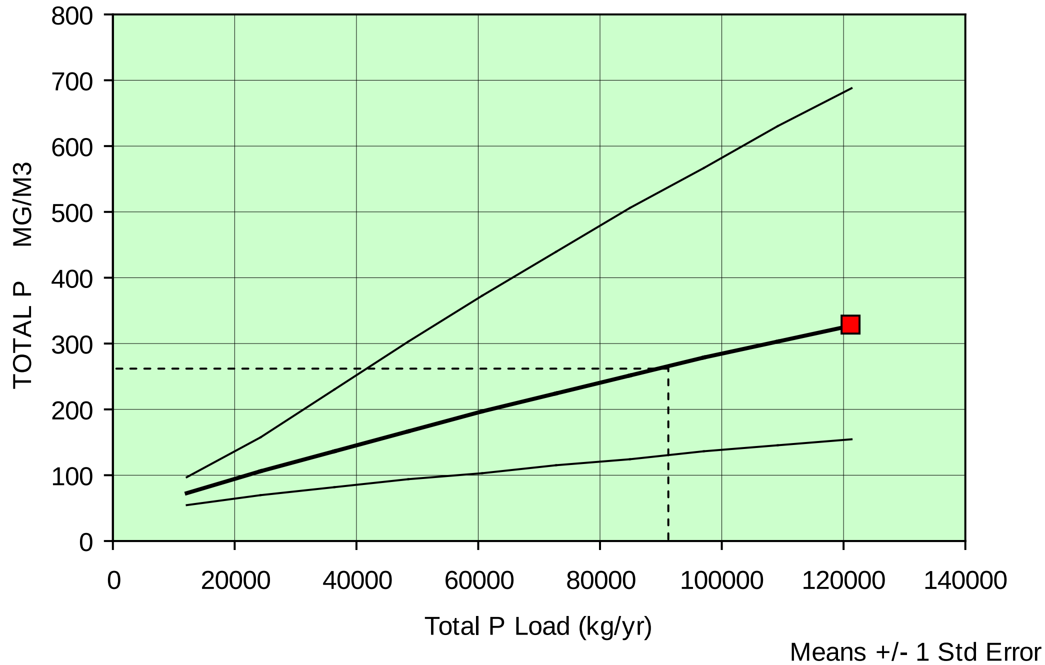

Figure 43. Total phosphorus loads anticipated from 10% stepped reductions in total phosphorus concentration within Lake Thompson inlet tributaries. The square indicates current average concentrations and resulting loads. The dotted line indicates predicted changes from current levels following BMP implementation.

A 24% reduction in TP load is predicted to reduce in-basin concentrations in Lake Thompson from 326.6 ug/L to 267.7 ug/L (18%) (Figure 43). The total phosphorus TSI would be predicted to fall 3.3% from 87.6 to 84.7 (Figure 44). Chlorophyll a TSI and Secchi TSI values would be predicted to fall 0.6% and 1.0% and chlorophyll and Secchi TSI values would average 62 and 41, respectively (Figures 45 and 46).

Predicted concentrations and indicator values generated by the BATHTUB model display some departure from current conditions, even with calibration factors applied. Thus, percent reductions predicted by the model were applied to current TSI indicator values to estimate actual improvements. Predicted percent reductions applied toward current Lake Thompson average indicator values would result in total phosphorus TSI of 83.3, Secchi TSI of 55.0 and chlorophyll a TSI of 58.2. Thus, chlorophyll and Secchi trophic state indicators are predicted to remain below the state regional criterion of 65 but total phosphorus TSI's are expected to remain well above that criterion.

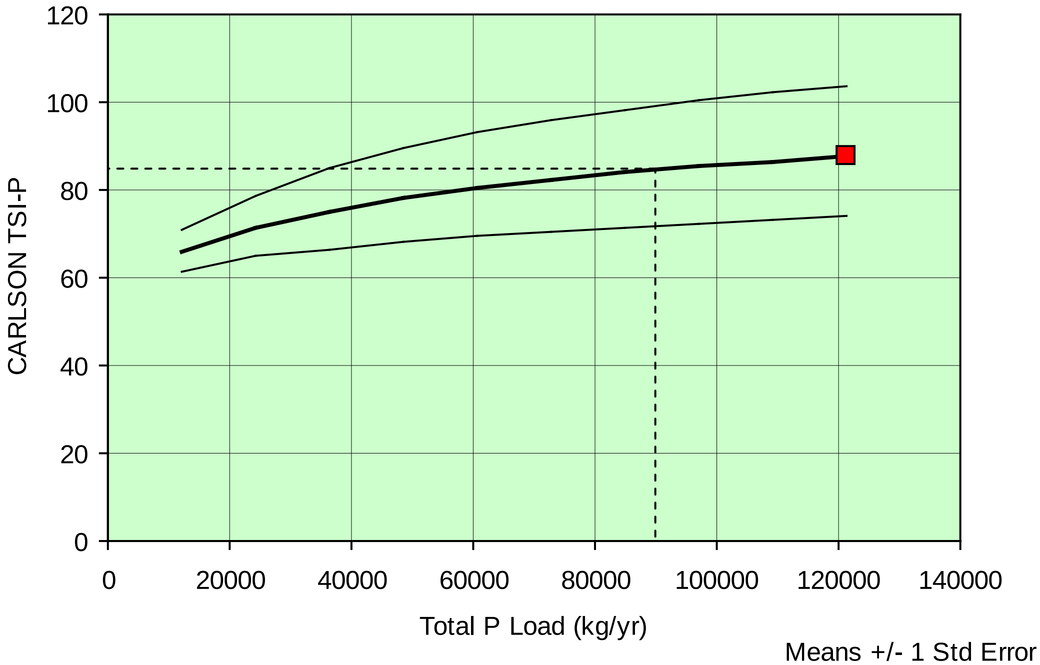

Figure 44. Changes in the total phosphorus Carlson TSI value anticipated from 10% stepped reductions in total phosphorus concentration to Lake Thompson. The square on the right side of the graph represents the current total phosphorus TSI value. The dotted line indicates predicted changes from current levels following BMP implementation.

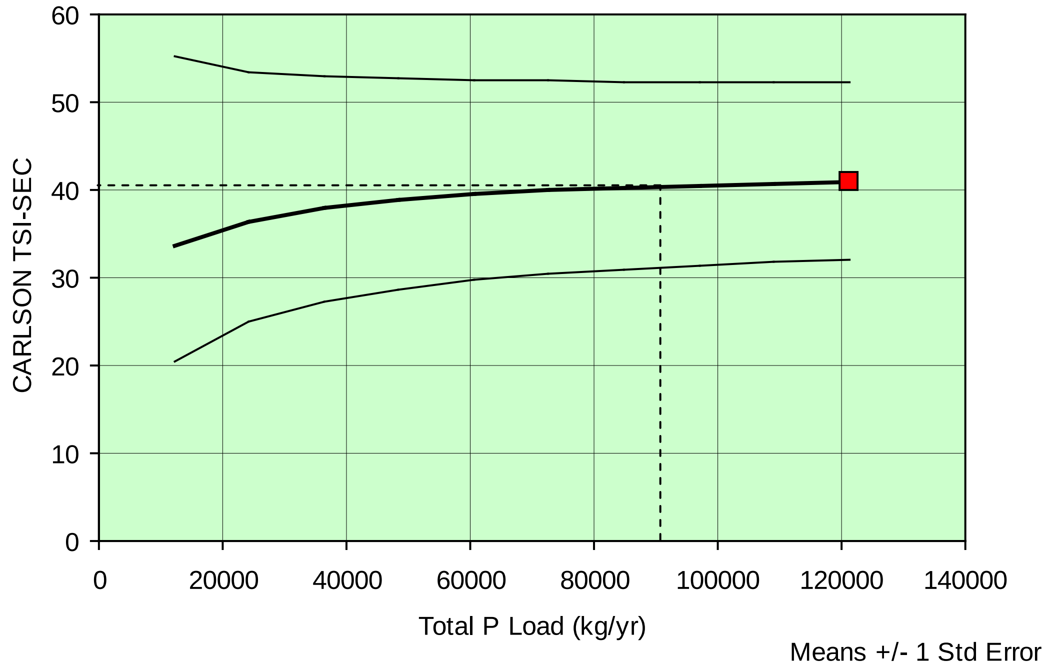

Figure 45. Changes in Secchi depth Carlson TSI values for Lake Thompson estimated from 90% reductions in total phosphorus concentrations in inlet streams. The square on the right side of the graph indicates the current Secchi TSI value. The dotted line indicates predicted changes from current levels following BMP implementation.

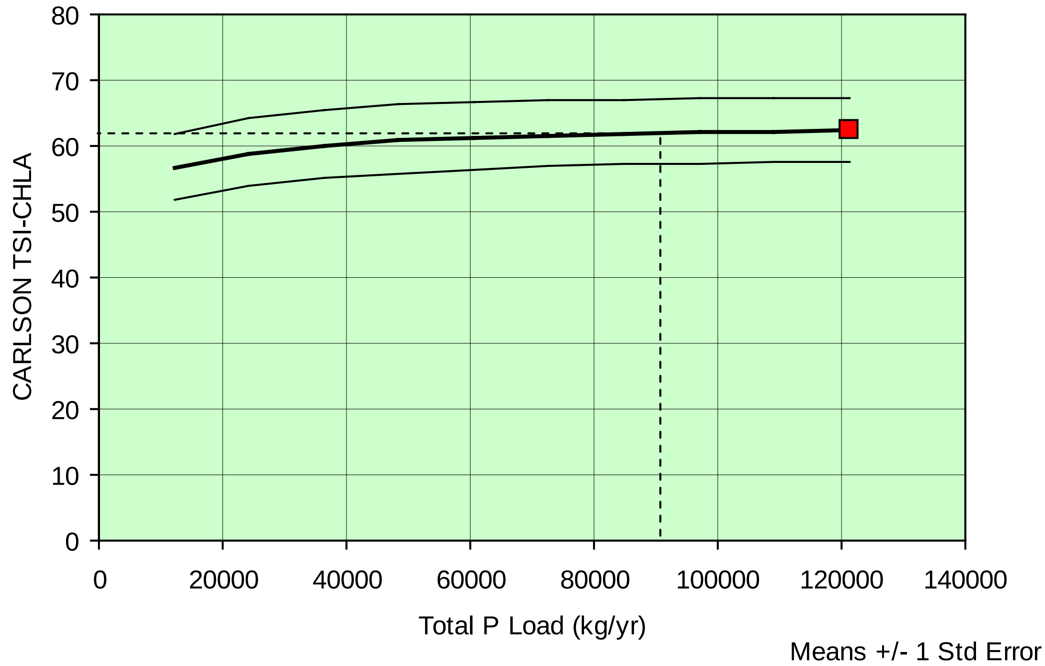

Figure 46. Changes in chlorophyll a Carlson TSI values for Lake Thompson estimated from 90% reductions in total phosphorus concentrations in inlet streams. The square on the right side of the graph indicates the current Secchi TSI value. The dotted line indicates predicted changes from current levels following BMP implementation.

BATHTUB load reduction model simulations suggest that all three trophic state indicators (total phosphorus concentrations, Secchi transparency and chlorophyll a) would improve in all three basins following total phosphorus load reductions. However, these relationships are asymptotic with most improvement of indicators occurring following 60% to 90% reductions in load. It is unlikely that load reductions of this magnitude will be possible.

CONCLUSIONS

Assessment of streams and lake basins within the Lake Thompson watershed has demonstrated several impairment concerns. High loadings of sediment, nitrogen, phosphorus and fecal coliform bacteria impair stream and lake beneficial and aquatic life uses and contribute to total loads entering the basins of the watershed. All of the lake basins within the study area were originally listed for TMDL development due to trophic state concerns. Field data suggest that all four basins suffer from high total phosphorus generated TSI scores. Lakes Henry and Thompson are near or slightly past the regional TSI criterion of 65. The shallower Lakes Preston and Whitewood basins significantly surpass this threshold using all three TSI indicators.

Annualized AGNPS model simulations have been utilized to identify critical loading cells within each of the monitored subwatersheds and predict significant load reductions following implementation of best management practices. Annualized AGNPS and field assessment data were complimentary in identifying critical loading areas within the Lake Thompson watershed.

While the primary goal of this assessment effort was to identify sources and degrees of impairment to water quality within the Lake Thompson watershed, a second goal was to evaluate the contribution of habitat and biological data to future prairie pothole assessments. Our results suggest that shoreline, littoral zone and biological assessment using phytoplankton, basin and littoral invertebrate metrics provide an integrated analysis of basin habitat and biotic integrity. This integrated assessment provides information not otherwise available with traditional physical and chemical assessment.

Field assessment, model simulations and community involvement have identified sources of water quality and aquatic life use impairment within the Lake Thompson watershed. Best Management Practices simulated during annualized AGNPS modeling project significant reductions in total phosphorus loading to these basins. These projected reductions will begin moving TSI scores for Lakes Preston and Whitewood toward the regional threshold and prevent Lake Henry and Thompson scores from crossing that threshold in the future.

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APPENDIX I. Landuse Practices by Subwatershed

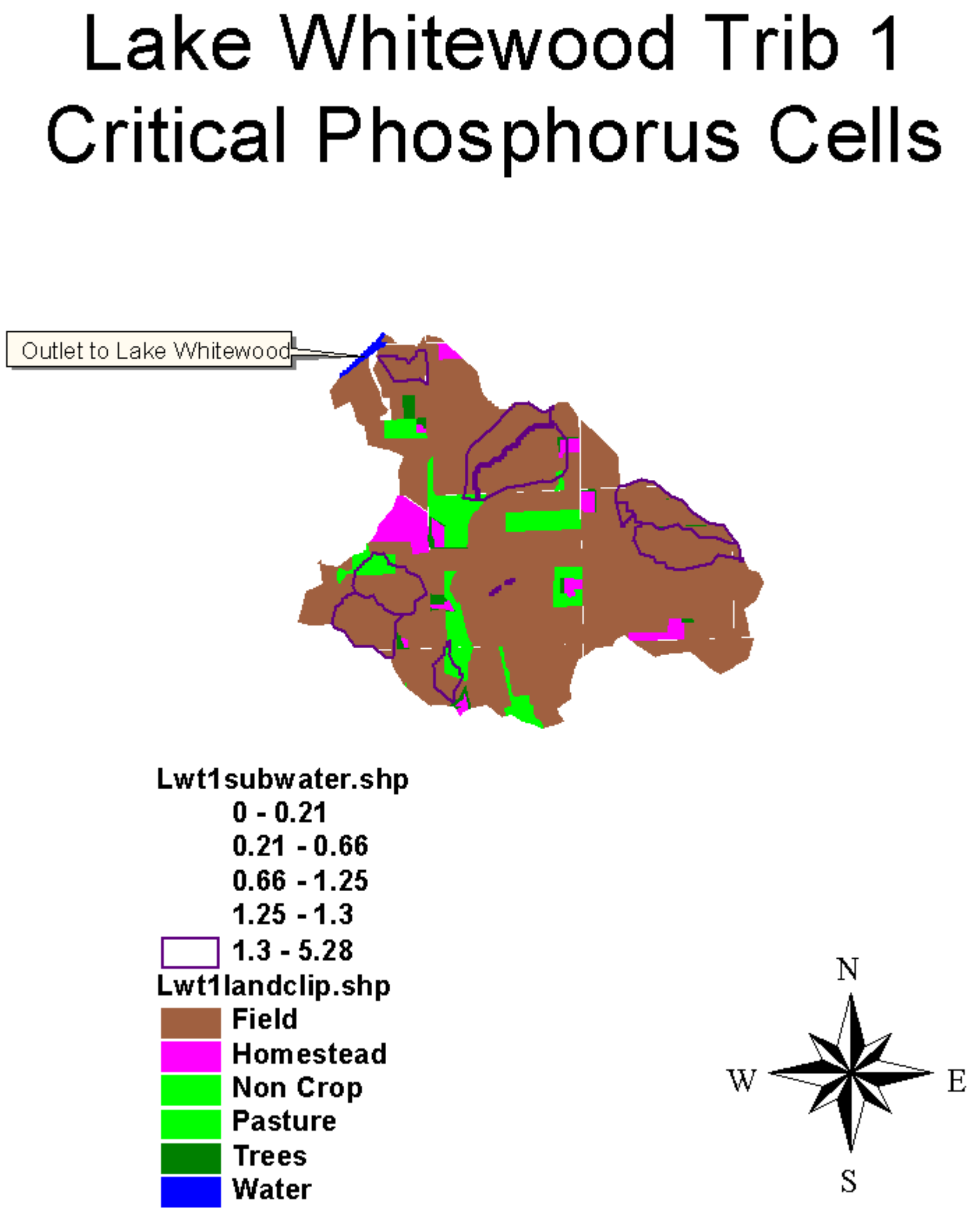
LPT1	ArcView X-Tools Acres	Land Use Percentage
Conservation Reserve	794.843	6.65%
Field	8337.052	69.72%
Homestead	230.161	1.92%
Non Crop	643.408	5.38%
Pasture	1452.608	12.15%
Trees	211.13	1.77%
Urban	273.71	2.29%
Water	14.882	0.12%
Total Acres	11957.794	
LPT2		
Conservation Reserve	192.678	2.69%
Field	6151.798	85.87%
Homestead	109.893	1.53%
Non Crop	218.645	3.05%
Pasture	328.825	4.59%
Trees	129.064	1.80%
Water	3.899	0.05%
Wetland Reserve	29.127	0.41%
Total Acres	7163.929	
LPT3		
Conservation Reserve	172.565	4.32%
Field	3237.196	81.11%
Homestead	63.854	1.60%
Non Crop	95.321	2.39%
Pasture	351.343	8.80%
Trees	58.53	1.47%
Water	12.239	0.31%
Total Acres	3991.048	
LPT4		
Conservation Reserve	3.42	0.07%
Field	4501.6	86.72%
Homestead	97.476	1.88%
Non Crop	167.748	3.23%
Pasture	335.099	6.46%
Trees	83.533	1.61%
Water	1.856	0.04%
Total Acres	5190.732	
LPT5	**ArcView X-Tools Acres**	**Land Use Percentage**

Conservation Reserve	0	0.00%
Field	2936.473	68.68%
Homestead	98.389	2.30%
Non Crop	213.222	4.99%
Pasture	873.493	20.43%
Trees	79.645	1.86%
Water	33.27	0.78%
Waterbank Program	41.205	0.96%
Total Acres	4275.697	
LPT6		
Conservation Reserve	0	0.00%
Field	1096.623	93.66%
Homestead	4	0.34%
Non Crop	4.994	0.43%
Pasture	44.715	3.82%
Trees	18.751	1.60%
Water	1.738	0.15%
Total Acres	1170.821	
LWT1		
Conservation Reserve	0	0.00%
Field	1575.297	82.89%
Homestead	71.035	3.74%
Non Crop	79.983	4.21%
Pasture	138.255	7.27%
Trees	31.362	1.65%
Water	4.485	0.24%
Total Acres	1900.417	
LWT2		
Conservation Reserve	266.648	1.67%
Field	13372.424	83.59%
Homestead	262.607	1.64%
Non Crop	636.012	3.98%
Pasture	931.341	5.82%
Trees	400.224	2.50%
Water	17.659	0.11%
Waterbank Program	8.463	0.05%
Wetland Reserve	101.93	0.64%
Total Acres	15997.308	
	ArcView X-Tools Acres	**Land Use Percentage**

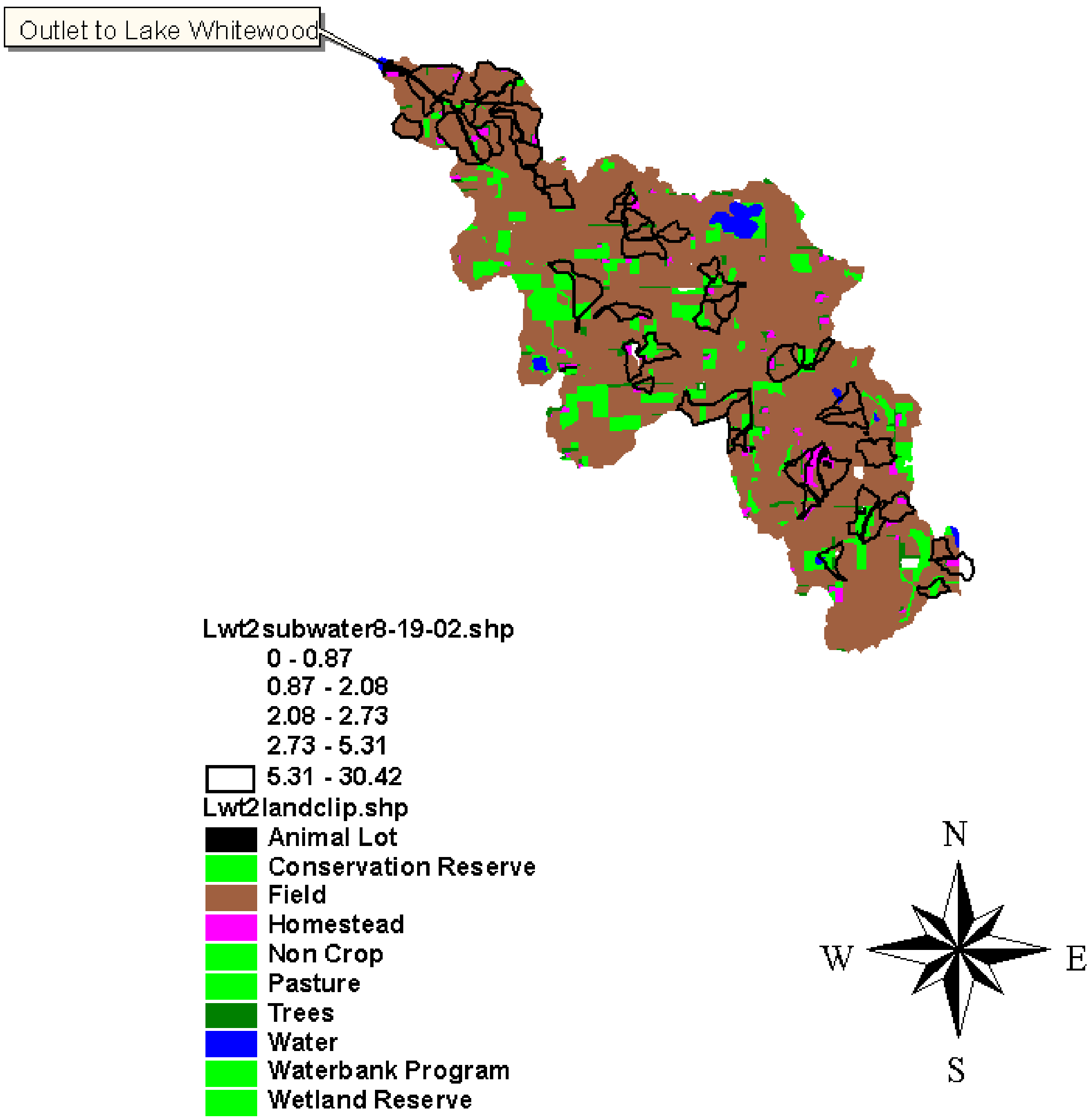
LWT3		
Conservation Reserve	0	0.00%
Field	2542.193	73.07%
Homestead	53.199	1.53%
Non Crop	439.194	12.62%
Pasture	64.755	1.86%
Trees	72.021	2.07%
Water	307.682	8.84%
Total Acres	3479.044	
LWT4		
Conservation Reserve	0	0.00%
Field	722.552	88.55%
Homestead	14.249	1.75%
Non Crop	28.491	3.49%
Pasture	33.085	4.05%
Trees	14.844	1.82%
Water	2.765	0.34%
Total Acres	815.986	
West Half of Watershed		
Animal Lot	39.163	0.04%
Conservation Reserve	2698.807	2.72%
Field	49068.973	49.53%
Homestead	1178.005	1.19%
Non Crop	6674.986	6.74%
Pasture	20843.165	21.04%
Trees	1377.174	1.39%
Urban	779.117	0.79%
Water	16014.578	16.17%
Waterbank Program	196.469	0.20%
Wetland Reserve	192.05	0.19%
Total Acres	99062.487	
Outlet Into Thompson		
Animal Lot	417.572	0.20%
Conservation Reserve	4391.538	2.15%
Field	131636.352	64.44%
Homestead	2805.334	1.37%
Non Crop	11222.68	5.49%
Pasture	15192	7.44%
Trees	3978.304	1.95%
Urban	1125.091	0.55%

Water	32327.683	15.83%
Waterbank Program	382.964	0.19%
Wetland Reserve	793.53	0.39%
Total Acres	204273.048	
Whole Watershed	**ArcView X-Tools Acres**	**Land Use Percentage**
Conservation Reserve	5666.826	2.42%
Field	146383.304	62.44%
Homestead	3620.034	1.54%
Non Crop	15016.125	6.41%
Pasture	27955.853	11.93%
Trees	3744.181	1.60%
Urban	1683.671	0.72%
Water	29079.158	12.40%
Waterbank Program	462.499	0.20%
Wetland Reserve	808.239	0.34%
Total Acres	234419.89	

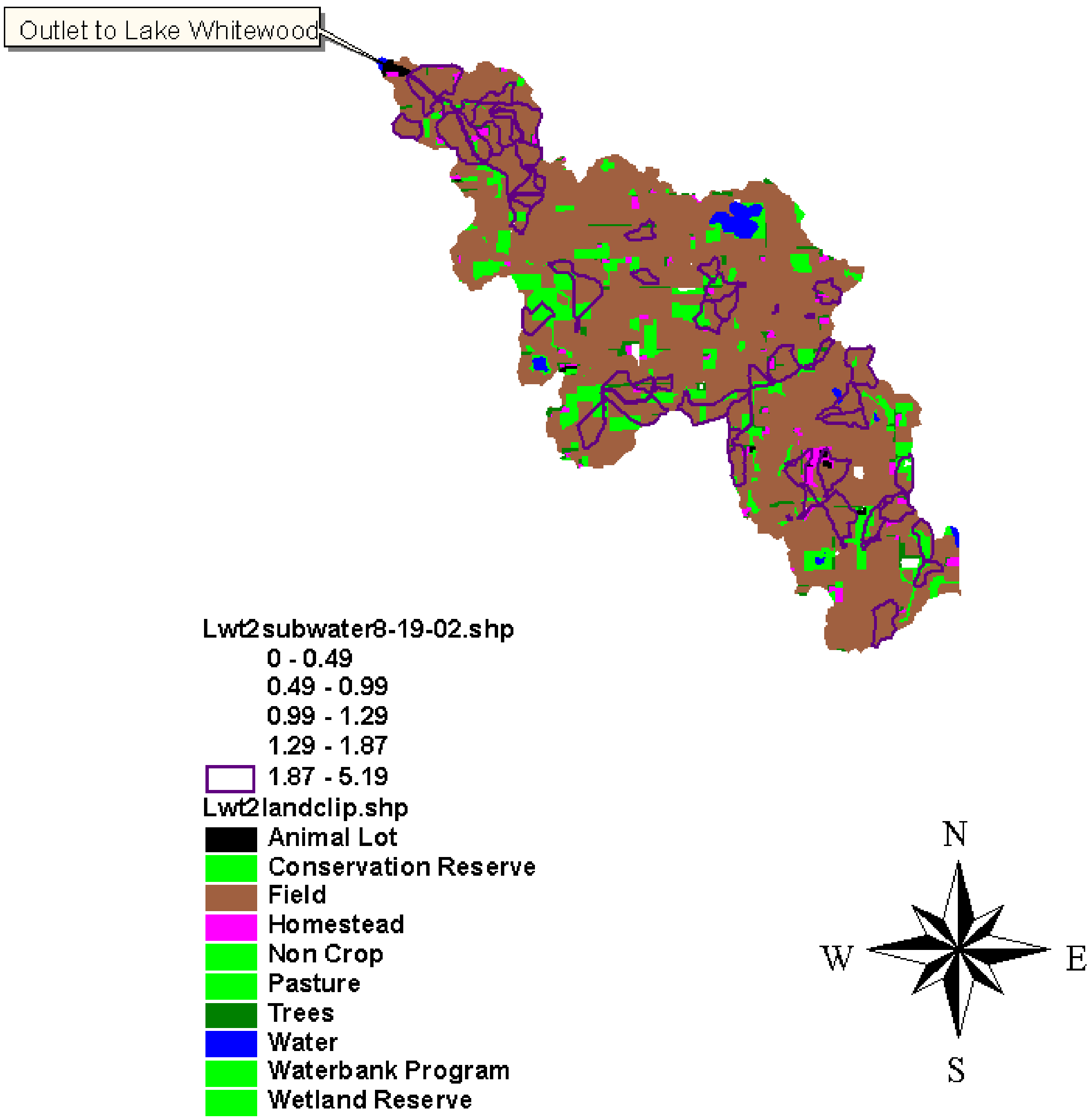
APPENDIX II. ANNAGNPS Critical Loading Cells



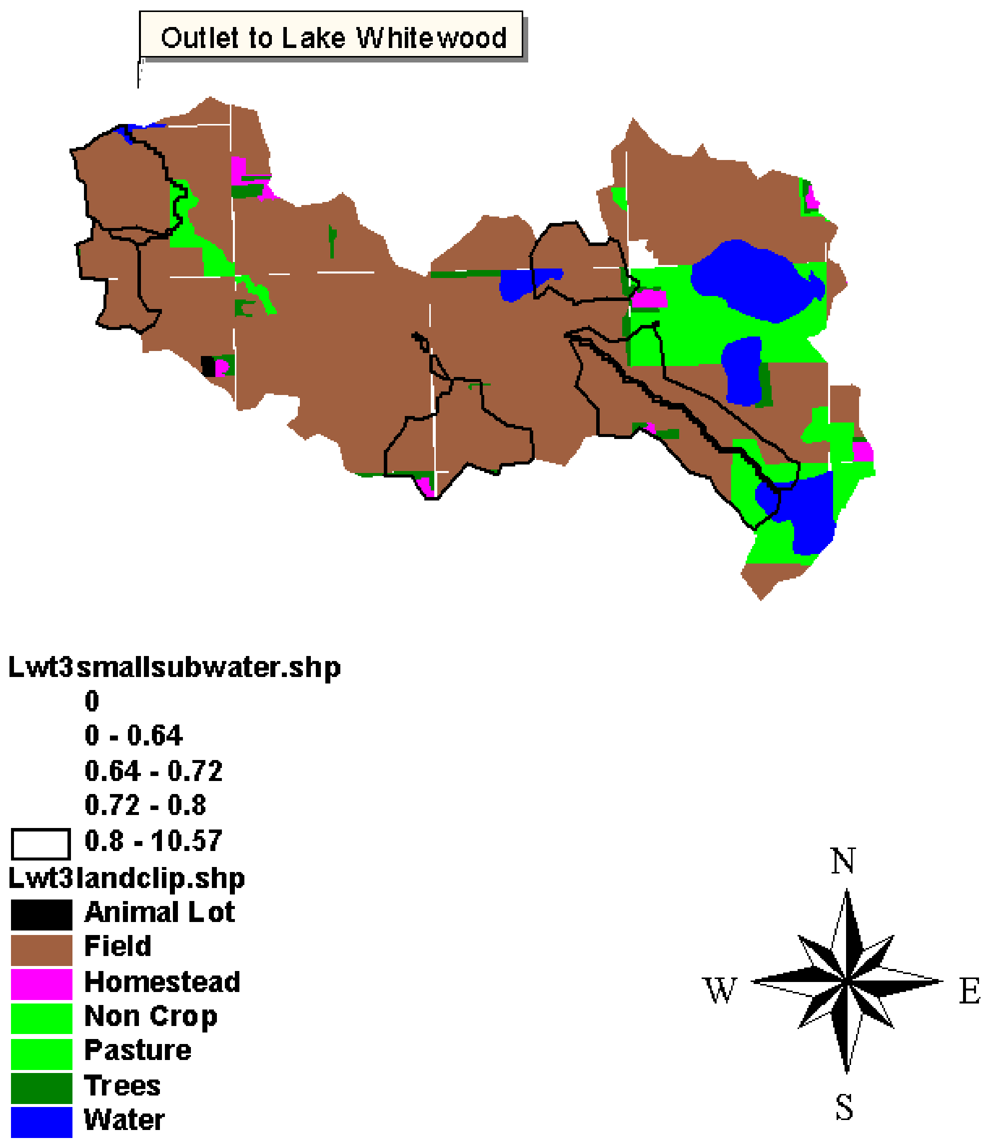
Lake Whitewood Trib 2
Critical Nitrogen Cells



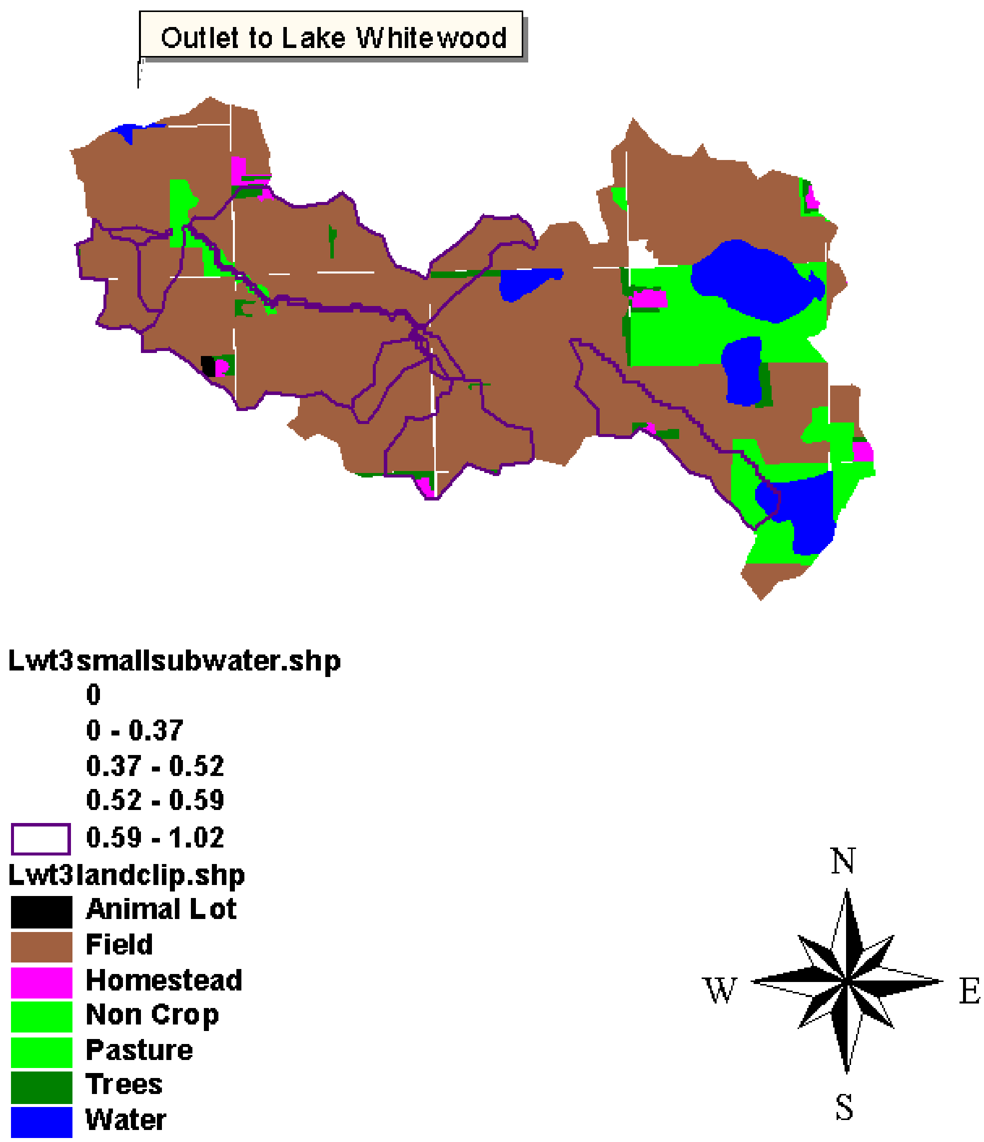
Lake Whitewood Trib 2 Critical Phosphorus Cells



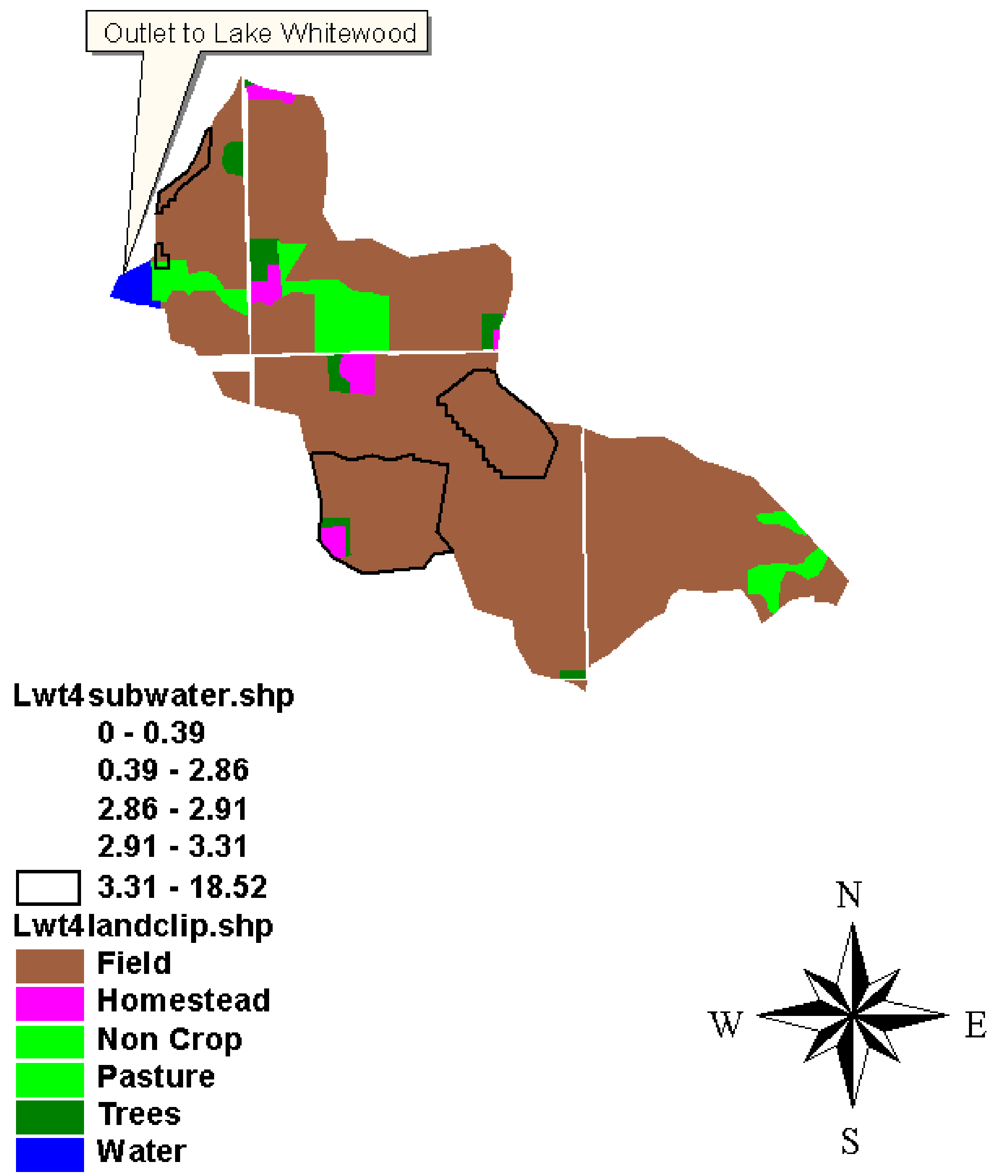
Lake Whitewood Trib 3 Critical Nitrogen Cells



Lake Whitewood Trib 3
Critical Phosphorus Cells



Lake Whitewood Trib 4
Critical Nitrogen Cells



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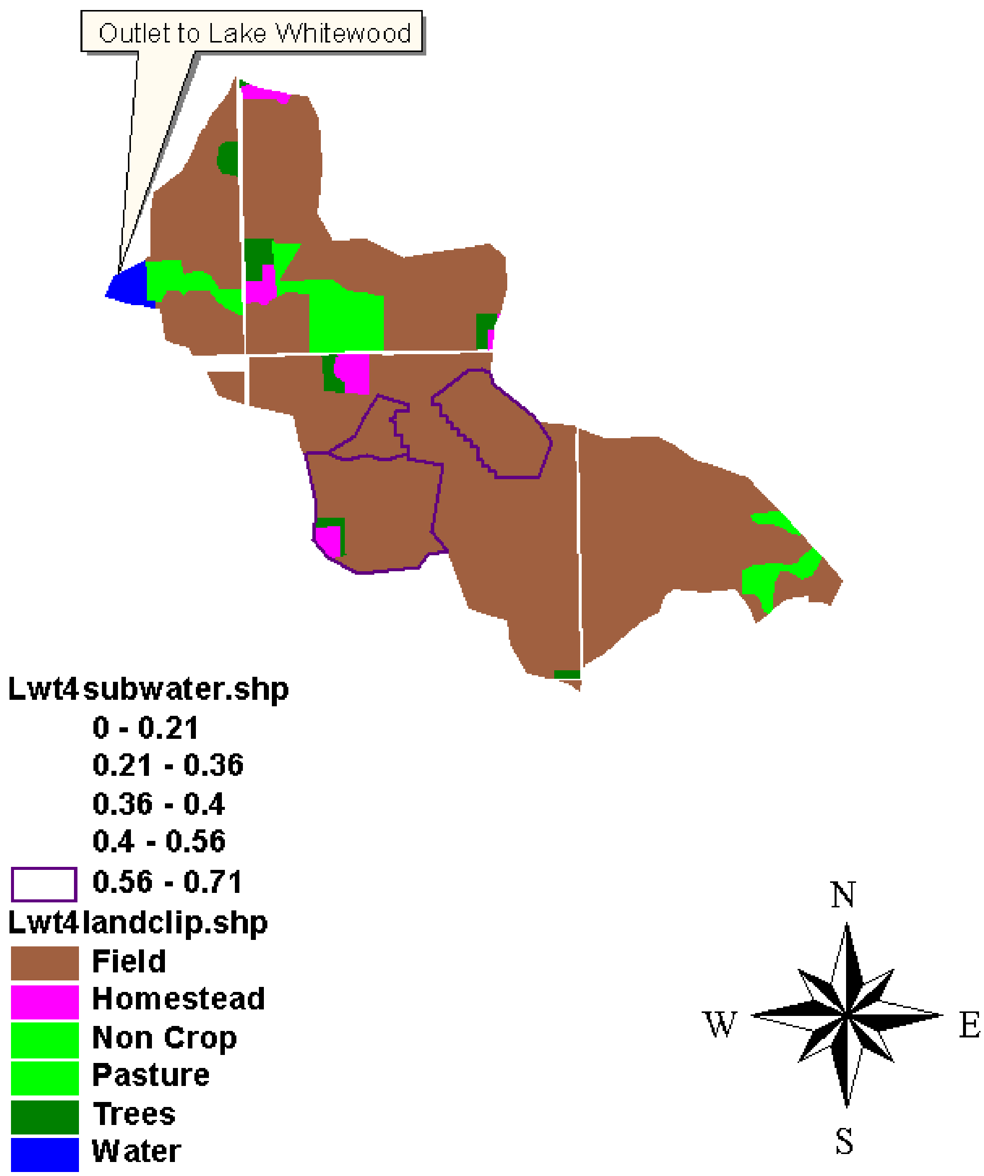

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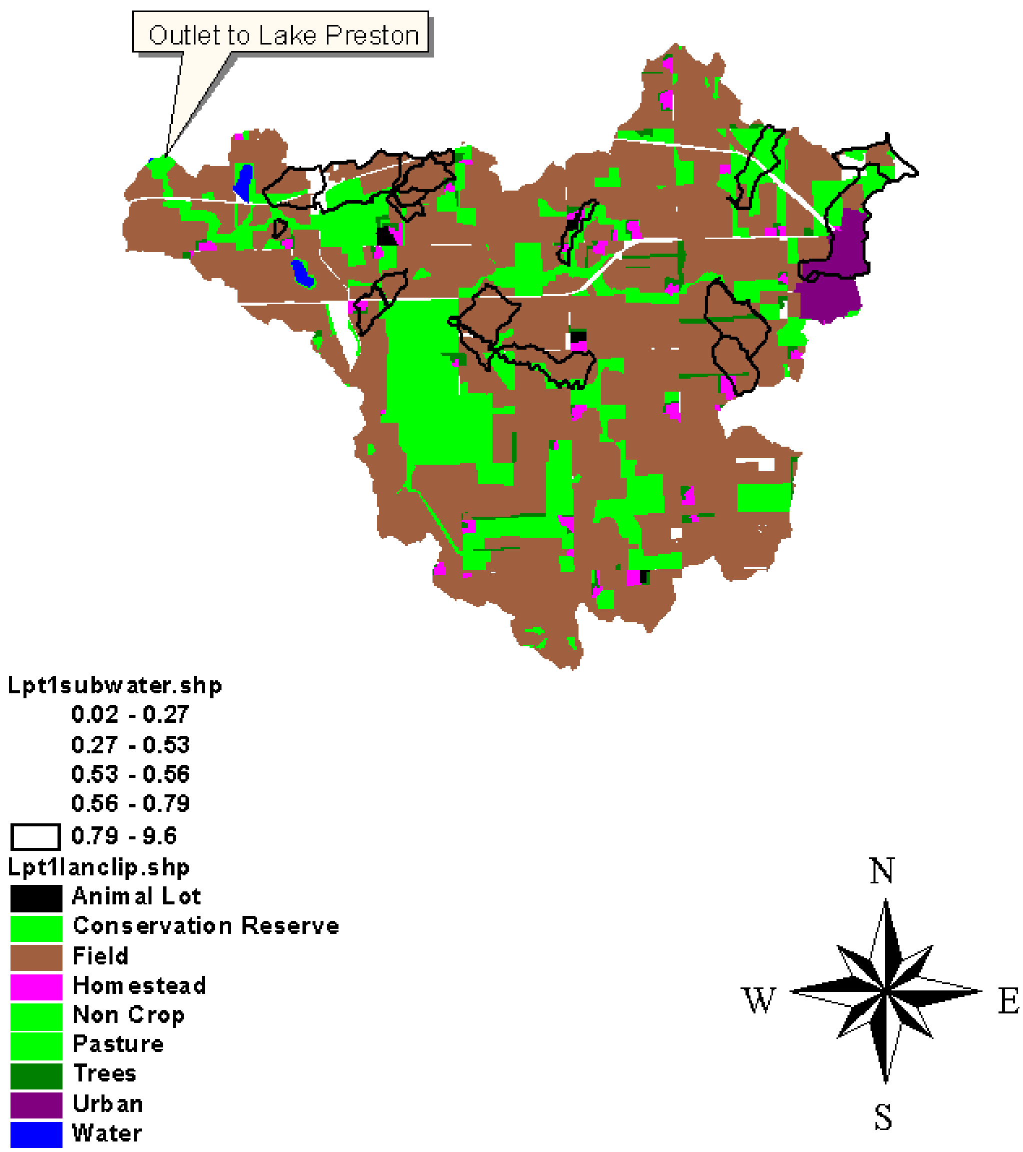

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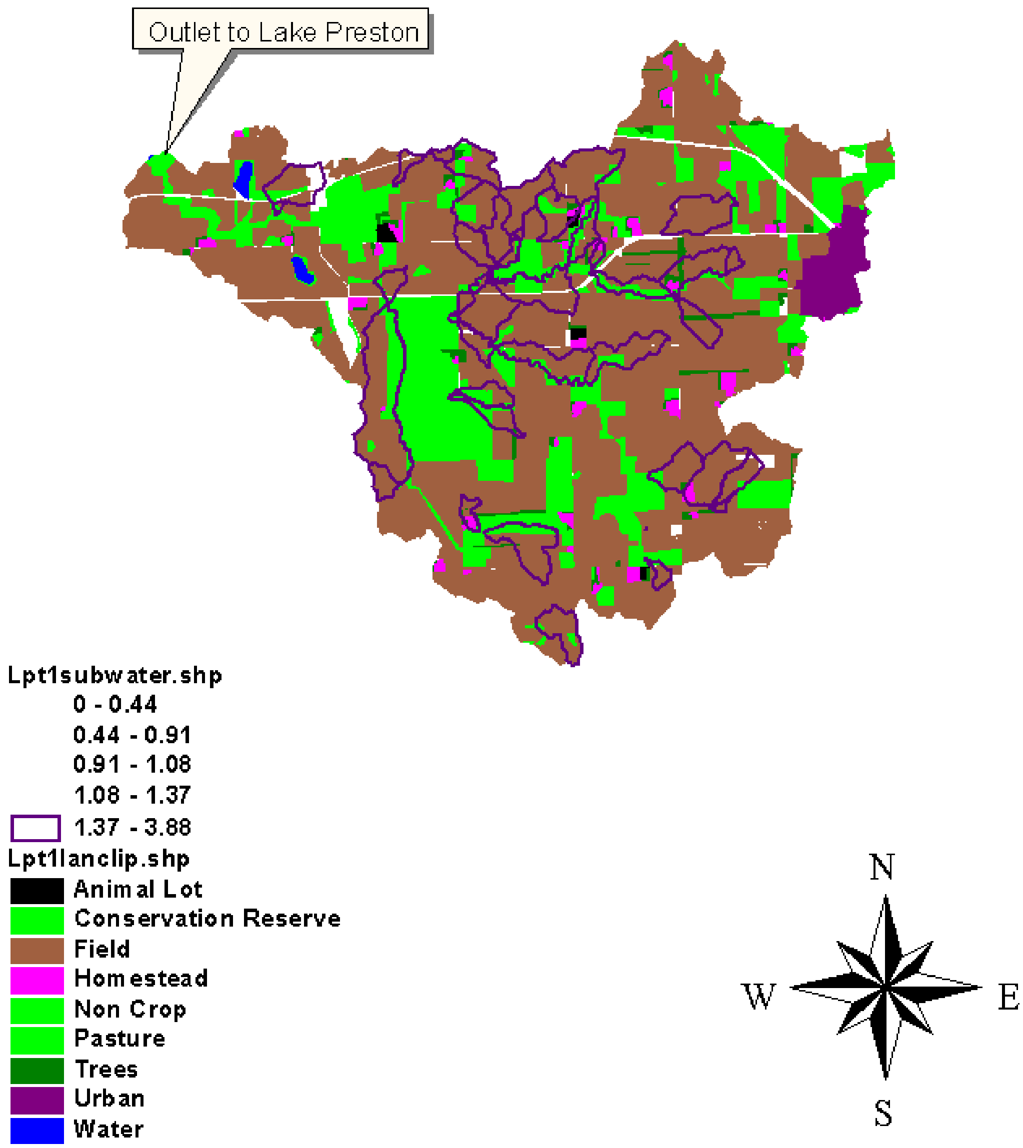

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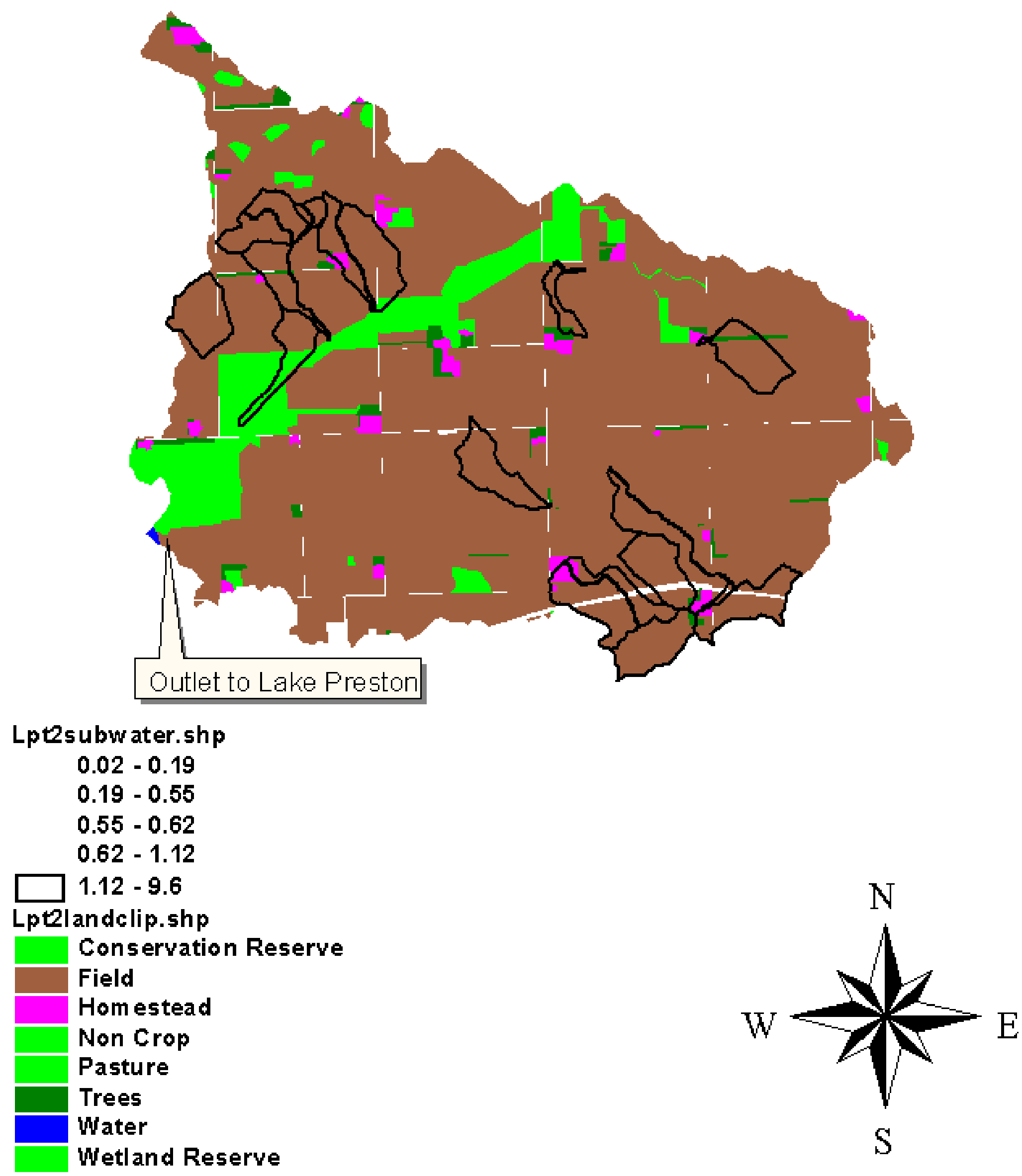

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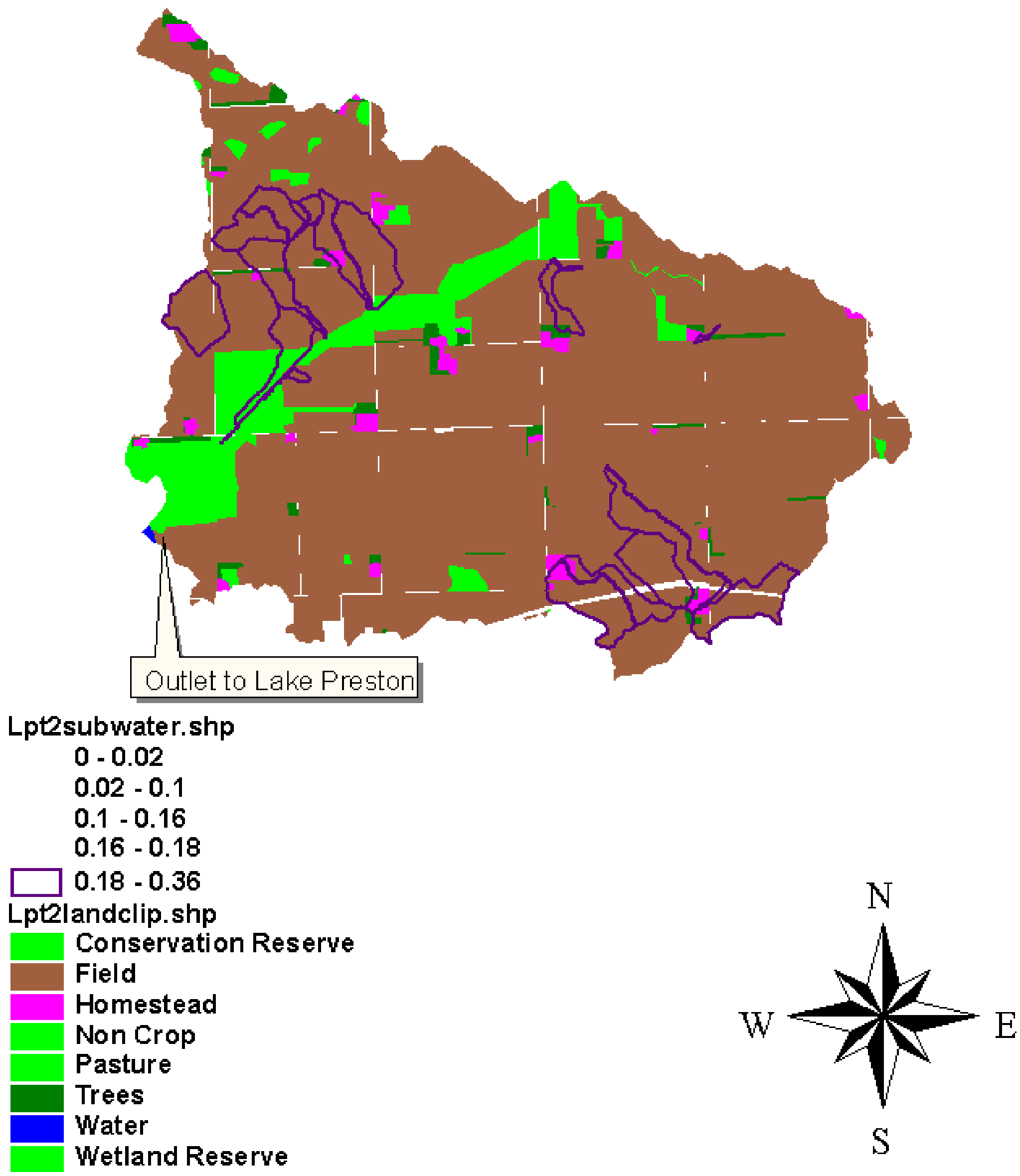

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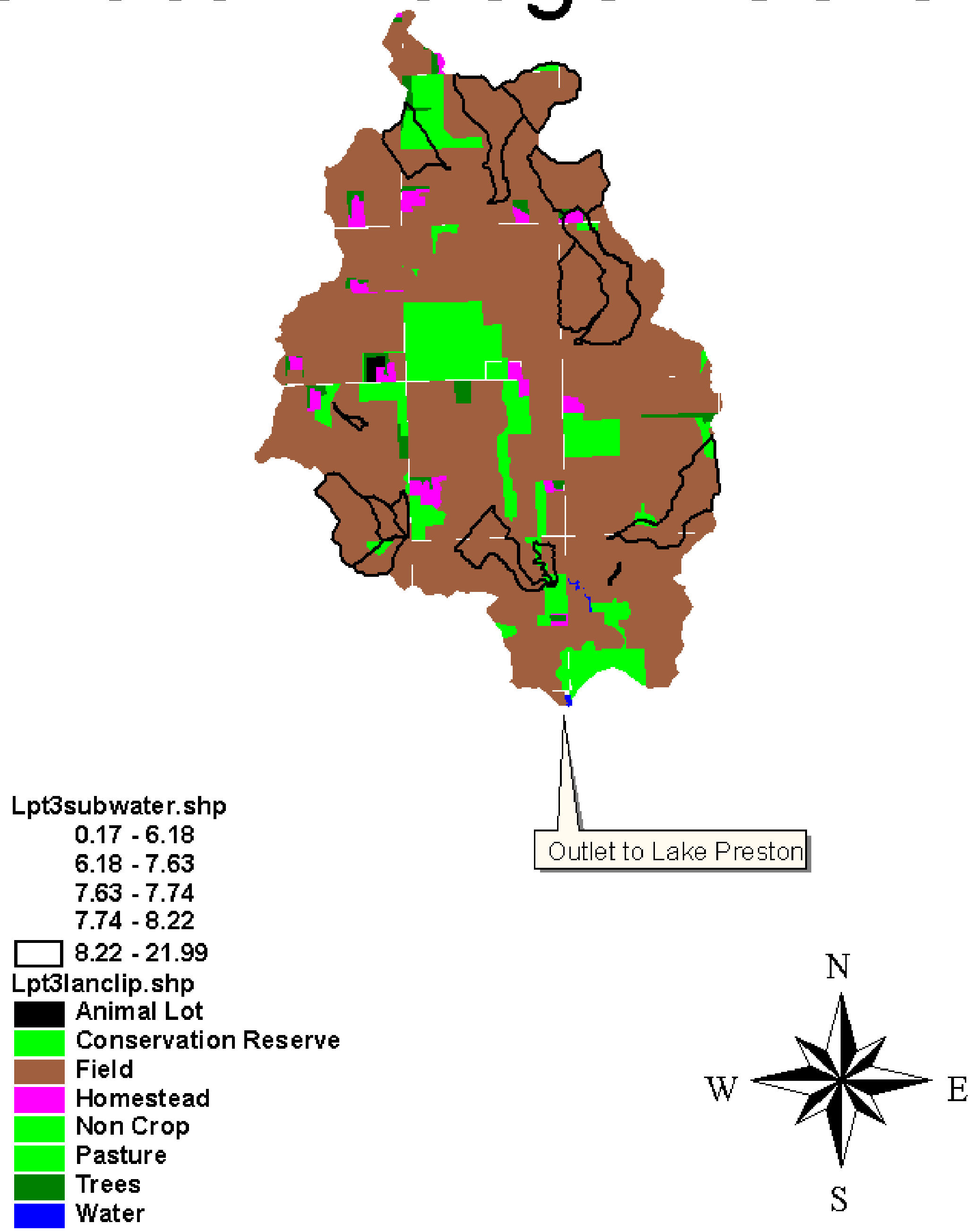

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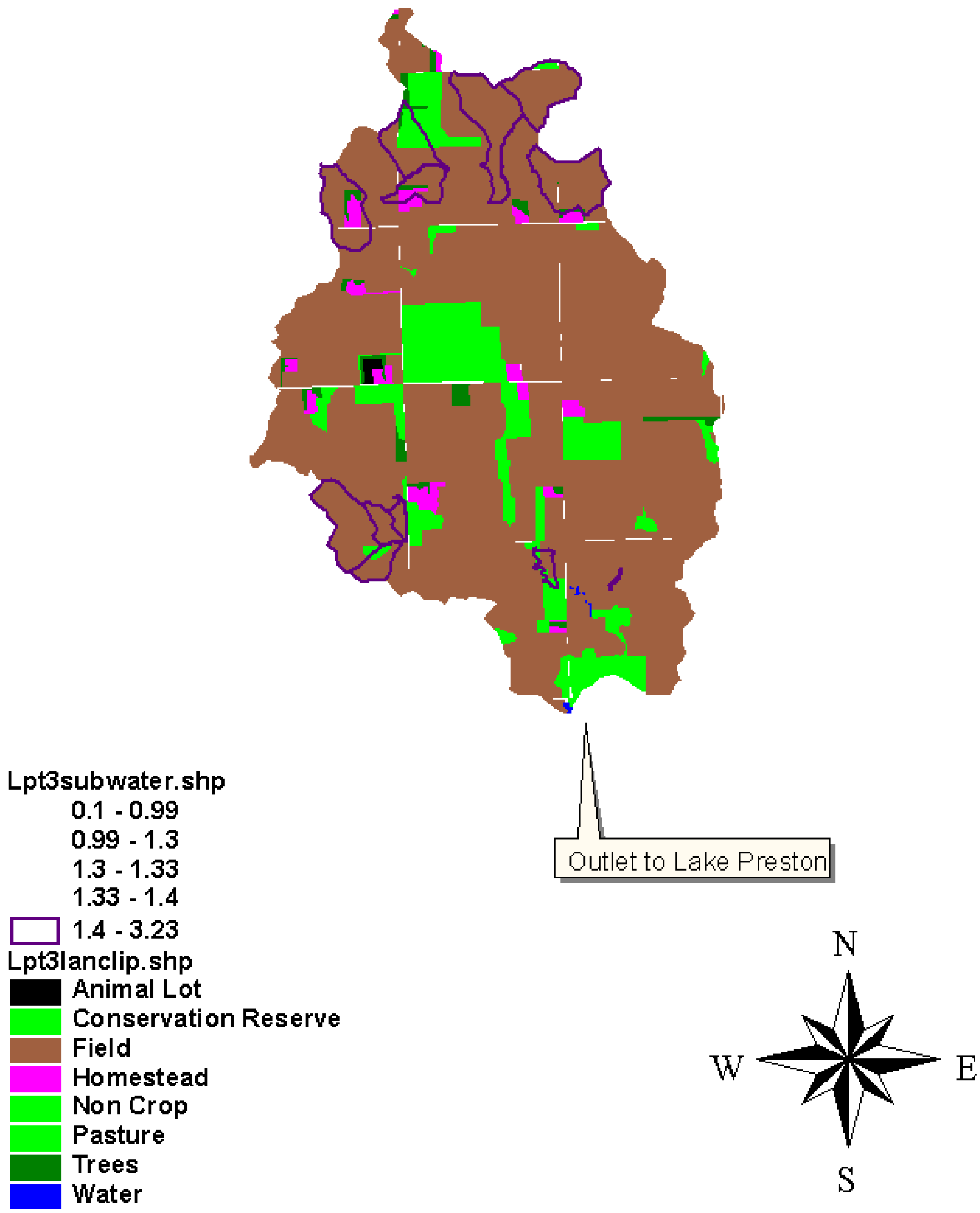

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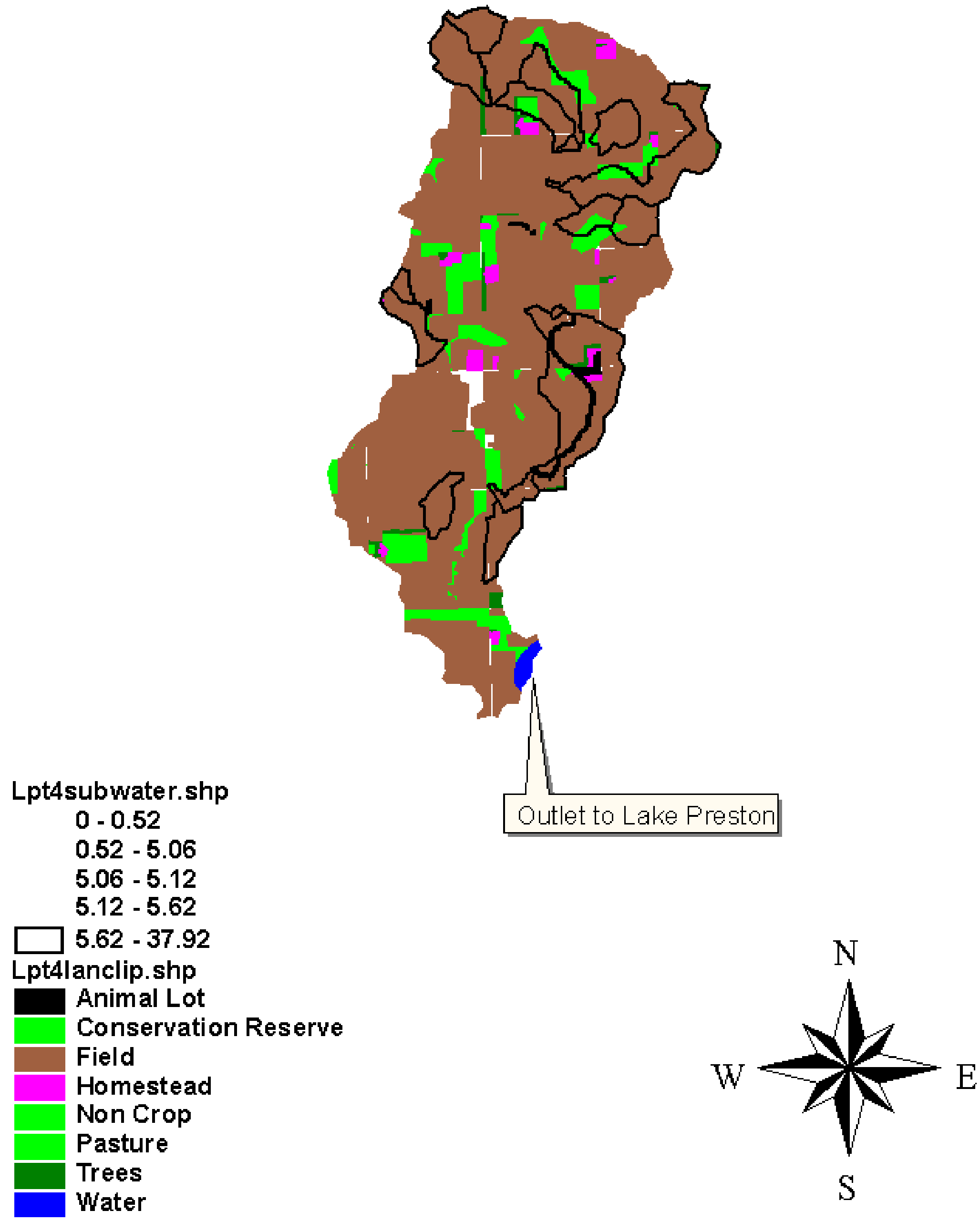

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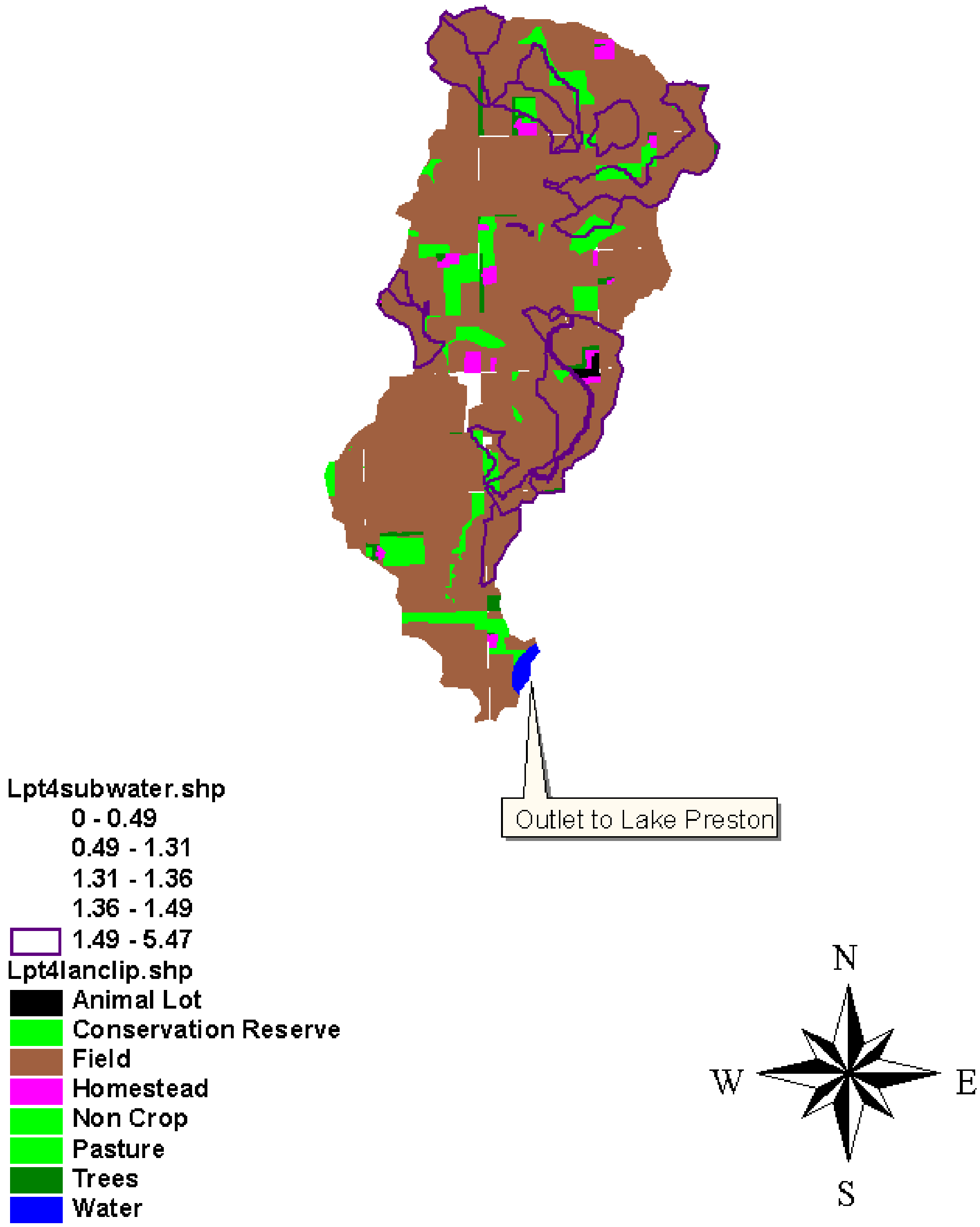

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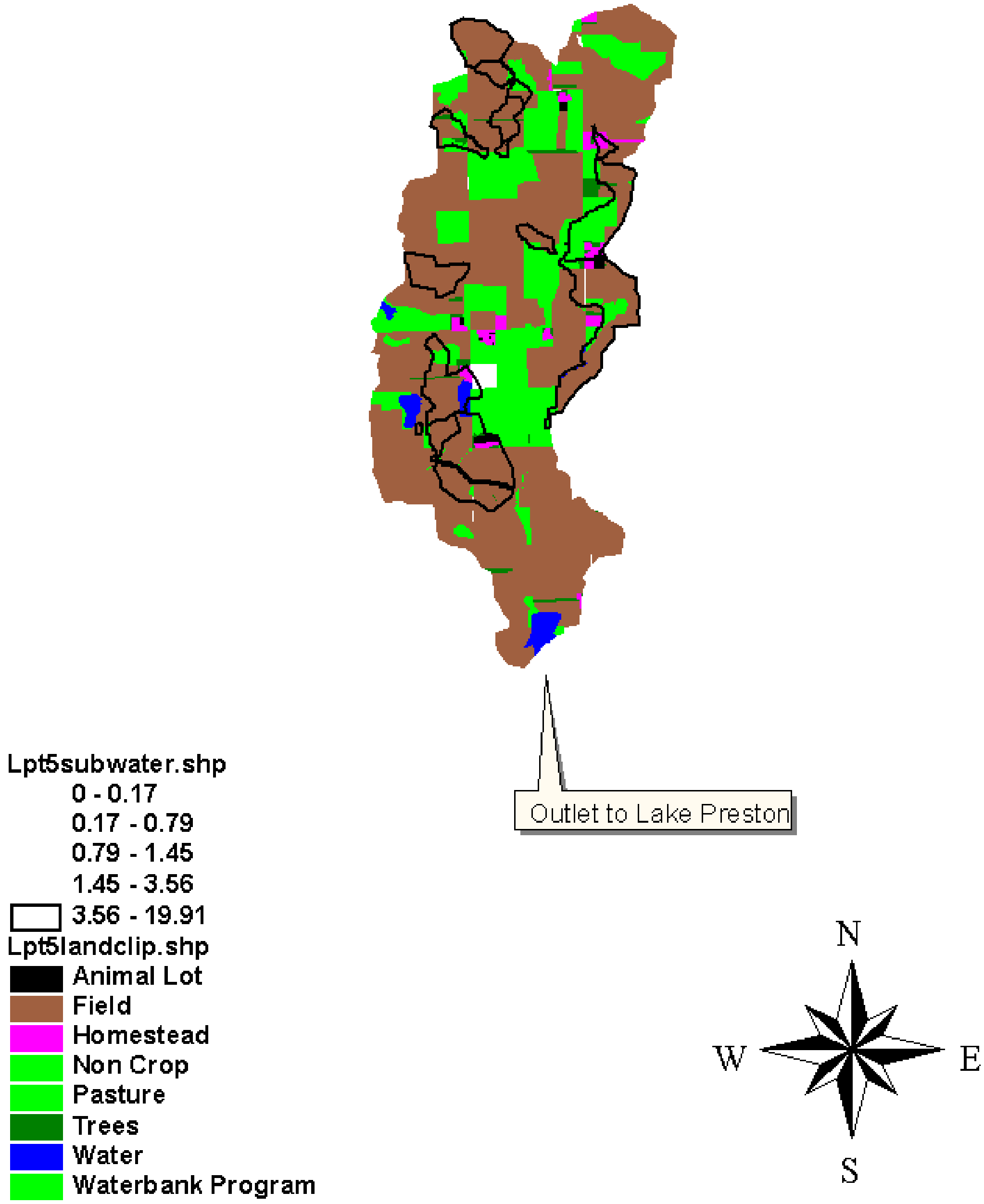
Critical Nitrogen Cells



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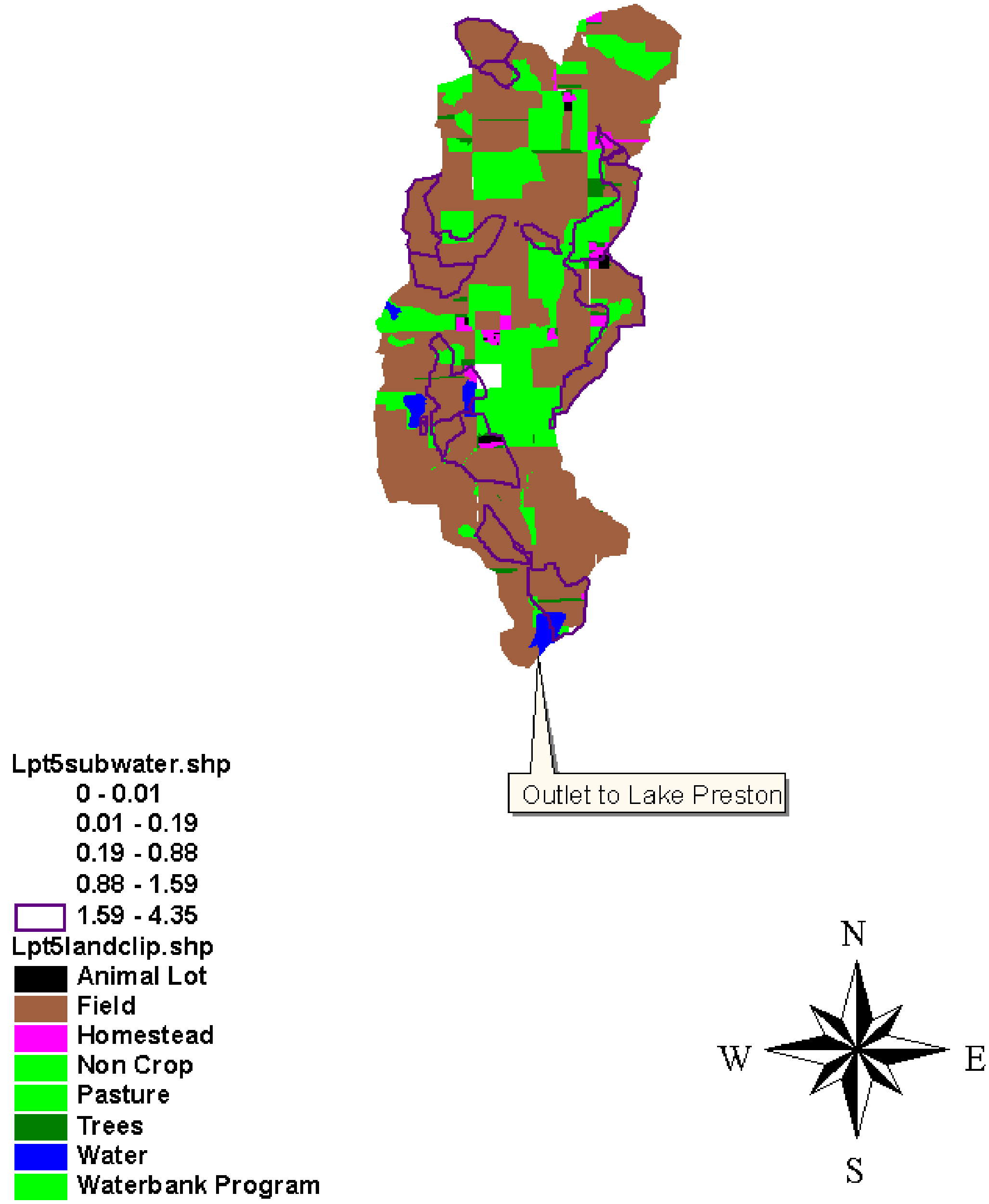

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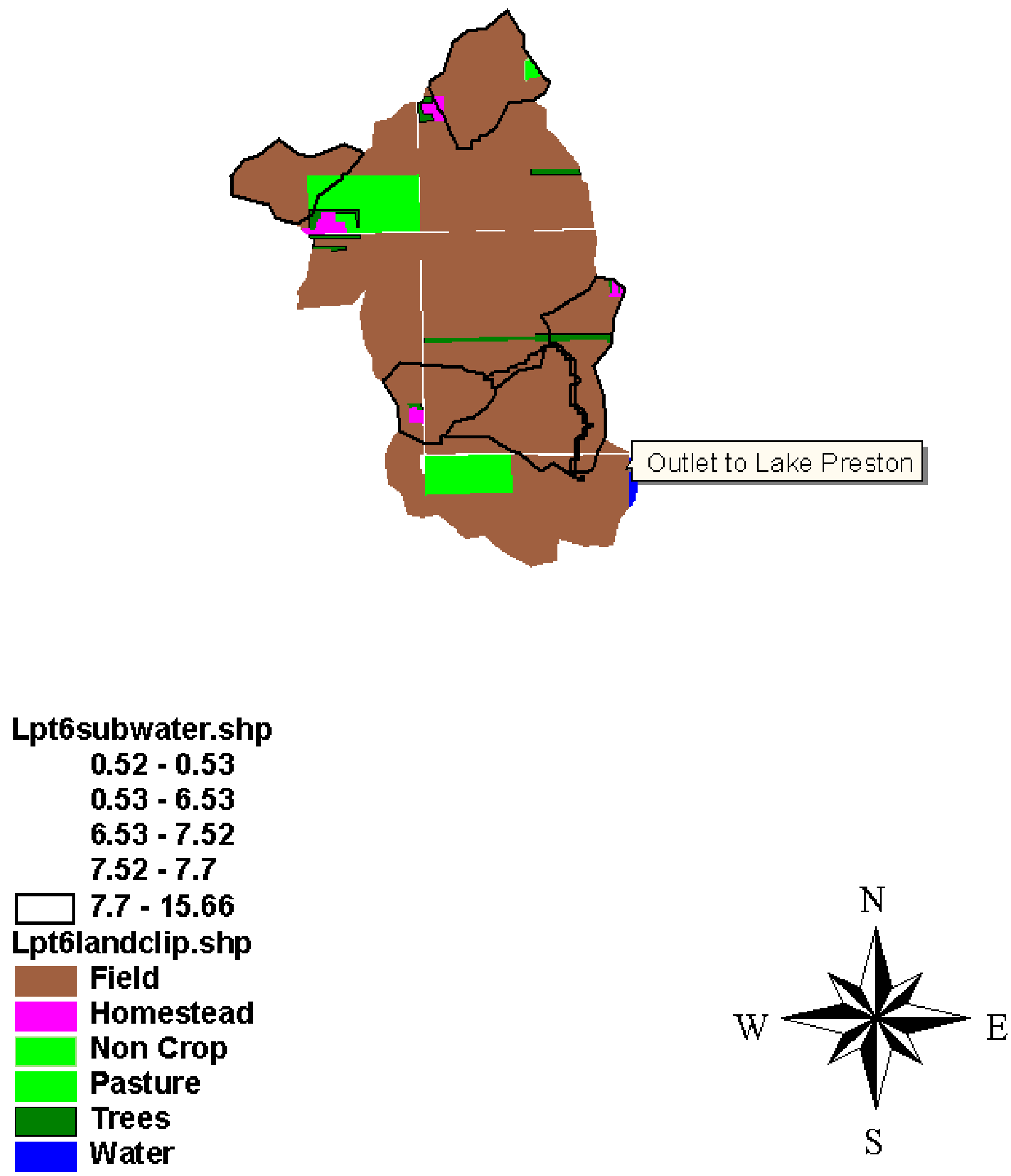
Critical Nitrogen Cells



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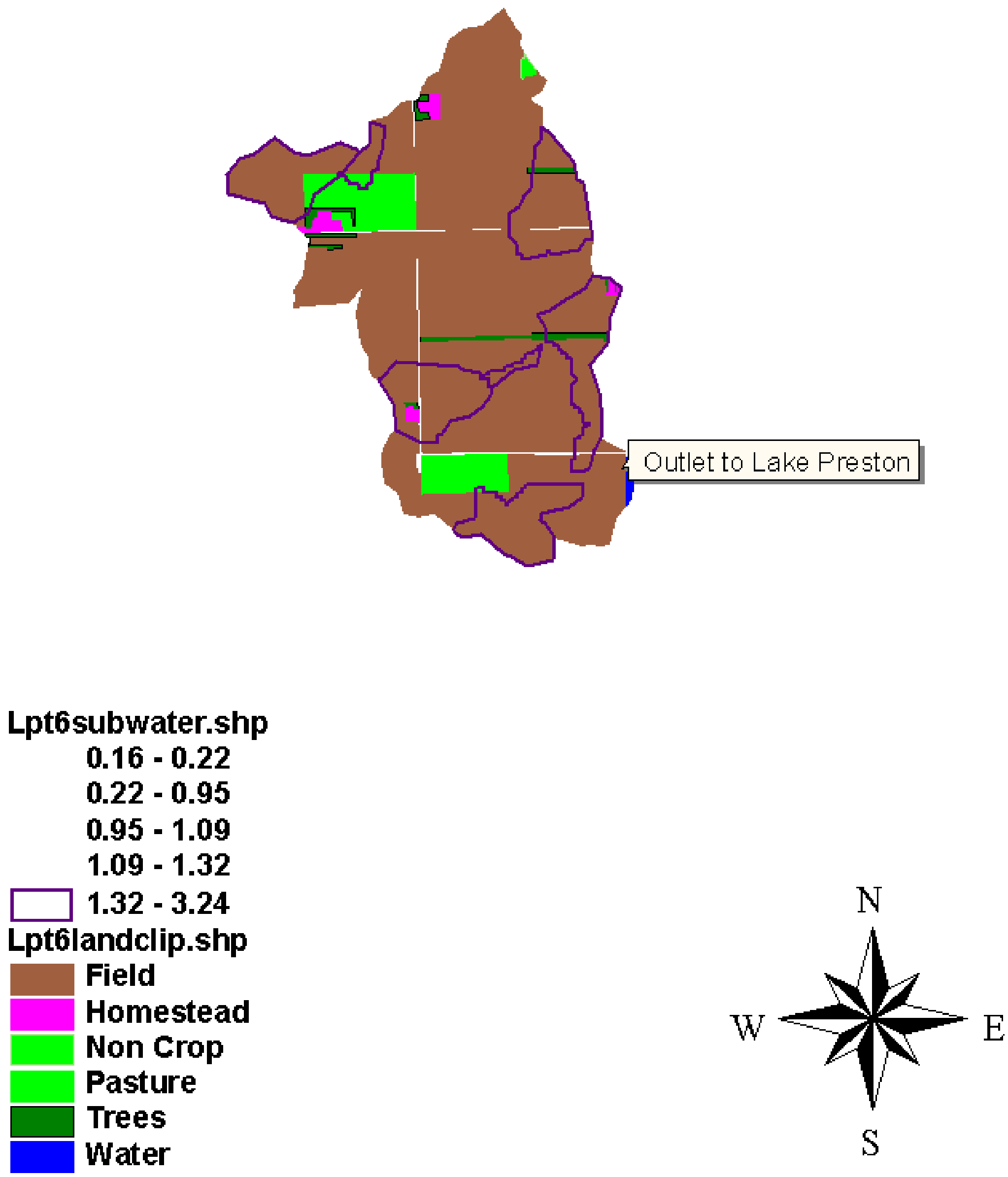
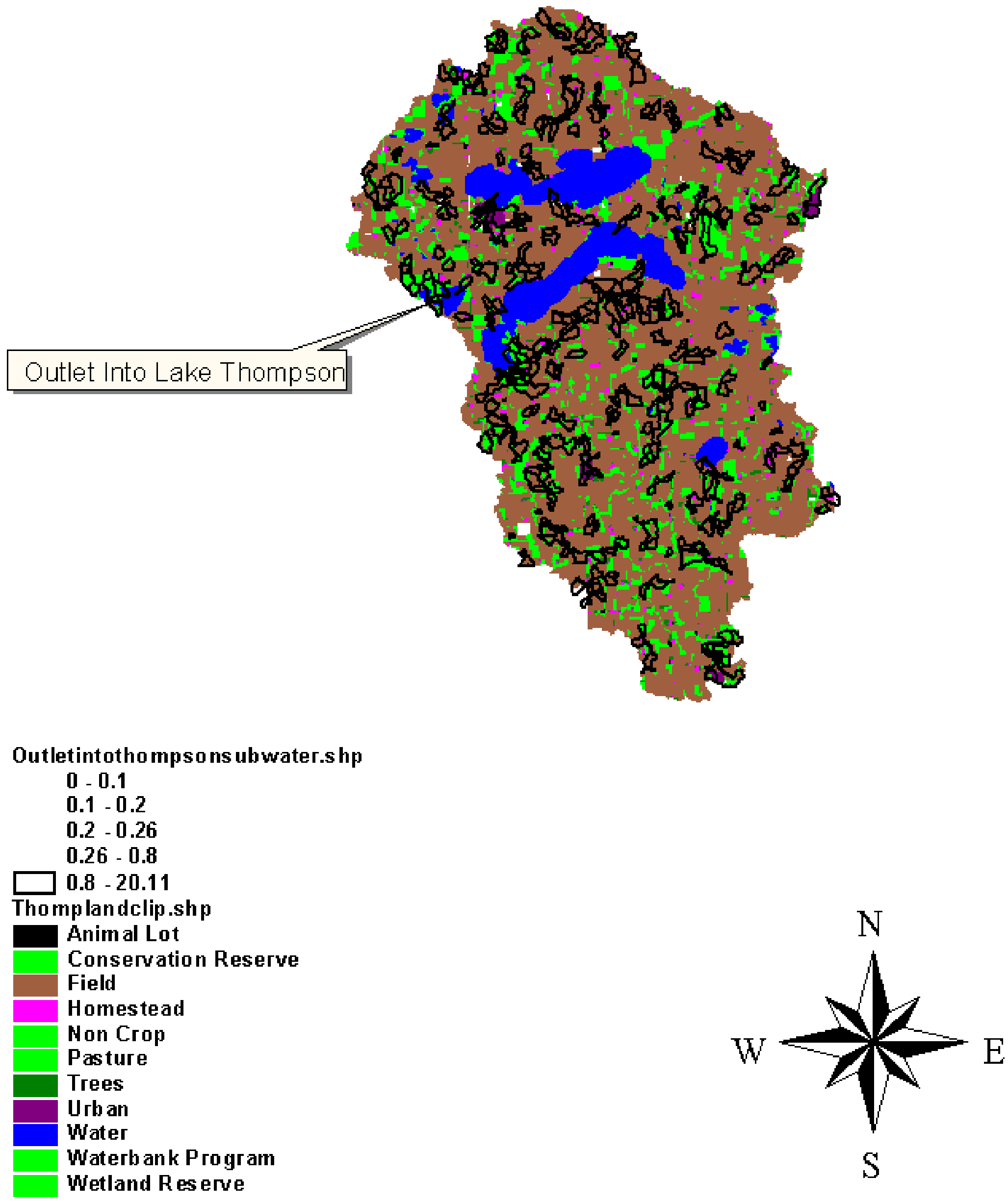
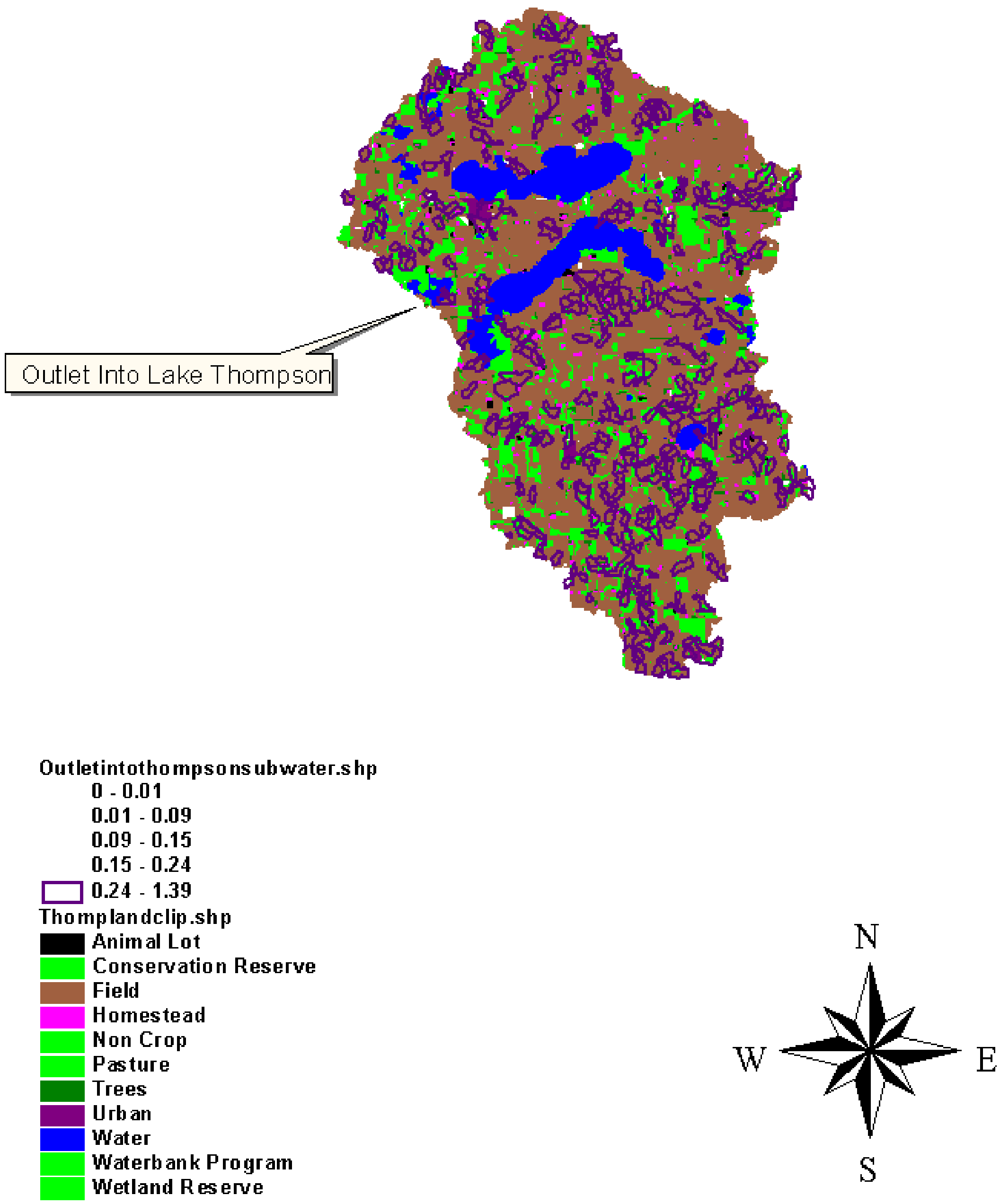


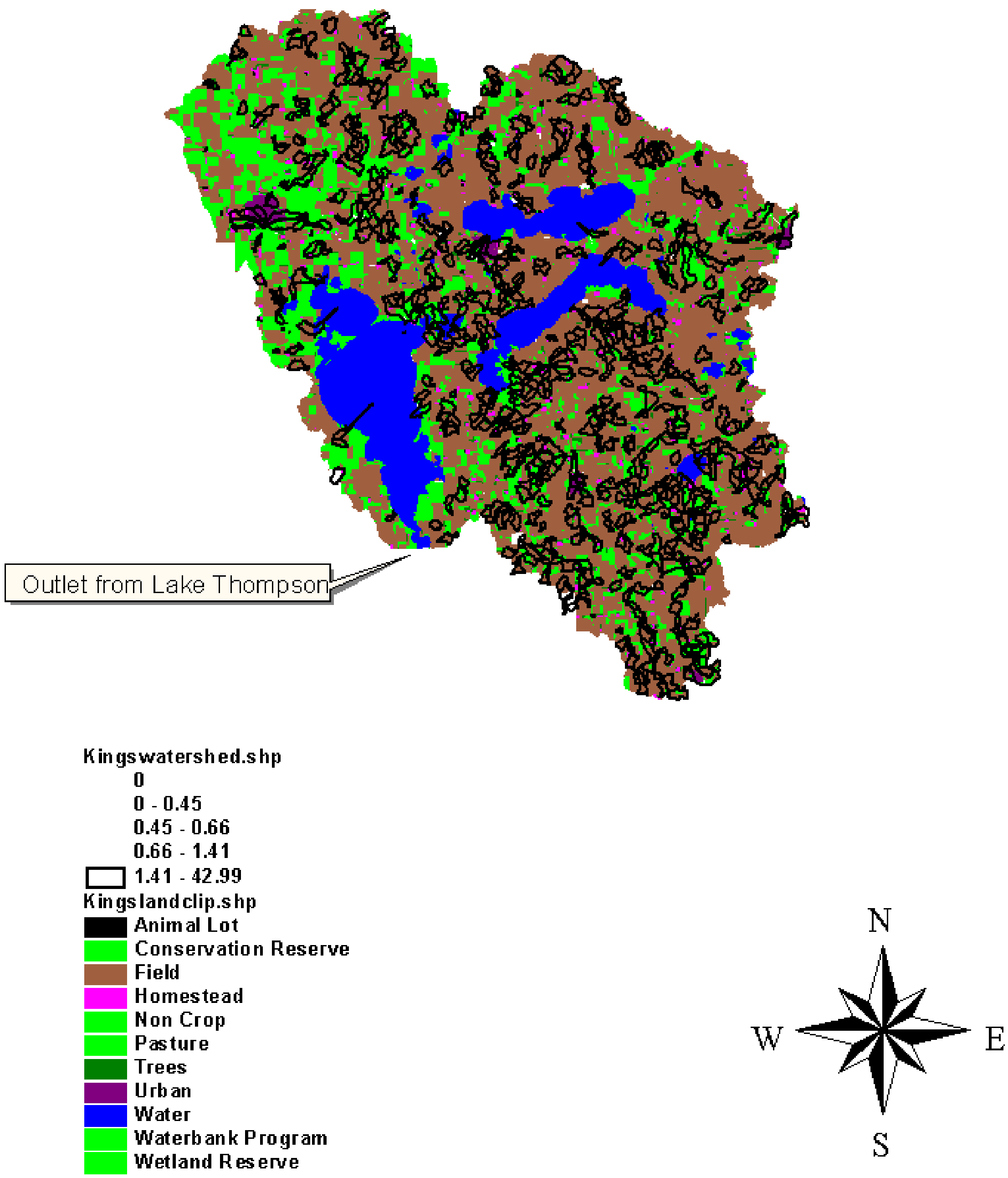
Outlet Into Thompson Critical Nitrogen Cells



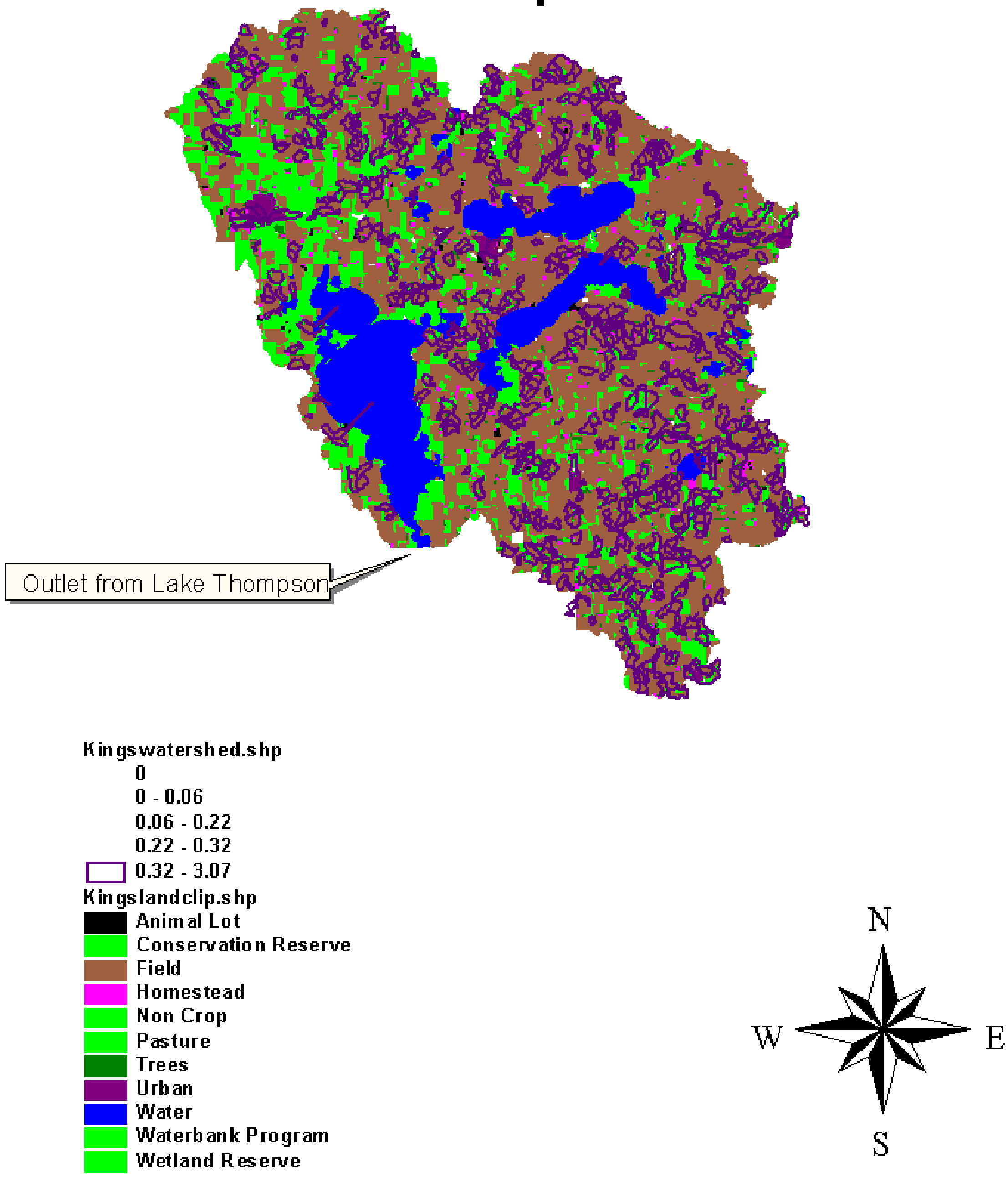
Outlet Into Thompson Critical Phosphorus Cells



Kingsbury Watershed
Critical Nitrogen Cells



Kingsbury Watershed Critical Phosphorus Cells



APPENDIX III – Stream Sampling Site Locations

Site	Reach	Latitude deg.min	Longitude deg.min
LAT	1	44.52.39	96.39.73
LBT	1	43.55.73	97.58.17
LCT	1	44.42.95	96.28.83
LHO	1	44.19.33	97.26.32
LPO	1	44.21.59	97.17.43
LPT1	2	44.22.05	97.13.68
LPT1	1	44.22.24	97.13.82
LPT1	3	44.21.73	97.12.99
LPT2	1	44.23.86	97.14.79
LPT2	3	44.24.89	97.14.42
LPT3	2	44.24.49	97.16.25
LPT3	3	44.25.65	97.16.66
LPT3	1	44.23.95	97.17.19
LPT4	3	44.25.54	97.20.01
LPT4	2	44.25.18	97.18.73
LPT5	1	44.23.92	97.21.67
LPT5	2	44.24.79	97.21.49
LPT5	3	44.25.28	97.21.15
LPT6	1	44.22.86	97.24.03
LTO	1	44.09.10	97.24.37
LWO	1	44.19.50	97.22.55
LWT1	1	44.18.14	97.19.99
LWT1	2	44.18.09	97.19.83
LWT2	1	44.19.48	97.18.00
LWT2	2	44.19.17	97.17.39
LWT2	3	44.18.63	96.16.98
LWT3	1	44.18.87	97.13.97
LWT4	1	44.19.61	97.13.34

APPENDIX IV – Physical and Chemical Data from Streams

Basic Stream Physical and Chemical Data

Site	Date	Ta (C)	Tw (C)	Cond (uS/cm)	DO (mg/L)	TS (mg/L)	TDS (mg/L)	TSS (mg/L)	Turb (NTU)	Alkal (mg/L)	pH	Fecals (#/100ml)	Flow (m3/sec)
LHO	19-Jul-01	33.8	26.7	1107	5.9	7255	7205	50.0	36.1	222	8.34	-10	m
LHO	23-Jul-01	30.3	27.4	1050	7.4	988	939	49.0	35.1	258	8.37	10	1.589
LHO	30-Aug-01	21.6	23.0	1083	13.5	891	853	38.0	54.5	291	8.92	-10	0.294
LHO	24-Sep-01	14.5	14.7	1153	8.6	890	867	23.0	35.0	294	8.84	10	0.263
LHO	13-Mar-02	3.3	3.5	1285	26.3	1041	1016	25.5	60.6	280	7.80	-10	0.235
LHO	27-Mar-02	4.8	3.6	1257	17.4	1055	1048	7.0	10.2	251	8.03	10	0.006
LHO	01-Apr-02	8.6	4.6	1197	19.9	951	941	10.0	15.2	253	7.75	-10	0.293
LHO	24-Apr-02	9.5	8.9	1114	12.4	1030	894	136.0	206.7	252	8.17	10	2.504
LHO	09-May-02	7.3	6.8	1567	11.5	899	827	72.0	48.1	247	8.71	-10	1.688
LHO	22-May-02	15.8	13.7	1216	9.7	1042	939	103.0	79.5	285	8.68	40	-1.011
LHO	21-Jun-02	25.4	22.3	1228	8.6	886	822	64.0	18.6	252	8.44	m	0.000
LHO	29-Aug-02	27.1	25.0	1225	6.9	872	837	35.0	60.4	272	9.55	-10	0.000
LHO	02-Oct-02	6.5	7.8	1698	9.6	1155	1089	66.7	76.3	307	8.81	20	0.000
LHO	12-May-03	21.0	11.5	1297	13.6	970	943	26.5	39.4	321	7.38	10	0.029
LHO	03-Jun-03	15.0	14.8	1344	5.0	986	932	54.0	0.7	333	8.08	70	0.009
LHO	10-Jun-03	18.0	19.0	1349	9.3	1125	1055	70.0	69.0	334	8.66	160	0.020
LHO	19-Jun-03	21.0	22.0	1309	4.9	1236	1181	55.0	42.0	358	8.57	70	0.000
LHO	25-Jun-03	16.0	21.0	1207	8.4	1129	1057	71.3	75.0	312	9.07	620	0.073
LPO	19-Jul-01	27.2	25.7	1263	6.0	869	791	77.3	104.5	216	8.41	900	1.209
LPO	23-Jul-01	31.4	29.1	1270	7.6	2282	2210	72.0	40.1	234	8.50	30	1.813
LPO	30-Aug-01	26.0	23.2	1301	6.3	1083	1071	12.5	16.1	281	8.76	20	1.164
LPO	24-Sep-01	17.4	15.5	1355	7.9	1129	1107	22.5	21.3	266	8.93	-10	0.927
LPO	13-Mar-02	4.1	2.0	1632	21.2	1351	1333	17.5	31.5	277	8.34	-10	0.139
LPO	27-Mar-02	4.8	4.5	1564	13.1	1308	1211	97.0	99.2	248	7.96	10	0.198
LPO	30-Mar-02	2.4	4.8	1538	14.1	1152	1130	22.5	26.3	258	7.41	m	0.210
LPO	01-Apr-02	3.1	5.1	1514	12.3	1115	1088	26.5	32.8	237	7.76	-10	0.230
LPO	24-Apr-02	11.7	9.8	1311	13.9	1269	1071	198.0	265.8	245	8.14	20	0.503
LPO	09-May-02	8.5	7.8	1570	11.3	1054	902	152.0	161.3	215	8.66	210	0.191
LPO	22-May-02	15.0	13.3	1192	9.4	1228	1064	164.0	102.1	253	8.49	-10	-0.408
LPO	21-Jun-02	24.6	23.7	1197	9.9	964	950	14.0	15.1	164	9.13	m	0.000

LPO	31-Jul-02	28.4	27.7	1417	11.8	1211	1148	63.0	41.2	167	9.05	10	0.000
LPO	29-Aug-02	27.0	31.3	910	9.9	1802	1582	220.0	136.0	372	9.51	230	0.000
LPO	02-Oct-02	6.1	8.0	1863	7.8	1744	1440	304.0	241.0	285	8.68	130	0.000
LPO	10-Jun-03	17.0	21.0	2044	13.8	2110	2033	77.0	17.0	329	9.86	m	0.000
LPT1	18-Jul-01	28.5	24.2	1033	4.0	565	435	130.0	147.4	188	7.69	3600	-0.007
LPT1	20-Jul-01	30.0	25.9	1164	7.0	216	159	57.0	104.5	76	7.74	170	3.515
LPT1	30-Aug-01	26.5	18.9	954	5.8	896	757	139.0	151.2	263	8.43	300	-0.079
LPT1	24-Sep-01	14.8	16.6	1083	7.8	904	878	26.0	68.7	278	8.63	60	-0.016
LPT1	30-Mar-02	4.9	1.5	486	15.3	366	347	18.7	36.2	79	7.20	m	1.495
LPT1	01-Apr-02	7.8	7.3	664	11.9	504	494	9.5	30.5	103	7.28	-10	0.949
LPT1	24-Apr-02	12.6	13.0	1377	15.0	1168	1151	17.0	17.8	221	8.09	70	0.026
LPT1	08-May-02	10.3	8.5	1431	8.1	636	555	81.0	107.7	90	7.13	4400	4.915
LPT1	22-May-02	22.5	17.5	1152	9.2	945	934	11.0	46.1	179	8.24	60	0.061
LPT1	21-Jun-02	25.0	22.0	1396	9.8	1170	1134	36.0	41.0	221	8.05	60	0.001
LPT1	16-Mar-03	15.3	8.9	400	9.7	343	329	14.0	34.9	92	7.08	m	0.080
LPT1	19-Mar-03	5.1	5.7	522	10.1	431	422	9.0	76.1	96	6.97	-10	0.036
LPT1	28-Apr-03	15.4	13.4	1780	14.7	1643	1625	17.5	7.6	154	8.06	-10	0.001
LPT1	12-May-03	17.9	16.6	1581	12.6	1301	1281	20.5	47.9	245	7.36	10	0.017
LPT1	03-Jun-03	16.3	13.8	2122	11.7	1871	1839	32.0	38.3	368	7.91	m	0.000
LPT1	06-Jun-03	24.0	18.7	1841	10.6	830	795	34.5	57.6	156	8.03	m	0.030
LPT1	10-Jun-03	17.0	17.0	1288	8.8	1037	1023	14.5	11.0	240	7.72	1100	0.023
LPT1	25-Jun-03	14.0	19.0	1095	7.2	1087	1012	75.5	47.0	161	7.95	13000	0.034
LPT1	01-Jul-03	29.0	21.0	1397	6.4	1214	1195	18.5	15.0	292	8.12	460	0.003
LPT2	19-Jul-01	35.2	28.2	809	2.8	396	378	18.0	25.4	61	7.56	210	-0.014
LPT2	20-Jul-01	30.2	28.3	853	8.1	320	287	33.5	92.1	50	8.16	210	0.113
LPT2	30-Aug-01	m	m	m	m	m	m	m	m	m	m	m	0.000
LPT2	24-Sep-01	m	m	m	m	m	m	m	m	m	m	m	0.000
LPT2	30-Mar-02	4.7	3.6	408	15.5	351	310	40.7	91.1	52	7.27	m	0.533
LPT2	01-Apr-02	7.1	8.6	586	9.4	473	450	22.5	46.6	88	7.48	20	0.100
LPT2	24-Apr-02	8.7	10.1	2569	12.9	2634	2609	25.5	42.6	270	8.16	-10	-0.013
LPT2	08-May-02	9.4	9.0	1505	8.3	753	726	27.5	30.3	84	7.30	50	m
LPT2	22-May-02	20.5	14.5	1854	9.5	1726	1644	82.0	71.7	244	8.30	180	0.000
LPT2	21-Jun-02	18.8	19.2	1647	8.1	1507	1445	62.0	51.3	59	7.75	m	0.002
LPT2	16-Mar-03	15.5	10.0	331	4.7	285	275	10.0	24.4	57	6.74	m	0.047
LPT2	19-Mar-03	5.7	7.8	545	9.8	458	401	57.0	89.1	107	6.93	20	0.006
LPT2	25-Jun-03	14.0	18.0	195	3.3	218	168	50.5	82.0	121	7.09	58000	0.000
LPT3	18-Jul-01	27.5	22.9	1484	2.6	1142	1132	9.5	29.1	232	7.43	60	-0.185

LPT3	20-Jul-01	30.2	27.2	1592	7.2	1014	1008	6.0	13.5	189	7.52	40	0.536
LPT3	30-Aug-01	23.1	21.6	1310	5.6	1012	1010	2.0	2.6	278	8.41	20	-0.052
LPT3	24-Sep-01	18.3	15.2	1361	15.0	1079	1073	6.5	14.5	294	8.47	60	-0.043
LPT3	30-Mar-02	4.8	0.8	386	15.3	315	264	50.7	117.4	64	7.21	m	0.657
LPT3	01-Apr-02	11.8	6.0	586	8.7	397	373	23.5	53.7	88	7.47	-10	0.163
LPT3	24-Apr-02	9.3	11.0	1931	13.9	1779	1758	21.5	25.7	232	7.99	80	0.020
LPT3	08-May-02	9.8	8.0	1735	8.2	501	466	35.0	48.8	67	7.47	110	0.088
LPT3	22-May-02	18.0	14.6	1727	9.9	1608	1591	17.5	54.7	162	8.23	10	-0.052
LPT3	21-Jun-02	22.1	19.3	1910	6.7	1670	1659	11.0	21.2	145	8.47	m	-0.008
LPT3	16-Mar-03	16.4	4.2	309	11.0	248	241	7.0	21.9	48	7.02	m	0.097
LPT3	19-Mar-03	5.4	5.1	550	7.8	523	515	8.0	5.0	76	6.86	10	0.037
LPT3	28-Apr-03	15.8	13.7	1844	9.1	1518	1511	7.5	2.0	242	7.38	-10	0.000
LPT3	03-Jun-03	15.0	15.0	2465	10.5	2180	2153	27.0	0.4	240	8.15	20	0.000
LPT3	10-Jun-03	17.0	18.0	2629	9.5	2451	2443	8.0	3.4	238	8.40	20	0.000
LPT3	25-Jun-03	13.0	20.0	2203	5.8	2007	1992	15.5	11.0	168	8.57	2800	0.000
LPT4	18-Jul-01	21.0	23.2	1454	3.4	1711	848	862.7	619.0	184	7.55	800	-0.018
LPT4	20-Jul-01	30.3	26.3	1513	9.2	362	333	29.0	69.3	58	7.82	940	5.088
LPT4	30-Aug-01	m	m	m	m	m	m	m	m	m	m	m	0.000
LPT4	24-Sep-01	m	m	m	m	m	m	m	m	m	m	m	0.000
LPT4	30-Mar-02	4.8	1.4	404	16.6	317	265	52.0	85.9	72	7.29	m	0.630
LPT4	01-Apr-02	12.0	6.1	575	9.0	451	423	27.5	47.0	86	7.49	20	0.108
LPT4	24-Apr-02	8.6	11.4	1474	13.3	1265	1247	18.5	40.4	212	8.03	-10	0.001
LPT4	08-May-02	10.0	8.5	1596	8.1	1273	1151	122.0	103.3	167	7.82	580	0.010
LPT4	22-May-02	18.9	16.6	2025	8.6	1922	1892	30.0	60.1	255	8.09	440	0.000
LPT4	21-Jun-02	22.5	24.1	1432	8.5	1301	1249	52.0	69.5	46	8.01	m	0.000
LPT4	16-Mar-03	16.4	0.3	308	11.0	263	251	12.0	26.1	72	7.00	m	0.051
LPT4	19-Mar-03	6.8	5.4	497	9.7	390	378	12.0	5.6	86	6.87	20	0.009
LPT5	19-Jul-01	34.0	25.9	1250	6.0	632	612	20.5	22.7	204	7.77	290	0.031
LPT5	20-Jul-01	31.0	26.1	1314	5.9	302	293	9.7	38.5	58	7.39	290	2.598
LPT5	30-Aug-01	m	m	m	m	m	m	m	m	m	m	m	0.000
LPT5	24-Sep-01	m	m	m	m	m	m	m	m	m	m	m	0.000
LPT5	30-Mar-02	2.7	0.5	434	15.5	401	353	48.0	87.1	75	7.04	m	0.222
LPT5	01-Apr-02	12.0	6.1	650	9.3	507	492	15.5	39.8	81	7.86	-10	0.030
LPT5	24-Apr-02	11.5	11.3	1288	11.7	1086	1077	9.5	17.0	129	8.11	20	0.008
LPT5	08-May-02	10.2	8.3	1601	7.8	1225	1187	38.0	32.5	152	7.63	42000	0.088
LPT5	22-May-02	18.9	15.6	1541	6.9	1346	1333	13.5	57.3	224	7.99	130	0.001
LPT5	21-Jun-02	m	m	m	m	m	m	m	m	m	m	m	0.000

LPT5	16-Mar-03	17.1	3.4	348	11.5	298	281	16.5	28.6	78	6.97	m	0.023
LPT5	25-Jun-03	13.0	17.0	496	2.7	451	414	36.5	45.0	72	7.40	25000	0.030
LPT6	18-Jul-01	31.6	27.3	1322	3.8	1026	991	35.5	60.7	246	8.40	1040	-0.039
LPT6	20-Jul-01	31.0	24.7	1444	8.8	518	414	104.0	158.3	50	7.89	10	5.040
LPT6	30-Aug-01	22.5	22.4	1360	4.3	1090	1057	33.0	56.4	304	8.69	30	0.030
LPT6	24-Sep-01	17.8	15.8	1416	12.3	1189	1152	37.0	117.9	329	8.80	800	0.038
LPT6	30-Mar-02	6.2	1.2	640	14.1	529	492	37.0	35.0	105	7.20	m	0.145
LPT6	01-Apr-02	12.0	3.1	1320	10.9	474	460	14.0	34.9	79	7.66	-10	0.020
LPT6	24-Apr-02	11.9	10.2	2516	14.9	2131	2118	12.5	17.4	382	7.75	-10	-0.052
LPT6	09-May-02	7.0	6.0	1748	10.2	1397	1390	6.5	6.8	266	7.75	40	-0.030
LPT6	22-May-02	18.0	12.7	2115	10.1	1900	1883	17.5	44.3	257	8.06	-10	-0.033
LPT6	21-Jun-02	24.1	21.3	1564	2.6	1310	1267	43.5	31.7	347	7.67	m	0.000
LPT6	16-Mar-03	16.8	1.5	373	9.1	289	274	15.0	26.7	87	6.93	m	0.012
LPT6	19-Mar-03	5.3	3.4	544	9.2	429	420	8.5	8.0	113	6.94	-10	0.009
LPT6	25-Jun-03	13.0	17.0	323	2.6	286	237	49.0	17.0	82	7.19	3800	0.180
LTO	19-Jul-01	29.4	27.5	1283	4.6	667	656	11.3	61.3	224	8.11	60	2.234
LTO	23-Jul-01	31.3	28.6	1237	5.7	1008	981	27.5	45.7	274	8.37	-10	2.460
LTO	30-Aug-01	18.9	21.9	1202	7.1	958	922	36.0	47.2	308	8.71	-10	2.556
LTO	24-Sep-01	11.5	13.2	1200	8.6	1054	1015	39.5	40.7	325	9.12	-10	1.575
LTO	13-Mar-02	3.4	1.5	1273	25.2	1378	1371	7.0	10.1	251	8.41	-10	0.917
LTO	27-Mar-02	4.6	3.0	1243	11.5	994	953	42.0	73.8	273	8.09	-10	0.662
LTO	30-Mar-02	2.3	3.1	1214	12.4	707	675	32.0	62.7	212	7.76	m	1.046
LTO	01-Apr-02	6.2	3.1	953	14.7	777	700	77.0	96.0	227	8.21	-10	0.841
LTO	24-Apr-02	9.3	9.1	1143	11.1	1143	866	277.0	356.4	275	7.99	-10	1.287
LTO	09-May-02	4.8	5.5	1566	11.3	1228	776	452.0	455.3	285	8.49	80000	1.616
LTO	22-May-02	14.8	12.0	1180	9.8	1304	842	462.0	207.7	273	8.17	80	-0.385
LTO	21-Jun-02	26.4	24.7	1147	8.4	988	829	159.0	167.8	316	8.45	m	0.336
LTO	31-Jul-02	25.9	23.8	1193	5.5	1154	1070	83.5	228.0	259	8.44	20	0.359
LTO	29-Aug-02	23.6	22.8	1291	6.0	1044	967	77.0	39.4	252	9.61	-10	0.092
LTO	02-Oct-02	5.1	7.8	1655	10.6	1189	1089	100.0	83.8	308	9.18	110	0.168
LTO	12-May-03	12.6	9.8	1563	10.7	1431	1016	414.7	259.2	281	7.39	10	0.244
LTO	03-Jun-03	13.1	14.1	1612	9.6	1362	1310	51.5	38.5	262	8.03	240	0.012
LTO	10-Jun-03	16.5	16.6	1557	5.1	1798	1452	346.0	176.0	291	7.73	40	0.047
LTO	25-Jun-03	16.0	18.0	935	3.4	1572	880	692.0	437.0	191	8.11	m	0.074
LWO	19-Jul-01	28.1	26.4	1219	4.0	665	642	22.5	13.3	228	8.27	10	2.185
LWO	23-Jul-01	30.9	28.0	1166	4.4	861	843	17.3	19.3	227	8.49	20	3.503
LWO	30-Aug-01	19.9	22.2	1220	8.0	977	956	21.5	26.7	296	8.78	-10	0.772

LWO	24-Sep-01	11.5	13.1	1251	11.7	956	937	19.5	26.8	291	9.14	20	0.836
LWO	30-Mar-02	4.3	2.2	1280	19.1	1232	1198	33.5	28.7	267	7.36	m	0.666
LWO	01-Apr-02	8.1	2.5	1353	13.3	1108	1071	37.0	34.8	285	7.94	10	0.292
LWO	24-Apr-02	10.8	8.6	1270	10.8	1083	964	119.0	193.7	277	8.04	10	-0.433
LWO	09-May-02	5.6	5.0	1575	10.6	1027	985	42.0	40.3	262	8.50	23000	1.174
LWO	21-May-02	19.5	12.9	1171	10.2	977	934	42.5	56.0	259	8.55	-10	2.134
LWO	21-Jun-02	25.3	21.1	1160	10.2	899	873	25.5	94.8	258	8.44	m	0.696
LWO	24-Jun-02	29.5	27.8	1219	11.8	981	948	33.0	39.0	261	8.45	550	0.552
LWO	31-Jul-02	27.7	24.2	1106	6.9	929	842	87.5	83.3	263	8.65	-10	0.229
LWO	29-Aug-02	26.4	23.5	1272	9.6	1062	949	113.3	90.6	305	9.43	120	0.000
LWO	02-Oct-02	5.8	8.1	1690	9.8	1195	1118	76.7	64.9	365	8.98	230	0.000
LWO	03-Jun-03	13.3	13.6	1661	11.7	1393	1351	42.0	23.0	346	8.50	50	0.000
LWO	10-Jun-03	20.0	22.0	1724	17.6	1736	1640	96.0	38.0	341	9.22	m	0.000
LWT1	18-Jul-01	31.1	25.7	1052	4.4	521	517	4.0	24.5	192	8.27	120	-0.147
LWT1	20-Jul-01	29.8	24.1	1177	5.1	620	407	213.0	37.3	87	7.93	20	0.136
LWT1	30-Aug-01	23.5	23.2	1237	9.6	968	946	22.0	22.4	284	8.97	30	-0.021
LWT1	24-Sep-01	14.4	14.9	1248	10.1	964	957	7.0	10.6	306	8.67	20	-0.030
LWT1	30-Mar-02	3.9	0.2	465	15.7	285	225	60.0	136.7	58	7.51	m	0.250
LWT1	01-Apr-02	8.3	1.1	505	8.0	433	385	48.7	119.6	71	8.05	20	0.048
LWT1	24-Apr-02	9.6	8.7	1274	12.6	1061	1016	45.0	76.4	266	8.14	20	-0.048
LWT1	08-May-02	7.2	8.0	1395	6.3	810	370	440.0	734.1	79	7.49	800	2.047
LWT1	21-May-02	18.8	14.6	579	9.1	555	485	69.5	179.8	160	8.09	90	0.076
LWT1	21-Jun-02	26.4	19.5	1047	6.4	536	509	26.5	23.3	208	8.31	m	0.000
LWT1	31-Jul-02	28.1	23.4	1329	6.7	619	613	6.0	0.7	185	7.39	1550	0.000
LWT1	29-Aug-02	26.5	22.0	1330	4.1	1092	1068	24.5	5.5	338	8.79	100	0.000
LWT1	02-Oct-02	5.8	7.6	1747	6.1	1675	1650	25.0	23.4	477	8.43	50	0.000
LWT1	19-Mar-03	3.9	5.7	826	8.6	585	570	15.0	24.4	120	6.81	-10	0.015
LWT1	28-Apr-03	15.7	12.9	2729	4.2	2371	2357	14.0	5.0	193	7.21	-10	0.000
LWT1	03-Jun-03	14.5	13.1	2726	8.1	2593	2582	11.0	0.3	87	8.18	20	0.007
LWT1	10-Jun-03	17.0	16.6	2869	4.9	2753	2736	17.0	9.0	81	7.41	60	0.000
LWT1	25-Jun-03	14.0	18.0	1006	6.9	913	848	64.5	27.0	86	7.67	920	0.040
LWT1	01-Jul-03	26.0	23.0	1508	8.4	1311	1305	5.5	4.0	193	7.90	360	0.006
LWT2	18-Jul-01	30.1	27.1	1028	8.1	547	345	202.0	176.0	206	7.96	17000	0.287
LWT2	20-Jul-01	27.9	23.7	1075	9.1	584	331	253.0	318.5	101	7.50	140	0.956
LWT2	30-Aug-01	m	m	m	m	m	m	m	m	m	m	m	0.000
LWT2	24-Sep-01	m	m	m	m	m	m	m	m	m	m	m	0.000
LWT2	30-Mar-02	4.1	0.7	352	18.6	362	249	112.7	174.6	54	7.37	m	1.233

LWT2	01-Apr-02	8.0	0.6	412	11.0	625	309	316.7	288.4	64	7.90	10	1.156
LWT2	24-Apr-02	9.0	10.8	1309	16.4	1148	1118	30.0	57.9	156	8.06	80	0.014
LWT2	08-May-02	6.3	7.5	1294	9.3	1176	170	1006.0	1837.6	66	7.49	13000	4.360
LWT2	21-May-02	19.4	15.4	836	9.9	798	666	132.5	86.7	137	8.04	170	0.147
LWT2	21-Jun-02	25.5	21.0	674	7.7	900	434	466.0	682.2	106	7.89	m	0.033
LWT2	24-Jun-02	29.4	27.8	1212	11.0	973	948	25.5	52.0	179	8.03	40	0.064
LWT2	16-Mar-03	17.9	0.4	275	13.5	251	216	35.0	67.0	58	7.10	m	0.102
LWT2	19-Mar-03	6.1	1.4	555	10.3	433	411	22.5	34.6	95	6.82	-10	0.124
LWT2	28-Apr-03	17.3	16.6	2340	13.7	2103	2096	7.5	5.2	276	7.60	20	0.013
LWT2	12-May-03	13.2	13.6	2387	13.6	4915	4903	12.0	7.1	253	7.29	60	0.026
LWT2	03-Jun-03	14.0	13.2	2570	10.6	2402	2394	7.5	0.6	332	7.84	730	0.003
LWT2	10-Jun-03	16.0	17.0	1392	9.3	1172	1161	11.0	14.0	182	7.89	220	0.038
LWT2	19-Jun-03	24.0	20.0	2035	7.2	1985	1958	27.0	17.0	287	7.79	1440	0.001
LWT2	25-Jun-03	14.0	18.0	949	6.5	1047	804	242.5	199.0	143	7.60	6700	0.202
LWT2	01-Jul-03	26.0	21.0	1579	10.0	1445	1423	22.5	15.0	220	8.22	460	0.018
LWT3	18-Jul-01	29.2	24.5	1246	2.4	962	943	18.7	13.0	186	7.49	570	0.160
LWT3	20-Jul-01	29.4	24.9	1100	7.5	29	19	9.3	19.4	127	7.57	30	0.251
LWT3	30-Aug-01	24.2	21.4	1249	12.9	1031	978	52.7	119.0	305	8.76	190	-0.008
LWT3	24-Sep-01	14.6	10.8	1573	7.6	1200	1186	14.0	26.6	409	8.38	120	0.000
LWT3	30-Mar-02	3.7	0.6	587	17.9	498	476	22.0	48.7	86	7.29	m	0.345
LWT3	01-Apr-02	8.0	0.3	962	12.1	763	739	24.0	16.6	120	7.71	-10	0.044
LWT3	24-Apr-02	9.8	9.6	1234	12.6	1343	1048	295.0	329.1	263	8.17	-10	-0.022
LWT3	09-May-02	8.4	7.0	1383	8.3	545	431	114.5	155.3	92	7.87	2100	0.862
LWT3	21-May-02	19.5	14.8	1815	10.0	1638	1608	30.0	50.9	272	7.83	4200	0.009
LWT3	21-Jun-02	24.5	23.1	1225	11.1	1016	1006	10.0	17.2	134	8.32	m	0.044
LWT3	31-Jul-02	28.0	24.9	1301	7.5	1059	1018	41.0	100.2	225	8.45	1620	0.000
LWT3	29-Aug-02	27.7	23.5	1276	5.6	1122	1064	58.0	59.4	324	8.81	30	0.000
LWT3	16-Mar-03	17.7	4.1	797	12.5	648	638	10.0	26.9	91	7.05	m	0.117
LWT3	19-Mar-03	4.1	3.3	1410	10.0	1152	1141	11.5	9.2	147	6.78	10	0.010
LWT3	28-Apr-03	17.2	16.9	3707	10.0	3389	3366	23.0	37.9	344	7.27	-10	0.000
LWT3	12-May-03	m	13.9	3528	12.6	3625	3613	12.0	8.7	332	7.22	-10	0.007
LWT3	03-Jun-03	16.5	13.4	2863	9.0	2686	2667	19.0	33.4	387	7.54	20	0.013
LWT3	10-Jun-03	17.0	17.0	2616	4.0	2477	2449	27.5	19.0	269	7.55	240	0.009
LWT3	25-Jun-03	15.0	18.0	1787	5.6	1093	987	106.0	46.0	134	7.73	14000	0.059
LWT3	01-Jul-03	27.0	23.0	2674	6.5	2574	2557	17.0	10.0	271	7.92	1300	0.001
LWT4	18-Jul-01	31.0	19.9	2146	6.4	1625	1408	217.3	111.0	91	7.21	57000	-0.003
LWT4	20-Jul-01	29.6	23.2	447	8.0	608	443	165.3	294.8	57	7.95	300	1.762

LWT4	30-Aug-01	m	m	m	m	m	m	m	m	m	m	m	0.000
LWT4	24-Sep-01	m	m	m	m	m	m	m	m	m	m	m	0.000
LWT4	30-Mar-02	3.4	6.6	736	14.4	543	534	9.3	22.0	95	7.26	m	0.099
LWT4	01-Apr-02	8.1	7.6	1443	8.6	1229	1222	7.5	11.6	149	7.47	-10	0.012
LWT4	24-Apr-02	10.8	9.1	3628	23.7	3931	3923	8.0	22.8	292	7.99	-10	-0.002
LWT4	08-May-02	7.8	9.0	1425	8.8	844	478	366.0	382.8	84	7.45	670	0.586
LWT4	21-May-02	16.3	12.9	2795	16.0	2836	2826	10.5	45.4	262	7.76	-10	0.000
LWT4	21-Jun-02	24.3	23.8	2880	6.4	2854	2836	18.0	44.7	127	7.73	m	0.002
LWT4	25-Jun-03	14.0	18.0	1407	7.0	1290	1283	7.5	3.4	128	7.85	1000	0.025

Stream Nutrient Data

Site	Date	NO3 (mg/L)	NO2 (mg/L)	NH3 (mg/L)	Uamm (mg/L)	Onit (mg/L)	TotN (mg/L)	TKN (mg/L)	TP (mg/L)	TDP (mg/L)	NPRatio
LHO	19-Jul-01	0.056	0.000	0.278	0.034	1.8	2.1	2.1	0.740	0.543	2.9
LHO	23-Jul-01	0.066	0.000	0.486	0.066	2.7	3.2	3.1	0.735	0.541	4.4
LHO	30-Aug-01	0.030	0.001	0.128	0.037	2.2	2.3	2.3	0.403	0.234	5.7
LHO	24-Sep-01	0.104	0.002	0.303	0.047	1.5	1.9	1.8	0.323	0.238	6.0
LHO	13-Mar-02	0.034	0.000	0.034	0.000	1.7	1.8	1.8	0.069	0.040	26.3
LHO	27-Mar-02	0.042	0.001	0.071	0.001	1.6	1.7	1.7	0.111	0.061	15.3
LHO	01-Apr-02	0.026	0.001	0.030	0.000	1.2	1.3	1.3	0.118	0.045	11.0
LHO	24-Apr-02	0.044	0.003	0.122	0.003	1.7	1.9	1.8	0.274	0.036	6.9
LHO	09-May-02	0.046	0.002	0.067	0.005	1.6	1.7	1.7	0.194	0.047	8.9
LHO	22-May-02	0.060	0.002	0.156	0.017	1.9	2.1	2.1	0.379	0.131	5.6
LHO	21-Jun-02	0.075	0.001	0.047	0.005	2.0	2.2	2.1	0.377	0.134	5.7
LHO	29-Aug-02	0.038	0.000	0.175	0.117	4.6	4.8	4.8	0.682	0.333	7.1
LHO	02-Oct-02	0.027	0.001	0.280	0.026	5.8	6.2	6.1	0.647	0.252	9.5
LHO	12-May-03	0.050	0.010	0.010	0.000	2.7	2.7	2.7	1.060	0.090	2.6
LHO	03-Jun-03	0.050	0.010	0.130	0.004	2.5	2.7	2.6	0.422	0.204	6.4
LHO	10-Jun-03	0.050	0.010	0.010	0.001	1.9	2.0	2.0	0.448	0.197	4.5
LHO	19-Jun-03	0.050	0.010	0.010	0.001	2.9	2.9	2.9	0.539	0.326	5.4
LHO	25-Jun-03	0.050	0.010	0.010	0.003	2.5	2.6	2.5	0.596	0.297	4.3
LPO	19-Jul-01	0.070	0.001	0.154	0.021	2.7	2.9	2.8	1.075	0.848	2.7
LPO	23-Jul-01	0.112	0.000	0.366	0.071	1.6	2.1	2.0	0.942	0.838	2.3
LPO	30-Aug-01	0.400	0.001	0.108	0.024	1.8	2.3	1.9	0.702	0.617	3.3
LPO	24-Sep-01	0.034	0.000	0.157	0.031	2.1	2.3	2.3	0.624	0.423	3.7

LPO	13-Mar-02	0.040	0.001	0.090	0.002	1.7	1.9	1.8	0.349	0.259	5.3
LPO	27-Mar-02	0.038	0.002	0.096	0.001	2.5	2.6	2.6	0.416	0.229	6.3
LPO	30-Mar-02	0.049	0.000	0.046	0.000	2.1	2.2	2.2	0.353	0.221	6.4
LPO	01-Apr-02	0.040	0.002	0.057	0.000	1.5	1.6	1.6	0.335	0.197	4.9
LPO	24-Apr-02	0.053	0.006	0.128	0.003	2.8	3.0	2.9	0.715	0.135	4.2
LPO	09-May-02	0.084	0.002	0.102	0.007	2.6	2.8	2.7	0.648	0.151	4.3
LPO	22-May-02	0.052	0.007	0.121	0.008	2.4	2.6	2.5	0.598	0.111	4.3
LPO	21-Jun-02	0.026	0.000	0.086	0.035	2.1	2.2	2.2	0.438	0.286	5.0
LPO	31-Jul-02	0.046	0.001	0.100	0.044	5.9	6.0	6.0	1.036	0.441	5.8
LPO	29-Aug-02	0.041	0.002	0.448	0.332	10.5	11.0	11.0	2.141	0.902	5.1
LPO	02-Oct-02	0.055	0.005	0.440	0.031	10.2	10.7	10.6	1.501	0.163	7.1
LPO	10-Jun-03	0.050	0.000	0.010	0.008	4.3	4.4	4.3	1.110	0.736	3.9
LPT1	18-Jul-01	0.176	0.003	0.346	0.009	1.9	2.4	2.2	0.847	0.598	2.8
LPT1	20-Jul-01	0.833	0.003	0.108	0.003	1.5	2.4	1.6	0.627	0.455	3.9
LPT1	30-Aug-01	0.108	0.003	0.366	0.033	2.4	2.9	2.8	1.363	1.065	2.1
LPT1	24-Sep-01	0.036	0.001	0.090	0.010	1.8	1.9	1.9	1.150	1.025	1.7
LPT1	30-Mar-02	1.132	0.002	0.428	0.001	2.3	3.8	2.7	0.660	0.618	5.8
LPT1	01-Apr-02	1.294	0.002	0.264	0.001	1.6	3.1	1.8	0.483	0.388	6.5
LPT1	24-Apr-02	0.045	0.002	0.042	0.001	1.0	1.1	1.1	0.217	0.167	5.2
LPT1	08-May-02	1.288	0.006	0.301	0.001	1.6	3.2	1.9	0.575	0.392	5.6
LPT1	22-May-02	0.050	0.000	0.056	0.003	1.0	1.1	1.1	0.192	0.154	6.0
LPT1	21-Jun-02	0.696	0.001	0.070	0.003	2.8	3.5	2.8	0.494	0.293	7.2
LPT1	16-Mar-03	1.300	0.000	1.490	0.003	3.0	5.8	4.5	2.391	2.031	2.4
LPT1	19-Mar-03	1.800	0.000	0.960	0.001	3.2	6.0	4.2	1.803	1.278	3.3
LPT1	28-Apr-03	0.050	0.010	0.010	0.000	1.5	1.6	1.5	0.139	0.058	11.3
LPT1	12-May-03	0.050	0.010	0.010	0.000	1.3	1.4	1.4	0.445	0.126	3.2
LPT1	03-Jun-03	0.050	0.010	0.010	0.000	2.0	2.1	2.0	0.632	0.318	3.2
LPT1	06-Jun-03	0.900	0.010	0.010	0.000	1.5	2.4	1.5	0.646	0.533	3.7
LPT1	10-Jun-03	0.050	0.010	0.030	0.000	1.1	1.2	1.1	0.530	0.489	2.2
LPT1	25-Jun-03	0.400	0.050	0.120	0.004	1.1	1.7	1.2	0.580	0.420	2.9
LPT1	01-Jul-03	0.050	0.010	0.010	0.001	1.3	1.4	1.3	0.492	0.442	2.7
LPT2	19-Jul-01	0.470	0.001	0.112	0.003	1.2	1.8	1.3	0.359	0.313	5.0
LPT2	20-Jul-01	0.752	0.001	0.056	0.005	1.2	2.0	1.3	0.426	0.335	4.7
LPT2	30-Aug-01	m	m	m	m	m	m	m	m	m	m
LPT2	24-Sep-01	m	m	m	m	m	m	m	m	m	m
LPT2	30-Mar-02	1.622	0.018	0.450	0.001	2.3	4.4	2.8	0.597	0.460	7.4
LPT2	01-Apr-02	1.546	0.011	0.433	0.002	1.9	3.9	2.3	0.536	0.422	7.2

LPT2	24-Apr-02	0.070	0.002	0.316	0.008	2.2	2.6	2.5	0.331	0.199	7.8
LPT2	08-May-02	0.330	0.001	0.284	0.001	1.6	2.3	1.9	0.249	0.138	9.1
LPT2	22-May-02	0.128	0.002	0.295	0.015	2.0	2.4	2.3	0.383	0.225	6.4
LPT2	21-Jun-02	5.838	0.161	0.670	0.014	3.1	9.7	3.7	1.005	0.793	9.7
LPT2	16-Mar-03	0.700	0.000	0.460	0.000	3.2	4.4	3.7	1.334	1.172	3.3
LPT2	19-Mar-03	0.300	0.000	0.260	0.000	3.2	3.8	3.5	1.442	1.288	2.6
LPT2	25-Jun-03	1.100	0.120	0.010	0.000	0.7	1.9	0.7	0.921	0.745	2.1
LPT3	18-Jul-01	0.048	0.002	0.226	0.003	1.7	2.0	2.0	0.993	0.937	2.0
LPT3	20-Jul-01	0.102	0.000	0.102	0.002	1.6	1.8	1.7	0.749	0.731	2.4
LPT3	30-Aug-01	0.036	0.001	0.278	0.029	1.5	1.8	1.8	0.892	0.825	2.0
LPT3	24-Sep-01	0.062	0.001	0.482	0.037	1.5	2.1	2.0	0.467	0.374	4.4
LPT3	30-Mar-02	1.051	0.004	0.426	0.001	2.3	3.8	2.7	0.685	0.553	5.5
LPT3	01-Apr-02	1.242	0.004	0.228	0.001	1.5	3.0	1.7	0.557	0.468	5.3
LPT3	24-Apr-02	0.052	0.002	0.062	0.001	1.6	1.8	1.7	0.310	0.142	5.7
LPT3	08-May-02	0.996	0.002	0.168	0.001	1.2	2.4	1.4	0.314	0.203	7.7
LPT3	22-May-02	0.024	0.000	0.114	0.005	1.5	1.6	1.6	0.234	0.135	7.0
LPT3	21-Jun-02	0.045	0.001	0.060	0.006	1.8	1.9	1.9	0.434	0.371	4.4
LPT3	16-Mar-03	1.400	0.000	0.780	0.001	2.8	5.0	3.6	1.422	1.253	3.5
LPT3	19-Mar-03	2.100	0.000	0.150	0.000	2.4	4.6	2.5	1.203	1.072	3.8
LPT3	28-Apr-03	0.050	0.010	0.010	0.000	2.3	2.4	2.4	0.389	0.326	6.2
LPT3	03-Jun-03	0.050	0.010	0.010	0.000	2.2	2.2	2.2	0.472	0.398	4.7
LPT3	10-Jun-03	0.050	0.010	0.050	0.004	1.8	1.9	1.9	0.438	0.363	4.4
LPT3	25-Jun-03	0.500	0.030	0.080	0.010	2.0	2.6	2.1	0.436	0.316	6.0
LPT4	18-Jul-01	0.018	0.014	0.180	0.003	5.1	5.3	5.2	1.677	0.066	3.1
LPT4	20-Jul-01	2.376	0.003	0.086	0.003	1.4	3.8	1.4	0.537	0.434	7.1
LPT4	30-Aug-01	m	m	m	m	m	m	m	m	m	m
LPT4	24-Sep-01	m	m	m	m	m	m	m	m	m	m
LPT4	30-Mar-02	1.846	0.015	0.644	0.001	2.4	4.9	3.1	0.910	0.757	5.4
LPT4	01-Apr-02	2.334	0.008	0.535	0.002	1.9	4.8	2.4	0.928	0.739	5.1
LPT4	24-Apr-02	0.048	0.002	0.140	0.003	1.0	1.2	1.2	0.308	0.220	3.9
LPT4	08-May-02	0.442	0.002	0.168	0.002	1.3	1.9	1.5	0.542	0.304	3.5
LPT4	22-May-02	0.032	0.002	0.062	0.002	1.3	1.4	1.4	0.281	0.199	5.1
LPT4	21-Jun-02	0.888	0.010	0.292	0.015	1.7	2.9	2.0	0.307	0.118	9.4
LPT4	16-Mar-03	1.500	0.000	0.760	0.001	3.2	5.5	4.0	1.559	1.343	3.5
LPT4	19-Mar-03	3.000	0.000	0.240	0.000	2.6	5.8	2.8	1.355	1.288	4.3
LPT5	19-Jul-01	1.217	0.001	0.182	0.006	2.0	3.4	2.2	1.392	1.294	2.4
LPT5	20-Jul-01	1.814	0.004	0.228	0.003	1.8	3.8	2.0	1.163	1.089	3.3

LPT5	30-Aug-01	m	m	m	m	m	m	m	m	m	m
LPT5	24-Sep-01	m	m	m	m	m	m	m	m	m	m
LPT5	30-Mar-02	1.005	0.002	2.038	0.002	4.6	7.7	6.7	1.660	1.501	4.6
LPT5	01-Apr-02	1.517	0.003	1.254	0.012	2.3	5.1	3.6	1.330	1.224	3.8
LPT5	24-Apr-02	0.068	0.002	0.208	0.005	1.9	2.2	2.1	0.496	0.420	4.3
LPT5	08-May-02	3.266	0.002	1.074	0.007	3.9	8.3	5.0	0.989	0.915	8.4
LPT5	22-May-02	0.056	0.001	0.190	0.005	1.5	1.8	1.7	0.421	0.351	4.3
LPT5	21-Jun-02	m	m	m	m	m	m	m	m	m	m
LPT5	16-Mar-03	0.600	0.000	2.760	0.003	6.0	9.4	8.8	2.811	2.491	3.3
LPT5	25-Jun-03	7.900	0.290	0.070	0.001	2.8	11.1	2.9	1.630	1.450	6.8
LPT6	18-Jul-01	0.050	0.000	0.642	0.092	3.5	4.2	4.2	1.039	0.860	4.1
LPT6	20-Jul-01	2.471	0.004	0.190	0.008	1.2	3.9	1.4	0.471	0.346	8.2
LPT6	30-Aug-01	0.036	0.000	0.283	0.053	2.4	2.7	2.7	0.845	0.694	3.2
LPT6	24-Sep-01	0.038	0.000	2.140	0.332	3.0	5.1	5.1	0.963	0.709	5.3
LPT6	30-Mar-02	2.648	0.034	1.074	0.002	2.2	6.0	3.3	0.603	0.543	10.0
LPT6	01-Apr-02	2.988	0.024	0.527	0.003	1.9	5.5	2.4	0.548	0.437	10.0
LPT6	24-Apr-02	0.129	0.002	0.681	0.007	2.9	3.7	3.6	0.403	0.148	9.2
LPT6	09-May-02	0.560	0.008	0.420	0.003	1.1	2.1	1.5	0.142	0.079	14.6
LPT6	22-May-02	0.034	0.002	0.117	0.003	2.4	2.5	2.5	0.249	0.252	10.1
LPT6	21-Jun-02	0.128	0.004	1.898	0.038	2.5	4.5	4.4	1.324	0.894	3.4
LPT6	16-Mar-03	1.100	0.000	1.420	0.001	3.8	6.3	5.2	2.730	2.502	2.3
LPT6	19-Mar-03	0.700	0.000	1.020	0.001	3.2	4.9	4.2	1.442	1.274	3.4
LPT6	25-Jun-03	1.100	0.180	0.120	0.001	1.0	2.4	1.2	0.939	0.781	2.6
LTO	19-Jul-01	0.104	0.006	1.246	0.100	2.0	3.4	3.3	0.482	0.401	7.0
LTO	23-Jul-01	0.099	0.010	1.172	0.172	1.9	3.2	3.1	0.429	0.328	7.4
LTO	30-Aug-01	0.046	0.000	0.431	0.082	2.9	3.4	3.3	0.323	0.209	10.4
LTO	24-Sep-01	0.050	0.002	0.414	0.099	3.2	3.7	3.6	0.363	0.217	10.1
LTO	13-Mar-02	0.028	0.001	0.056	0.001	1.9	2.0	1.9	0.063	0.038	31.4
LTO	27-Mar-02	0.031	0.001	0.063	0.001	2.0	2.1	2.1	0.144	0.035	14.7
LTO	30-Mar-02	0.322	0.000	0.237	0.001	1.9	2.4	2.1	0.306	0.177	7.9
LTO	01-Apr-02	0.210	0.002	0.092	0.002	2.0	2.3	2.1	0.331	0.094	7.1
LTO	24-Apr-02	0.064	0.005	0.194	0.003	4.1	4.3	4.3	0.689	0.041	6.3
LTO	09-May-02	0.241	0.008	0.669	0.026	4.9	5.8	5.6	0.949	0.079	6.2
LTO	22-May-02	0.236	0.014	0.408	0.013	5.8	6.4	6.2	1.000	0.021	6.4
LTO	21-Jun-02	0.085	0.002	0.209	0.028	2.9	3.2	3.1	0.387	0.040	8.3
LTO	31-Jul-02	0.034	0.001	0.204	0.026	3.9	4.2	4.1	0.485	0.092	8.6
LTO	29-Aug-02	0.022	0.000	0.225	0.150	4.0	4.3	4.3	0.478	0.081	8.9

LTO	02-Oct-02	0.035	0.001	0.210	0.040	4.1	4.4	4.3	0.537	0.034	8.1
LTO	12-May-03	0.050	0.040	0.010	0.000	2.3	2.4	2.3	0.245	0.041	9.9
LTO	03-Jun-03	0.050	0.010	0.010	0.000	2.8	2.9	2.8	0.457	0.046	6.3
LTO	10-Jun-03	0.050	0.020	0.010	0.000	2.9	3.0	3.0	1.150	0.068	2.6
LTO	25-Jun-03	1.200	0.000	0.780	0.033	1.4	3.4	2.2	1.260	0.108	2.7
LWO	19-Jul-01	0.088	0.000	0.741	0.078	2.5	3.3	3.2	1.055	0.897	3.1
LWO	23-Jul-01	0.068	0.000	0.518	0.092	2.0	2.6	2.5	1.059	0.915	2.5
LWO	30-Aug-01	0.067	0.001	0.278	0.061	2.2	2.5	2.5	0.760	0.562	3.3
LWO	24-Sep-01	0.078	0.000	0.128	0.032	1.9	2.1	2.0	0.566	0.428	3.7
LWO	30-Mar-02	0.090	0.000	0.142	0.000	1.5	1.7	1.6	0.370	0.245	4.6
LWO	01-Apr-02	0.042	0.002	0.078	0.001	1.5	1.6	1.6	0.364	0.225	4.4
LWO	24-Apr-02	0.067	0.005	0.222	0.004	2.5	2.8	2.7	0.366	0.099	7.6
LWO	09-May-02	0.178	0.002	0.130	0.005	1.6	2.0	1.8	0.357	0.205	5.5
LWO	21-May-02	0.024	0.002	0.030	0.002	1.7	1.8	1.7	0.338	0.137	5.2
LWO	21-Jun-02	0.030	0.000	0.043	0.005	1.9	2.0	1.9	0.385	0.206	5.1
LWO	24-Jun-02	0.369	0.008	0.131	0.021	1.0	1.5	1.2	0.221	0.107	7.0
LWO	31-Jul-02	0.031	0.001	0.202	0.039	4.9	5.1	5.1	1.689	0.826	3.0
LWO	29-Aug-02	0.019	0.001	0.288	0.167	5.5	5.8	5.8	1.066	0.256	5.4
LWO	02-Oct-02	0.040	0.001	0.372	0.049	5.3	5.7	5.7	1.067	0.277	5.3
LWO	03-Jun-03	0.050	0.010	0.010	0.001	4.7	4.8	4.7	1.080	0.407	4.4
LWO	10-Jun-03	0.050	0.000	0.010	0.004	5.7	5.7	5.7	1.520	0.581	3.8
LWT1	18-Jul-01	0.061	0.000	0.268	0.027	1.5	1.8	1.7	0.827	0.790	2.2
LWT1	20-Jul-01	1.139	0.008	0.313	0.014	1.6	3.0	1.9	0.866	0.470	3.5
LWT1	30-Aug-01	0.038	0.001	0.132	0.042	2.3	2.4	2.4	0.868	0.636	2.8
LWT1	24-Sep-01	0.027	0.002	0.437	0.049	1.5	2.0	2.0	0.397	0.297	5.1
LWT1	30-Mar-02	2.048	0.020	1.232	0.003	2.1	5.4	3.4	0.744	0.492	7.3
LWT1	01-Apr-02	1.758	0.008	1.123	0.011	2.1	5.0	3.2	0.647	0.325	7.7
LWT1	24-Apr-02	0.062	0.002	0.200	0.005	1.7	2.0	1.9	0.325	0.184	6.2
LWT1	08-May-02	0.617	0.010	0.562	0.003	2.5	3.7	3.1	0.858	0.234	4.3
LWT1	21-May-02	0.023	0.003	0.142	0.004	1.7	1.9	1.9	0.327	0.112	5.8
LWT1	21-Jun-02	0.326	0.000	0.204	0.015	1.9	2.4	2.1	0.362	0.316	6.7
LWT1	31-Jul-02	0.024	0.001	0.142	0.002	1.8	1.9	1.9	1.354	1.158	1.4
LWT1	29-Aug-02	0.032	0.002	0.493	0.109	2.7	3.2	3.2	1.328	1.220	2.4
LWT1	02-Oct-02	0.076	0.002	1.320	0.053	2.6	4.0	3.9	0.668	0.470	6.0
LWT1	19-Mar-03	0.300	0.000	2.610	0.002	2.4	5.3	5.0	1.072	0.737	5.0
LWT1	28-Apr-03	0.050	0.010	0.010	0.000	2.1	2.2	2.1	0.239	0.174	9.0
LWT1	03-Jun-03	0.050	0.010	0.110	0.004	2.2	2.4	2.3	0.136	0.084	17.3

LWT1	10-Jun-03	0.050	0.010	0.220	0.002	2.5	2.7	2.7	0.258	0.151	10.6
LWT1	25-Jun-03	0.200	0.040	0.010	0.000	1.2	1.5	1.2	1.010	0.623	1.4
LWT1	01-Jul-03	0.050	0.010	0.040	0.002	1.6	1.7	1.6	1.550	1.430	1.1
LWT2	18-Jul-01	0.502	0.003	0.238	0.014	1.8	2.5	2.0	0.949	0.649	2.7
LWT2	20-Jul-01	0.704	0.008	0.221	0.004	1.5	2.5	1.8	0.845	0.462	2.9
LWT2	30-Aug-01	m	m	m	m	m	m	m	m	m	m
LWT2	24-Sep-01	m	m	m	m	m	m	m	m	m	m
LWT2	30-Mar-02	1.887	0.022	0.442	0.001	2.0	4.4	2.5	0.805	0.486	5.4
LWT2	01-Apr-02	2.249	0.020	0.516	0.004	2.4	5.2	2.9	1.168	0.617	4.4
LWT2	24-Apr-02	0.242	0.002	0.244	0.005	1.4	1.9	1.7	0.266	0.155	7.2
LWT2	08-May-02	0.909	0.019	0.832	0.004	4.3	6.1	5.1	1.956	0.293	3.1
LWT2	21-May-02	0.242	0.005	0.123	0.004	1.6	2.0	1.7	0.314	0.101	6.3
LWT2	21-Jun-02	0.687	0.012	0.376	0.012	2.6	3.7	3.0	0.979	0.232	3.8
LWT2	24-Jun-02	0.030	0.001	0.114	0.008	2.0	2.1	2.1	0.415	0.212	5.1
LWT2	16-Mar-03	0.700	0.000	0.630	0.001	2.7	4.0	3.3	1.189	0.956	3.4
LWT2	19-Mar-03	0.900	0.000	0.940	0.001	2.8	4.6	3.7	1.270	1.022	3.6
LWT2	28-Apr-03	0.050	0.010	0.010	0.000	1.1	1.2	1.1	0.360	0.320	3.3
LWT2	12-May-03	0.050	0.010	0.010	0.000	1.3	1.4	1.3	0.342	0.311	4.0
LWT2	03-Jun-03	0.050	0.010	0.010	0.000	1.3	1.4	1.3	0.488	0.439	2.9
LWT2	10-Jun-03	0.050	0.010	0.010	0.000	1.0	1.1	1.1	0.436	0.402	2.5
LWT2	19-Jun-03	0.300	0.030	0.010	0.000	1.2	1.5	1.2	0.408	0.332	3.7
LWT2	25-Jun-03	0.200	0.070	0.090	0.001	0.9	1.3	1.0	1.240	0.672	1.0
LWT2	01-Jul-03	0.400	0.030	0.030	0.002	1.0	1.4	1.0	0.585	0.468	2.4
LWT3	18-Jul-01	0.076	0.000	0.474	0.008	1.9	2.5	2.4	0.838	0.783	3.0
LWT3	20-Jul-01	0.460	0.001	0.254	0.005	1.1	1.9	1.4	0.477	0.488	3.9
LWT3	30-Aug-01	0.048	0.003	0.218	0.044	2.7	3.0	2.9	0.128	0.533	23.3
LWT3	24-Sep-01	0.041	0.002	4.006	0.182	1.7	5.7	5.7	1.120	0.696	5.1
LWT3	30-Mar-02	2.170	0.017	0.352	0.001	1.9	4.4	2.2	0.599	0.469	7.4
LWT3	01-Apr-02	2.124	0.010	0.231	0.001	2.0	4.4	2.3	0.542	0.343	8.1
LWT3	24-Apr-02	0.055	0.010	0.156	0.004	2.0	2.2	2.2	0.656	0.077	3.4
LWT3	09-May-02	1.926	0.022	0.432	0.005	1.4	3.8	1.9	0.489	0.252	7.8
LWT3	21-May-02	0.038	0.002	0.092	0.002	1.8	1.9	1.9	0.135	0.130	14.1
LWT3	21-Jun-02	0.666	0.002	0.197	0.018	1.6	2.4	1.8	0.239	0.195	10.2
LWT3	31-Jul-02	0.028	0.002	0.169	0.023	3.6	3.8	3.8	0.669	0.309	5.7
LWT3	29-Aug-02	0.034	0.003	1.237	0.307	2.7	4.0	3.9	0.702	0.364	5.7
LWT3	16-Mar-03	1.400	0.000	1.130	0.001	2.7	5.2	3.8	1.373	1.245	3.8
LWT3	19-Mar-03	1.400	0.000	1.080	0.001	2.4	4.9	3.5	0.851	0.634	5.8

LWT3	28-Apr-03	0.050	0.010	0.010	0.000	1.9	1.9	1.9	0.270	0.052	7.1
LWT3	12-May-03	0.050	0.010	0.010	0.000	1.6	1.7	1.6	0.399	0.182	4.2
LWT3	03-Jun-03	0.050	0.010	0.040	0.000	2.0	2.1	2.0	0.290	0.048	7.2
LWT3	10-Jun-03	0.050	0.010	0.080	0.001	1.1	1.3	1.2	0.250	0.148	5.0
LWT3	25-Jun-03	0.900	0.070	0.090	0.002	1.6	2.7	1.7	0.600	0.308	4.5
LWT3	01-Jul-03	0.050	0.010	0.370	0.015	1.7	2.1	2.0	0.431	0.162	4.8
LWT4	18-Jul-01	4.819	0.003	0.384	0.002	1.8	7.0	2.2	0.515	0.464	13.6
LWT4	20-Jul-01	2.368	0.005	0.198	0.008	1.6	4.1	1.8	0.559	0.288	7.4
LWT4	30-Aug-01	m	m	m	m	m	m	m	m	m	m
LWT4	24-Sep-01	m	m	m	m	m	m	m	m	m	m
LWT4	30-Mar-02	2.154	0.030	0.288	0.001	1.7	4.1	2.0	0.616	0.501	6.7
LWT4	01-Apr-02	1.834	0.009	0.146	0.001	1.3	3.3	1.5	0.358	0.324	9.2
LWT4	24-Apr-02	4.736	0.004	0.032	0.001	1.4	6.1	1.4	0.124	0.125	49.5
LWT4	08-May-02	2.124	0.008	0.328	0.002	2.6	5.1	3.0	0.981	0.492	5.2
LWT4	21-May-02	3.758	0.006	0.088	0.001	1.5	5.3	1.6	0.055	0.019	97.1
LWT4	21-Jun-02	1.002	0.026	0.413	0.011	3.1	4.5	3.5	0.722	0.471	6.3
LWT4	25-Jun-03	4.700	0.170	0.010	0.000	1.8	6.7	1.8	0.681	0.614	9.8

APPENDIX V – Stream Bank Characteristics

Year	Month	Julian	Stream	Reach	Ta	LandL	LandR	Slope	PctCov	AvgDen	AvgCan	PctUnc	PctEro
2001	8	221	LAT	1	18.8	pastr	pastr	11	98	3	0	12.5	47.5
2002	4	103	LAT	1	23.6	pastr	pastr	13	95	2	0	6.5	65.5
2002	6	163	LAT	1	14.4	pastr	pastr	11	100	3	0	6.5	49.5
2002	8	223	LAT	1	m	pastr	pastr	12	93	4	0	7.5	45
2003	4	99	LAT	1	18.8	pastr	pastr	14	5	1.3	0	15	55
2003	6	159	LAT	1	25.7	pastr	pastr	12	100	3.1	0	8	43
2001	8	225	LBT	1	19.6	hay	devlop	9	100	18	0	0	27.5
2002	4	104	LBT	1	30	hay	devlop	8	100	18	0	0	36
2002	6	164	LBT	1	28.7	hay	devlop	8	100	19	0	0	35
2002	8	224	LBT	1	31.7	hay	devlop	8	100	20	0	0	35
2003	4	99	LBT	1	22.4	hay	devlop	8	100	16	0	0	33
2003	6	159	LBT	1	26	hay	devlop	8.7	100	20	0	0	23
2001	8	221	LCT	1	19.6	hay	hay	2	100	11	0	0	0
2002	4	103	LCT	1	21.2	hay	hay	5	100	2.0	0	0	0
2002	6	163	LCT	1	m	hay	hay	5	100	4	0	0	0
2002	8	223	LCT	1	m	hay	hay	5	100	4	0	0	0
2003	4	99	LCT	1	m	hay	hay	6.2	100	2.9	0	0	0
2003	6	159	LCT	1	m	hay	hay	5.8	100	7.2	0	0	0
2001	8	220	LHO	1	21.1	grass	grass	4.8	100	14	0	0	0
2002	4	106	LHO	1	13.3	grass	grass	5.0	100	7	0	0	0
2002	6	177	LHO	1	25.8	grass	grass	5.3	100	15	0	0	0
2002	8	213	LHO	1	27.1	grass	grass	5.0	100	3	0	0	0
2003	4	457	LHO	1	17.8	grass	grass	5	100	3	0	0	0
2003	6	518	LHO	1	27	grass	grass	5.4	100	7.2	0	0	0
2001	8	220	LPO	1	22.9	rcrop	pastr	30.5	100	6	0	0	0
2002	4	106	LPO	1	20.5	rcrop	pastr	13.4	70	3	0	0	0
2002	6	168	LPO	1	25.8	rcrop	pastr	12.6	65	5	0	0	0
2002	8	213	LPO	1	27	rcrop	pastr	12.3	75	7	0	0	0
2003	4	457	LPO	1	14.6	rcrop	pastr	14	70	1.8	0	0	0
2003	6	518	LPO	1	m	rcrop	pastr	12.7	70	2.9	0	0	0
2001	8	217	LPT1	1	29	pastr	pastr	19.5	93	6	5	5	5
2001	8	217	LPT1	2	25.4	grass	grass	6.3	100	10	0	0	0
2001	8	217	LPT1	3	32.2	grass	grass	17.4	100	11	0	5	0.5
2002	4	107	LPT1	1	21.6	pastr	pastr	15	91	2	0	8	15

2002	4	105	LPT1	2	28.7	grass	grass	5.9	100	5	0	0	0
2002	4	105	LPT1	3	28.3	grass	grass	21.6	100	1	0	0	0
2002	6	174	LPT1	1	28.1	pastr	pastr	13.5	96	4	5	8	20
2002	6	174	LPT1	2	m	grass	grass	6.4	100	18	10	0	0
2002	6	174	LPT1	3	m	grass	grass	17.0	58	1	0	3	85
2002	8	213	LPT1	1	m	pastr	pastr	12.9	95	9	0	10	23
2002	8	213	LPT1	2	m	grass	grass	4.6	100	19	20	0	0
2002	8	213	LPT1	3	m	grass	grass	15.0	89	4	0	3	10
2003	4	457	LPT1	1	m	pastr	pastr	14.8	92.8	1.7	0.0	7.5	10
2003	4	457	LPT1	2	m	grass	grass	4.8	100.0	1.6	0.0	0	0
2003	4	457	LPT1	3	m	grass	grass	19.2	100.0	1.2	0.0	0	0
2003	6	518	LPT1	1	26.5	pastr	pastr	13.3	97.3	1.5	2.5	7.5	15
2003	6	518	LPT1	2	29	grass	grass	6.4	100.0	9.9	0.0	0	0
2003	6	518	LPT1	3	28	grass	grass	21.8	100.0	5.1	0.0	0	0
2001	8	218	LPT2	1	35.4	rcrop	rcrop	10.8	100	4	0	0	30
2001	8	219	LPT2	2	24.3	rcrop	rcrop	4.2	51	3	0	0	0
2002	4	97	LPT2	1	35.4	rcrop	rcrop	12.6	89	2	0	0	35
2002	4	105	LPT2	2	m	rcrop	rcrop	4.8	17	1	0	0	100
2002	6	162	LPT2	1	m	rcrop	rcrop	10.2	99.5	3	0	0	20
2002	6	m	LPT2	2	m	m	m	m	m	m	m	m	m
2002	8	213	LPT2	1	m	rcrop	rcrop	8.9	88	3	0	0	43
2002	8	m	LPT2	2	m	m	m	m	m	m	m	m	m
2003	4	457	LPT2	1	m	rcrop	rcrop	12.8	89.3	1.9	0.0	0	30
2003	4	457	LPT2	2	m	m	m	m	m	m	m	m	m
2003	6	518	LPT2	1	m	rcrop	rcrop	10.1	100.0	5.4	0.0	0	20
2003	6	518	LPT2	2	m	m	m	m	m	m	m	m	m
2001	8	220	LPT3	1	24.9	grass	grass	10.7	100	20	0	0	0
2001	8	219	LPT3	2	26.4	pastr	pastr	13.4	98	3	0	22	50
2001	8	219	LPT3	3	26.1	pastr	pastr	15.9	95	2	0	43	85
2002	4	106	LPT3	1	18.8	grass	grass	9.5	97	5	0	0	0
2002	4	102	LPT3	2	21.7	pastr	pastr	15.4	99	2	0	38	56
2002	4	107	LPT3	3	20.1	pastr	pastr	17.9	85	1	0	0	75
2002	6	174	LPT3	1	32.2	grass	grass	10.1	100	13	0	0	0
2002	6	162	LPT3	2	m	pastr	pastr	16.1	100	3	0	38	56
2002	6	162	LPT3	3	m	pastr	pastr	16.4	94	1	0	0	75
2002	8	213	LPT3	1	m	grass	grass	11.8	100	19	0	0	0
2002	8	213	LPT3	2	m	pastr	pastr	13.5	99	8	0	38	68

2002	8	213	LPT3	3	m	pastr	pastr	13.8	74	1	0	0	80
2003	4	457	LPT3	1	26.9	grass	grass	8.3	95.8	3.9	0.0	0	0
2003	4	457	LPT3	2	m	pastr	pastr	15.0	99.5	1.4	0.0	45	50
2003	4	457	LPT3	3	m	pastr	pastr	16.4	85.7	1.0	0.0	0	80
2003	6	518	LPT3	1	26.6	grass	grass	21.8	100.0	5.1	0.0	0	0
2003	6	518	LPT3	2	m	pastr	pastr	13.9	94.3	3.1	0.0	40	55
2003	6	518	LPT3	3	m	pastr	pastr	16.5	88.8	1.3	0.0	0	75
2001	8	218	LPT4	1	30.3	hay	rcrop	0.6	100	4	0	0	0
2001	8	218	LPT4	2	25.2	pastr	pastr	22.4	84	7	0	25	75
2002	4	98	LPT4	1	14.9	hay	rcrop	1	100	1	0	0	0
2002	4	98	LPT4	2	15.2	pastr	pastr	21.5	89	1	0	30	70
2002	6	162	LPT4	1	m	hay	rcrop	1	100	4	0	0	0
2002	6	162	LPT4	2	m	pastr	pastr	18.5	97	3	0	30	70
2002	8	213	LPT4	1	m	hay	rcrop	1	100	2	0	0	0
2002	8	213	LPT4	2	m	pastr	pastr	17.9	88	4	0	30	70
2003	4	457	LPT4	1	m	hay	rcrop	1.0	100.0	1.0	0.0	0	0
2003	4	457	LPT4	2	m	pastr	pastr	18.3	81.8	1.4	0.0	27.5	80
2003	6	518	LPT4	1	m	hay	rcrop	1.0	100.0	3.7	0.0	0	0
2003	6	518	LPT4	2	m	pastr	pastr	19.2	87.8	2.6	0.0	25	67.5
2001	8	217	LPT5	1	41.7	rcrop	hay	10.0	100	21	0	0	0
2001	8	217	LPT5	2	39.2	pastr	pastr	4.2	100	6	0	0	0
2001	8	217	LPT5	3	36.9	rcrop	rcrop	5.2	100	21	0	0	0
2002	4	97	LPT5	1	13.8	rcrop	rcrop	11.9	100	2	0	0	0
2002	4	98	LPT5	2	5.2	pastr	pastr	4.9	100	2	0	0	0
2002	4	98	LPT5	3	11.8	rcrop	rcrop	5.1	100	2	0	0	0
2002	6	161	LPT5	1	m	rcrop	rcrop	9.2	100	7	0	0	0
2002	6	161	LPT5	2	m	pastr	pastr	1.9	98	3	0	0	0
2002	6	161	LPT5	3	m	rcrop	rcrop	5.0	100	9	0	0	0
2002	8	213	LPT5	1	m	rcrop	rcrop	8.5	100	21	0	0	0
2002	8	213	LPT5	2	m	pastr	pastr	3.4	100	7	0	0	0
2002	8	213	LPT5	3	m	rcrop	rcrop	5.2	100	19	0	0	0
2003	4	457	LPT5	1	m	rcrop	rcrop	9.7	98.8	1.4	0.0	0	20
2003	4	457	LPT5	2	m	pastr	pastr	5.0	100.0	1.8	0.0	0	0
2003	4	457	LPT5	3	m	rcrop	rcrop	5.2	100.0	1.8	0.0	0	0
2003	6	518	LPT5	1	m	rcrop	rcrop	10.7	100.0	6.8	0.0	0	12.5
2003	6	518	LPT5	2	m	pastr	pastr	4.6	100.0	5.6	0.0	0	0
2003	6	518	LPT5	3	m	rcrop	rcrop	5.1	100.0	2.4	0.0	0	0

2001	8	217	LPT6	1	31.7	rcrop	rcrop	9.1	83	15	0	0	0
2002	4	97	LPT6	1	31.7	rcrop	rcrop	7.2	61	2	0	0	30
2002	6	161	LPT6	1	m	rcrop	rcrop	6.3	79	2	0	0	30
2002	8	213	LPT6	1	m	rcrop	rcrop	3.9	100	19	0	0	18
2003	4	457	LPT6	1	m	rcrop	rcrop	6.7	63.1	1.3	0.0	0	45
2003	6	518	LPT6	1	m	rcrop	rcrop	6.3	61.5	1.4	0.0	0	30
2001	8	220	LTO	1	21.2	grass	grass	4	100	13	0	0	0
2002	4	106	LTO	1	23.3	grass	grass	4.0	100	4	0	0	0
2002	6	177	LTO	1	25.8	grass	grass	4.9	100	12	0	0	0
2002	8	213	LTO	1	23.6	grass	grass	4.4	100	13	0	0	0
2003	4	457	LTO	1	m	grass	grass	4	100	3	0	0	0
2003	6	518	LTO	1	m	grass	grass	3.9	100	9.1	0	0	0
2001	8	220	LWO	1	24.3	rcrop	residential	10	99	8	0	0	0
2002	4	106	LWO	1	21.1	rcrop	residential	13.7	98	4	0	0	32
2002	6	177	LWO	1	26.3	rcrop	residential	16.6	98	8	0	0	30
2002	8	213	LWO	1	26.4	rcrop	residential	9.4	99.5	4	0	0	20
2003	4	457	LWO	1	m	rcrop	residential	11	99	3	0	0	30
2003	6	518	LWO	1	m	rcrop	residential	14.3	99	7	0	0	20
2001	7	205	LWT1	1	22.9	rcrop	pastr	9.0	83	2	0	0	15
2001	7	205	LWT1	2	28.2	rcrop	rcrop	11.7	100	8	0	0	0
2002	4	94	LWT1	1	3.3	rcrop	pastr	10	93	1	0	0	35
2002	4	94	LWT1	2	6.1	rcrop	rcrop	10.6	83	1	0	0	0
2002	6	168	LWT1	1	m	rcrop	pastr	9.6	74	3	0	0	35
2002	6	168	LWT1	2	m	rcrop	rcrop	12.5	100	11	0	0	0
2002	8	213	LWT1	1	m	rcrop	pastr	11.6	74	1	0	0	43
2002	8	213	LWT1	2	m	rcrop	rcrop	11.5	89	1	0	0	0
2003	4	457	LWT1	1	m	rcrop	pastr	11.3	68.8	1.0	0.0	0	50
2003	4	457	LWT1	2	m	rcrop	rcrop	10.0	86.0	2.0	0.0	0	0
2003	6	518	LWT1	1	m	rcrop	pastr	9.4	89.5	1.5	0.0	0	35
2003	6	518	LWT1	2	m	rcrop	rcrop	12.5	100.0	10.7	0.0	0	0
2001	8	214	LWT2	1	36.7	rcrop	rcrop	51.5	84	15	0	45	70
2001	8	214	LWT2	2	32.1	rcrop	rcrop	55.2	58	18	70	18	35
2001	8	214	LWT2	3	36.7	hay	pastr	59.4	89	19	100	0	33
2002	4	107	LWT2	1	19.5	rcrop	rcrop	39.6	88	7	0	50	78
2002	4	107	LWT2	2	19	rcrop	rcrop	49.9	56	14	24	0	100
2002	4	107	LWT2	3	8.8	rcrop	pastr	61.7	79	16	28	0	40
2002	6	167	LWT2	1	25.2	rcrop	rcrop	55.6	81	10	0	50	78

2002	6	167	LWT2	2	27.5	rcrop	rcrop	51.2	82	13	64	0	100
2002	6	167	LWT2	3	25	rcrop	pastr	59.9	94	15	78	0	40
2002	8	213	LWT2	1	m	rcrop	rcrop	39.2	85	19	0	50	78
2002	8	213	LWT2	2	m	rcrop	rcrop	45.3	61	20	77	0	100
2002	8	213	LWT2	3	31.8	rcrop	pastr	57.1	90	18	59	0	40
2003	4	457	LWT2	1	2.4	rcrop	rcrop	49.3	75.8	9.4	0.0	50	70
2003	4	457	LWT2	2	2.5	rcrop	rcrop	49.1	60.5	11.6	23.3	0	100
2003	4	457	LWT2	3	2.5	rcrop	pastr	60.2	75.3	8.1	20.0	0	30
2003	6	518	LWT2	1	27	rcrop	rcrop	47.9	86.8	10.4	0.0	40	70
2003	6	518	LWT2	2	32	rcrop	rcrop	48.7	79.0	14.9	63.3	0	100
2003	6	518	LWT2	3	32	rcrop	pastr	60.0	92.0	17.7	64.5	0	40
2001	8	219	LWT3	1	29.1	hay	rcrop	5.4	100	16	0	0	0
2002	4	98	LWT3	1	6.1	hay	rcrop	4.1	96	3	0	0	0
2002	6	168	LWT3	1	m	hay	rcrop	6.8	99	6	0	0	0
2002	8	213	LWT3	1	m	hay	rcrop	3.7	99	9	0	0	0
2003	4	457	LWT3	1	m	hay	rcrop	3.7	98.3	1.5	0.0	0	0
2003	6	518	LWT3	1	25	hay	rcrop	3.6	98.0	5.3	0.0	0	0
2001	7	206	LWT4	1	21.8	pastr	pastr	9.5	100	5	0	0	0
2002	4	94	LWT4	1	6.3	pastr	pastr	8.6	100	2	0	0	0
2002	6	168	LWT4	1	m	pastr	pastr	6.9	100	2	0	0	0
2002	8	213	LWT4	1	m	pastr	pastr	9.9	99	5	0	0	0
2003	4	457	LWT4	1	m	pastr	pastr	8.3	100.0	2.5	0.0	0	0
2003	6	518	LWT4	1	m	pastr	pastr	8.5	100.0	2.3	0.0	0	0

APPENDIX VI – Stream Substrate Characteristics

Year	Month	Julian	Stream	Reach	Embed	PctDe	PctSc	PctSa	PctFg	PctGr	PctCo	PctBo	PctWo	PctSMV	PctEMV	Unstbl
2001	8	221	LAT	1	77	0	70	18	12	0	0	0	0	0	0	88
2002	4	103	LAT	1	68	26	28	29	9	5	0	0	3	0	0	83
2002	6	163	LAT	1	64	10	70	8	1	3	0	0	2	0	16	78
2002	8	223	LAT	1	80	0	60	15	4	4	0	3	3	11	0	75
2003	4	99	LAT	1	71	15	53	11	7	2	7	0	5	0	0	79
2003	6	159	LAT	1	41	26	27	8	0	0	5	0	1	9	24	61
2001	8	225	LBT	1	100	0	100	0	0	0	0	0	0	0	0	100
2002	4	104	LBT	1	100	0	100	0	0	0	0	0	0	0	0	100
2002	6	164	LBT	1	100	0	100	0	0	0	0	0	0	0	0	100
2002	8	224	LBT	1	100	0	100	0	0	0	0	0	0	0	0	100
2003	4	99	LBT	1	100	0	100	0	0	0	0	0	0	0	0	100
2003	6	159	LBT	1	100	0	100	0	0	0	0	0	0	0	0	100
2001	8	221	LCT	1	0	0	0	0	0	0	0	0	0	0	100	0
2002	4	103	LCT	1	0	100	0	0	0	0	0	0	0	0	0	0
2002	6	163	LCT	1	0	7	0	0	0	0	0	0	0	0	93	7
2002	8	223	LCT	1	0	0	0	0	0	0	0	0	0	0	100	0
2003	4	99	LCT	1	0	100	0	0	0	0	0	0	0	0	0	0
2003	6	159	LCT	1	0	0	0	0	0	0	0	0	0	0	100	0
2001	8	220	LHO	1	42	0	0	80	20	0	0	0	0	0	0	80
2002	4	106	LHO	1	78	0	50	20	20	10	0	0	0	0	0	70
2002	6	177	LHO	1	91	0	45	25	25	5	0	0	0	0	0	70
2002	8	213	LHO	1	67	0	55	15	15	5	0	0	0	10	0	70
2003	4	457	LHO	1	87	5	75	5	10	0	0	0	5	0	0	85
2003	6	518	LHO	1	72	0	65	0	10	0	0	0	10	15	0	65
2001	8	220	LPO	1	100	0	100	0	0	0	0	0	0	0	0	100
2002	4	106	LPO	1	50	0	50	0	0	0	0	0	0	0	50	50
2002	6	168	LPO	1	70	0	70	0	0	0	0	0	0	0	30	70
2002	8	213	LPO	1	100	0	100	0	0	0	0	0	0	0	0	100
2003	4	457	LPO	1	100	0	100	0	0	0	0	0	0	0	0	100
2003	6	518	LPO	1	100	0	100	0	0	0	0	0	0	0	0	100
2001	8	217	LPT1	1	91	0	91	0	0	0	0	0	1	0	8	91
2001	8	217	LPT1	2	1	29	0	0	0	0	0	0	0	59	12	29
2001	8	217	LPT1	3	68	4	66	2	0	0	0	0	0	8	20	72
2002	4	107	LPT1	1	66	30	66	0	0	0	0	0	3	0	1	96

2002	4	105	LPT1	2	22	99	0	0	0	0	0	0	0	0	1	99
2002	4	105	LPT1	3	75	29	63	8	0	0	0	0	0	0	0	100
2002	6	174	LPT1	1	80	2	74	0	0	0	0	0	6	0	18	76
2002	6	174	LPT1	2	0	27	0	0	0	0	0	0	0	58	15	27
2002	6	174	LPT1	3	82	0	82	0	0	0	0	0	0	0	18	82
2002	8	213	LPT1	1	74	1	74	0	0	0	0	0	3	0	22	75
2002	8	213	LPT1	2	0	6	0	0	0	0	0	0	0	12	82	6
2002	8	213	LPT1	3	40	0	40	0	0	0	0	0	0	0	60	40
2003	4	457	LPT1	1	79.5	20	79	0	0	0	0	0	1	0	0	99
2003	4	457	LPT1	2	0	100	0	0	0	0	0	0	0	0	0	100
2003	4	457	LPT1	3	25	75	20	5	0	0	0	0	0	0	0	100
2003	6	518	LPT1	1	25.65	0	25	0	0	0	0	0	3	0	72	25
2003	6	518	LPT1	2	0	12	0	0	0	0	0	0	0	0	88	12
2003	6	518	LPT1	3	9	6	9	0	0	0	0	0	0	0	85	15
2001	8	218	LPT2	1	98	0	98	0	0	0	0	0	2	0	0	98
2001	8	219	LPT2	2	67	0	67	0	0	0	0	0	0	0	33	67
2002	4	97	LPT2	1	96	0	100	0	0	0	0	0	0	0	0	100
2002	4	105	LPT2	2	74	50	50	0	0	0	0	0	0	0	0	100
2002	6	162	LPT2	1	100	0	100	0	0	0	0	0	0	0	0	100
2002	6	m	LPT2	2	m	m	m	m	m	m	m	m	m	m	m	m
2002	8	213	LPT2	1	84	0	84	0	0	0	0	0	3	12	1	84
2002	8	m	LPT2	2	m	m	m	m	m	m	m	m	m	m	m	m
2003	4	457	LPT2	1	100	0	100	0	0	0	0	0	0	0	0	100
2003	4	457	LPT2	2	m	m	m	m	m	m	m	m	m	m	m	m
2003	6	518	LPT2	1	45	0	45	0	0	0	0	0	0	0	55	45
2003	6	518	LPT2	2	m	m	m	m	m	m	m	m	m	m	m	m
2001	8	220	LPT3	1	68	0	100	0	0	0	0	0	0	0	0	100
2001	8	219	LPT3	2	100	0	100	0	0	0	0	0	0	0	0	100
2001	8	219	LPT3	3	100	0	90	10	0	0	0	0	0	0	0	100
2002	4	106	LPT3	1	100	0	100	0	0	0	0	0	0	0	0	100
2002	4	102	LPT3	2	92	5	87	1	7	0	0	0	0	0	0	93
2002	4	107	LPT3	3	100	0	50	47	3	0	0	0	0	0	0	97
2002	6	174	LPT3	1	0	0	0	0	0	0	0	0	4	79	17	0
2002	6	162	LPT3	2	100	0	100	0	0	0	0	0	0	0	0	100
2002	6	162	LPT3	3	89	0	58	42	0	0	0	0	0	0	0	100
2002	8	213	LPT3	1	79	0	79	0	0	0	0	0	0	1	20	79
2002	8	213	LPT3	2	98	0	97	0	3	0	0	0	0	0	0	97

2002	8	213	LPT3	3	98	0	94	2	4	0	0	0	0	0	0	96
2003	4	457	LPT3	1	100	0	100	0	0	0	0	0	0	0	0	100
2003	4	457	LPT3	2	99	0	96	2	2	0	0	0	0	0	0	98
2003	4	457	LPT3	3	100	0	50	50	0	0	0	0	0	0	0	100
2003	6	518	LPT3	1	29	0	29	0	0	0	0	0	0	0	71	29
2003	6	518	LPT3	2	100	0	100	0	0	0	0	0	0	0	0	100
2003	6	518	LPT3	3	95.2	0	75	25	0	0	0	0	0	0	0	100
2001	8	218	LPT4	1	11	76	11	0	0	0	0	0	0	0	13	87
2001	8	218	LPT4	2	99	0	96	0	3	1	0	0	0	0	0	96
2002	4	98	LPT4	1	0	0	0	0	0	0	0	0	0	0	100	0
2002	4	98	LPT4	2	98	4	81	8	7	0	0	0	0	0	0	93
2002	6	162	LPT4	1	0	0	0	0	0	0	0	0	0	0	100	0
2002	6	162	LPT4	2	99	0	97	0	3	0	0	0	0	0	0	97
2002	8	213	LPT4	1	0	0	0	0	0	0	0	0	0	0	100	0
2002	8	213	LPT4	2	91	2	82	1	11	0	0	3	0	0	1	85
2003	4	457	LPT4	1	0	100	0	0	0	0	0	0	0	0	0	100
2003	4	457	LPT4	2	91.2	2	76	7	11	0	0	4	0	0	0	85
2003	6	518	LPT4	1	0	100	0	0	0	0	0	0	0	0	0	100
2003	6	518	LPT4	2	94.9	2	94	0	1	0	1	0	0	0	2	96
2001	8	217	LPT5	1	60	6	61	0	0	0	0	0	0	0	33	67
2001	8	217	LPT5	2	0	0	0	0	0	0	0	0	0	0	100	0
2001	8	217	LPT5	3	0	100	0	0	0	0	0	0	0	0	0	100
2002	4	97	LPT5	1	50	54	44	0	2	0	0	0	0	0	0	98
2002	4	98	LPT5	2	25	53	22	0	0	0	0	0	0	0	25	75
2002	4	98	LPT5	3	8	58	0	0	0	0	0	0	0	0	42	58
2002	6	161	LPT5	1	60	26	59	0	1	0	0	0	0	0	14	85
2002	6	161	LPT5	2	62	28	62	0	0	0	0	0	0	0	10	90
2002	6	161	LPT5	3	0	32	0	0	0	0	0	0	0	0	68	32
2002	8	213	LPT5	1	0	0	0	0	0	0	0	0	0	0	100	0
2002	8	213	LPT5	2	17	22	17	0	0	0	0	0	0	0	61	39
2002	8	213	LPT5	3	0	0	0	0	0	0	0	0	0	0	100	0
2003	4	457	LPT5	1	9.5	90	9	0	1	0	0	0	0	0	0	99
2003	4	457	LPT5	2	0	100	0	0	0	0	0	0	0	0	0	100
2003	4	457	LPT5	3	0	100	0	0	0	0	0	0	0	0	0	100
2003	6	518	LPT5	1	0	64	0	0	0	0	0	0	0	0	36	64
2003	6	518	LPT5	2	42	58	42	0	0	0	0	0	0	0	0	100
2003	6	518	LPT5	3	0	46	0	0	0	0	0	0	0	0	54	46

2001	8	217	LPT6	1	82	0	82	0	0	0	0	0	0	0	18	82
2002	4	97	LPT6	1	44	0	42	0	0	0	0	0	0	0	58	42
2002	6	161	LPT6	1	33	59	33	0	0	0	0	0	0	0	8	92
2002	8	213	LPT6	1	3	7	3	0	0	0	0	0	0	0	90	10
2003	4	457	LPT6	1	28	0	38	0	0	0	0	0	0	0	62	38
2003	6	518	LPT6	1	15	10	15	0	0	0	0	0	0	0	75	25
2001	8	220	LTO	1	100	0	100	0	0	0	0	0	0	0	0	100
2002	4	106	LTO	1	75	0	75	0	0	0	0	0	0	0	25	75
2002	6	177	LTO	1	35	0	35	0	0	0	0	0	0	0	65	35
2002	8	213	LTO	1	100	0	100	0	0	0	0	0	0	0	0	100
2003	4	457	LTO	1	95	0	100	0	0	0	0	0	0	0	0	100
2003	6	518	LTO	1	100	0	100	0	0	0	0	0	0	0	0	100
2001	8	220	LWO	1	100	0	100	0	0	0	0	0	0	0	0	100
2002	4	106	LWO	1	88	0	85	0	0	0	0	0	15	0	0	85
2002	6	177	LWO	1	90	35	55	0	0	0	0	0	0	10	0	90
2002	8	213	LWO	1	60	0	60	0	0	0	0	0	30	10	0	60
2003	4	457	LWO	1	96	0	95	0	0	0	0	0	5	0	0	95
2003	6	518	LWO	1	75	30	45	0	0	0	0	0	10	0	15	75
2001	7	205	LWT1	1	71	2	69	0	0	0	2	0	1	0	26	71
2001	7	205	LWT1	2	30	22	7	0	0	1	0	0	0	0	70	29
2002	4	94	LWT1	1	70	33	57	0	0	0	0	0	0	3	7	90
2002	4	94	LWT1	2	40	100	0	0	0	0	0	0	0	0	0	100
2002	6	168	LWT1	1	89	0	89	0	0	0	0	0	0	0	11	89
2002	6	168	LWT1	2	37	41	9	0	0	0	0	0	0	0	50	50
2002	8	213	LWT1	1	96	1	98	0	0	0	1	0	0	0	0	99
2002	8	213	LWT1	2	43	95	0	0	0	0	0	0	0	4	1	95
2003	4	457	LWT1	1	93.5	6	93	0	0	0	1	0	0	0	0	99
2003	4	457	LWT1	2	0	100	0	0	0	0	0	0	0	0	0	100
2003	6	518	LWT1	1	100	0	100	0	0	0	0	0	0	0	0	100
2003	6	518	LWT1	2	43.59	39	0	0	0	0	0	0	0	0	61	39
2001	8	214	LWT2	1	83	4	71	13	11	0	1	0	0	0	0	88
2001	8	214	LWT2	2	76	1	54	30	10	5	0	0	0	0	0	85
2001	8	214	LWT2	3	69	0	46	0	0	0	0	0	54	0	0	46
2002	4	107	LWT2	1	63	0	50	25	8	14	2	0	1	0	0	75
2002	4	107	LWT2	2	49	12	15	36	17	7	1	0	12	0	0	63
2002	4	107	LWT2	3	79	0	49	0	0	0	0	0	51	0	0	49
2002	6	167	LWT2	1	85	0	86	2	9	0	0	0	0	0	3	88

2002	6	167	LWT2	2	80	0	46	37	10	0	1	0	5	0	1	83
2002	6	167	LWT2	3	74	0	56	0	0	0	0	0	44	0	0	56
2002	8	213	LWT2	1	78	0	78	0	7	5	5	0	0	0	5	78
2002	8	213	LWT2	2	83	0	55	21	13	4	1	0	5	0	1	76
2002	8	213	LWT2	3	74	0	56	0	2	2	0	0	40	0	0	56
2003	4	457	LWT2	1	92.15	2	88	0	8	2	0	0	0	0	0	90
2003	4	457	LWT2	2	55.1	7	25	41	6	6	1	0	14	0	0	73
2003	4	457	LWT2	3	76.05	0	44	0	0	0	0	0	56	0	0	44
2003	6	518	LWT2	1	96.2	0	90	1	3	6	0	0	0	0	0	91
2003	6	518	LWT2	2	72.7	0	34	41	12	3	0	0	10	0	0	75
2003	6	518	LWT2	3	71.7	0	47	0	0	0	0	0	53	0	0	47
2001	8	219	LWT3	1	10	0	10	0	0	0	0	0	0	0	90	10
2002	4	98	LWT3	1	0	0	0	0	0	0	0	0	0	0	100	0
2002	6	168	LWT3	1	0	0	0	0	0	0	0	0	0	0	100	0
2002	8	213	LWT3	1	0	0	0	0	0	0	0	0	0	0	100	0
2003	4	457	LWT3	1	0	100	0	0	0	0	0	0	0	0	0	100
2003	6	518	LWT3	1	1.25	11	0	0	0	0	0	0	0	0	89	11
2001	7	206	LWT4	1	73	3	73	0	0	0	0	0	0	0	24	76
2002	4	94	LWT4	1	0	0	2	0	0	0	0	0	0	29	69	2
2002	6	168	LWT4	1	34	26	31	0	0	0	0	0	0	0	43	57
2002	8	213	LWT4	1	9	4	9	0	0	0	0	0	0	0	87	13
2003	4	457	LWT4	1	30	70	30	0	0	0	0	0	0	0	0	100
2003	6	518	LWT4	1	48	17	47	0	0	0	0	0	0	0	36	64

APPENDIX VII – Stream Invertebrate Taxa List

Major Group	Minor Group	Family	Taxon	Species	Abbrev.
Insecta	Coleoptera	Dytiscidae	Agabus	sp	Caga
Insecta	Coleoptera	Dytiscidae	Hydrovatus	sp	Chyva
Insecta	Coleoptera	Dytiscidae	*Laccophilus sp.*	sp	Clacc
Insecta	Coleoptera	Dytiscidae	*Hydroporus*	sp	Chdro
Insecta	Coleoptera	Dytiscidae	*Oreodytes*	sp	Coreo
Insecta	Coleoptera	Dytiscidae	*Uvarus*	sp	Cuvs
Insecta	Coleoptera	Dytiscidae	*Rhantus*	sp	Crha
Insecta	Coleoptera	Elmidae	*Dubiraphia sp.*	sp	Cdubi
Insecta	Coleoptera	Haliplidae	*Haliplus sp.*	sp	Chal
Insecta	Coleoptera	Haliplidae	*Peltodytes*	sp	Cpelt
Insecta	Coleoptera	Hydraenidae	Ochthebius	sp	Cocht
Insecta	Coleoptera	Hydrophilidae	Laccobius	sp	Claco
Insecta	Coleoptera	Hydrophilidae	*Tropisternus*	sp	Ctrop
Insecta	Coleoptera	Hydrophilidae	*Berosus*	sp	Cbero
Insecta	Coleoptera	Hydrophilidae	*Enochrus*	sp	Chen
Insecta	Coleoptera	Hydrophilidae	*Paracymus*	sp	Chpar
Insecta	Coleoptera	Helophoridae	*Helophorus*	sp	Chlph
Insecta	Coleoptera	Hydrochidae	*Hydrochus*	sp	Chych
Insecta	Coleoptera	Hydrophilidae	*Hydrobius*	sp	Chydr
Insecta	Coleoptera	Dytiscidae	*Cybister*		Ccybr
Insecta	Coleoptera	Gyrinidae	*Dineutus*	sp	Cgdin
Insecta	Coleoptera	Lampryidae	*m*	m	Clamp
Insecta	Coleoptera	Curculionidae	*Listronotus*	sp	Clist
Insecta	Coleoptera	Chrysomelidae	*Neohaemonia*	sp	Cneom
Insecta	Diptera	Ceratopogonidae	*Bezzia/Palpomyia sp.*	sp	Dbp
Insecta	Diptera	Ceratopogonidae	*Ceratopogon sp.*	sp	Dcrpn
Insecta	Diptera	Ceratopogonidae	*Culicoides*	sp	Dculi
Insecta	Diptera	Ceratopogonidae	*Dasyhelea*	*sp*	Ddasy
Insecta	Diptera	Chaoboridae	*Chaoborus*	*americanus*	Dcham
Insecta	Diptera	Chironomidae	*Ablabesmyia sp.*	sp	Dabla
Insecta	Diptera	Chironomidae	*Acricotopus*	sp	Dacric
Insecta	Diptera	Chironomidae	*Chironomus*	sp	Dchir
Insecta	Diptera	Chironomidae	*Corynoneura*	sp	Dcyna
Insecta	Diptera	Chironomidae	*Cricotopus*	spp	Dcric

Insecta	Diptera	Chironomidae	*Cryptochironomus*	sp	Dcryp
Insecta	Diptera	Chironomidae	*Dicrotendipes*	sp	Ddicr
Insecta	Diptera	Chironomidae	*Einfeldia*	sp	Deinf
Insecta	Diptera	Chironomidae	*diplocladius*	sp	Ddipl
Insecta	Diptera	Chironomidae	*Endochironomus*	sp	Dendo
Insecta	Diptera	Chironomidae	*Glyptotendipes*	*sp*	Dglyp
Insecta	Diptera	Chironomidae	*Parachironomus*	*Abortivus*	Dpach
Insecta	Diptera	Chironomidae	*Paratanytarsus*	*sp*	Dpata
Insecta	Diptera	Chironomidae	*Phaenopsectra*	*sp*	Dphaen
Insecta	Diptera	Chironomidae	*Polypedilum*	*sp*	Dpoly
Insecta	Diptera	Chironomidae	*Procladius sp.*	*sp*	Dprcl
Insecta	Diptera	Chironomidae	*Psectrocladius*	*sp*	Dpstr
Insecta	Diptera	Chironomidae	*Psectrotanypus*	*sp*	Dpsta
Insecta	Diptera	Chironomidae	*Rheotanytarsus*	*sp*	Drheo
Insecta	Diptera	Chironomidae	*Tanypus*	*sp*	Dtyps
Insecta	Diptera	Chironomidae	*Tvetenia*	*sp*	Dtvet
Insecta	Diptera	Chironomidae	*Microtendipes*	*sp*	Dmcte
Insecta	Diptera	Chironomidae	*Tanytarsus*	*sp*	Dtata
Insecta	Diptera	Chironomidae	*Larsia*	*sp*	Dlsia
Insecta	Diptera	Chironomidae	*Paratrichocladius*	*sp*	Dptcc
Insecta	Diptera	Chironomidae	*Micropsectra*	*sp*	Dmisc
Insecta	Diptera	Chironomidae	*Paracladopelma*	*sp*	Dpacl
Insecta	Diptera	Chironomidae	*Orthocladius*	*sp*	Dorth
Insecta	Diptera	Chironomidae	*Cladotanytarsus*	*sp*	Dctta
Insecta	Diptera	Chironomidae	*Hydrobaenus*	*sp*	Dhyba
Insecta	Diptera	Chironomidae	*Pseudosmittia*	*sp*	Dpsud
Insecta	Diptera	Culicidae	*Aedes*	*sp*	Dculae
Insecta	Diptera	Culicidae	*immature*	*sp*	Dculic
Insecta	Diptera	Ephydridae	*Hydrelia*	*williamsi*	Dehy
Insecta	Diptera	Statiomyidae	*Stratiomys*	*sp*	Dstrat
Insecta	Diptera	Sciomyzidae	*Sepedon*	*sp*	Dsepd
Insecta	Diptera	Sciomyzidae	*Hedria*	*sp*	Dhedr
Insecta	Diptera	Syrphidae	*Eristalis*	*sp*	Deris
Insecta	Diptera	Simulidae	*Simulium*	*sp*	Dsimu
Insecta	Diptera	Simulidae	*Prosimulium*	*sp*	Dpros
Insecta	Diptera	Simulidae	*Stegopterna*	*sp*	Dsteg
Insecta	Diptera	Simulidae	*Cnephia*	*sp*	Dcnph

Insecta	Ephemeroptera	Baetidae	*Baetis*	*sp*	Ebaet
Insecta	Ephemeroptera	Baetidae	*Baetis*	*intercalaris*	Ebain
Insecta	Ephemeroptera	Baetidae	*Callibaetis sp.*	*sp*	Ecall
Insecta	Ephemeroptera	Baetidae	*Procloen*	*sp*	Eproc
Insecta	Ephemeroptera	Caenidae	*Caenis sp.*	*sp*	Ecaen
Insecta	Ephemeroptera	Tricorythidae	*Tricorythodes*	*sp*	Etric
Insecta	Ephemeroptera	Leptophlebiidae	*Paraleptophlbia*	*sp*	Eplep
Insecta	Ephemeroptera	Heptageniidae	*Stenocron*	*sp*	Estno
Insecta	Hemiptera	Corixidae	*Corisella*	*sp*	Hcori
Insecta	Hemiptera	Corixidae	*Sigara*	*sp*	Hsiga
Insecta	Hemiptera	Corixidae	*Hespercorixa*	*laevigata*	Hhlav
Insecta	Hemiptera	Corixidae	*Palmocorixa*	*nana*	Hpana
Insecta	Hemiptera	Corixidae	*Trichocorixa*	*borealis*	Htbor
Insecta	Hemiptera	Corixidae	*Trichocorixa*	*naias*	Htnai
Insecta	Hemiptera	Corixidae	*Trichocorixa*	*sp*	Htricor
Insecta	Hemiptera	Corixidae	*immature*	*sp*	Hcimm
Insecta	Hemiptera	Pleidae	*Neoplea*	*striola*	Hnstr
Insecta	Hemiptera	Notonectidae	*Notonecta*	*sp*	Hnoto
Insecta	Hemiptera	Belostomatidae	*Belostoma*	*sp*	Hbela
Insecta	Hemiptera	Gerridae	*Gerris*	*sp*	Hgerr
Insecta	Hemiptera	Hebridae	*Hebrus*	*sp*	Hhebr
Insecta	Lepidoptera	Pyralidae	*Acentria*	*sp*	Lacent
Insecta	Odonata	Coenagrionidae	*Coenagrion/Enallagma*	*sp*	Ocoen
Insecta	Odonata	Coenagrionidae	*Enallagma*	*sp*	Oenla
Insecta	Odonata	Lestidae	*Lestes*	*sp*	Olest
Insecta	Odonata	Libellulidae	*Tramea*	*sp*	Oltra
Insecta	Odonata	Libellulidae	*Sympetrum*	*sp*	Osymp
Insecta	Odonata	Libellulidae	*Pachydiplax*	*sp*	Opadi
Insecta	Odonata	Aeshnidae	*Anax*	*sp*	Oanx
Insecta	Trichoptera	Hydroptilidae	*Hydroptilla sp.*	*sp*	Thydr
Insecta	Trichoptera	Hydroptilidae	*Orthotrichia sp.*	*sp*	Torth
Insecta	Trichoptera	Hydroptilidae	*Agraylea*	*multipunctata*	Thyagm
Insecta	Trichoptera	Leptoceridae	*Oecetis*	*sp*	Toect
Insecta	Trichoptera	Leptoceridae	*Nectopsyche*	*sp*	Tnect
Insecta	Trichoptera	Leptoceridae	*Triaenodes*	*sp*	Tltri
Insecta	Trichoptera	Polycentropodidae	*Polycentropus*	*sp*	Tpoly
Insecta	Trichoptera	Leptoceridae	*Mystacides*	*interjecta*	Tmmys

Insecta	Trichoptera	Molannidae	*Molanna*	*flavicornis*	Tmlfl
Insecta	Trichoptera	limnephilidae	*Limnephilus*	*sp*	Tlmnp
Insecta	Collembola	Isotomidae	*Isotomurus*	*tricolor*	Cistr
Insecta	Collembola	Isotomidae	*Argenia*	*sp*	Cisar
Insecta	Collembola	Sminthuridae	*Sminthurides*	*sp*	Csmin
Insecta	Plecoptera	Perlidae	*Perlesta*	*sp*	Pperl
Crustacean	Amphipoda	Gammaridae	*Gammarus*	*lacustris*	Aglac
Crustacean	Amphipoda	Talitridae	*Hyalella*	*azteca*	Ahazt
Crustacean	Decopoda	Cambaridae	*Ocrenectes*	*sp*	Docre
Mollusca	Gastropoda	Planorbidae	*Planorbella*	*sp*	Gplan
Mollusca	Gastropoda	Lymnaeidae	*Fossaria*	*sp*	Gfoss
Mollusca	Gastropoda	Planorbidae	*Gyraulus*	*cristata*	Ggyta
Mollusca	Gastropoda	Physidae	*Physella*	*sp*	Gphin
Mollusca	Pelecypoda	Sphaeridae	*Sphaerium*	*sp*	Pspha
Mollusca	Pelecypoda	Sphaeridae	*Musculium*	*sp*	Pmusc
Mollusca	Gastropoda	Planorbidae	*Helisoma*	*campanulata*	Gheca
Mollusca	Gastropoda	Physidae	*Aplexa*	*elongata*	Gapel
Mollusca	Gastropoda	Hydrobiidae	*Amnicola*	*limosa*	Gamli
Annelida	Oligochaeta				Aolig
Annelida	Oligochaeta	Naididae			Anaid
Annelida	Oligochaeta	Naididae	*Dero*	*digitata*	Oddig
Annelida	Oligochaeta	Naididae	*Stylaria*	*lacustris*	Oslac
Annelida	Oligochaeta	Naididae	*Pristina*	*sp*	Opris
Annelida	Oligochaeta	Naididae	*Nais*	*sp*	Onais
Annelida	Oligochaeta	Naididae	*Nais*	*varabilis*	Onvar
Annelida	Oligochaeta	Naididae	*Amphichaeta*	*leydigi*	Oaley
Annelida	Oligochaeta	Tubificidae		*sp*	Otubi
Annelida	Oligochaeta	Tubificidae	*Limnodrilus*	*sp*	Otlim
Annelida	Oligochaeta	Tubificidae	*Spirosperma*	*nikolskyi*	Osmik
Annelida	Oligochaeta	Enchytreidae		*sp*	Oency
Annelida	Hirudinea			*sp*	Ahiru
Annelida	Hirudinoidea	Glossiphoniidae	*Placobdella*	*montifera*	Hplmon
Annelida	Hirudinoidea	Glossiphoniidae	*Placobdella*	*oligobdella*	Hploli
Annelida	Hirudinoidea	Glossiphoniidae	*Glossiphonia*	*complanata*	Hgcom
Annelida	Hirudinoidea	Glossiphoniidae	*Helobdella*	*sp*	Hhelo
Annelida	Hirudinoidea	Hirudinidae	*Marcobdella*	*sp*	Hmar
Annelida	Hirudinoidea	Hirudinidae	*Haemopis*	*grandis*	Hhgrand

Annelida	Hirudinoidea	Erpobdellidae	*Erpobdella*	*punctata*	Hpunc
Annelida	Branchiobdellida		*Cambarinocola*	*sp*	Bcam
Arachnoidea	Hydracarina				Hhydr
Arachnoidea	Hydracarina	Limnesiidae	*Limnesia*	sp	Hlesia
Arachnoidea	Hydracarina	Hydryphantidae	Hydryphantes	sp	Hhphant
Arachnoidea	Hydracarina	Arrenuridae	Arrenurus	sp	Harus
Arachnoidea	Hydracarina	Pionidae	Piona	sp	Hpna
Nematoda					Nema

APPENDIX VIII – Stream Invertebrate Optimal Metrics

Lake	Site	Date	SmpTyp	FrTol	IntTax	HBI	PrcSwi	Dtax	ChrTax	PrcE	PrcDip	PrcChr	PrcCoCx
					#		%	#	#	%	%	%	%
Alice	LAT	7-Apr-02	Dnet	1.00	0	10.00	0.0	1	1	0.0	100.0	100.0	0.0
Alice	LAT	14-May-02	Dnet	0.09	2	4.83	36.0	3	1	20.0	60.0	36.0	8.0
Alice	LAT	13-Jun-02	Dnet	0.33	5	4.68	30.2	11	10	23.0	9.8	9.1	1.5
Alice	LAT	14-Jul-02	Dnet	0.00	2	3.41	0.0	2	1	0.0	20.0	10.0	0.0
Alice	LAT	10-Apr-03	Dnet	0.82	1	7.46	2.6	5	2	0.0	79.6	68.9	5.6
Alice	LAT	10-May-03	Dnet	0.30	2	4.38	29.5	5	2	26.2	47.0	13.4	2.0
Alice	LAT	9-Jun-03	Dnet	0.15	3	2.78	68.6	9	6	57.8	17.6	7.8	13.7
Brant	LBT	14-Sep-01	Dnet	0.67	0	7.85	27.7	5	4	1.3	44.3	43.9	22.0
Brant	LBT	15-Apr-02	Dnet	0.85	0	7.60	86.5	2	2	0.0	5.8	5.8	15.4
Brant	LBT	15-May-02	Dnet	0.26	0	5.79	96.7	0	0	0.0	0.0	0.0	73.8
Brant	LBT	14-Jun-02	Dnet	0.00	1	4.95	100.0	0	0	0.0	0.0	0.0	100.0
Brant	LBT	14-Jul-02	Dnet	0.58	0	6.76	97.5	2	2	0.0	0.7	0.7	42.8
Brant	LBT	13-Aug-02	Dnet	0.04	0	5.20	96.1	1	1	0.0	3.6	3.6	96.1
Brant	LBT	12-Sep-02	Dnet	0.73	0	7.22	86.0	4	4	0.2	1.7	1.7	27.5
Brant	LBT	12-Oct-02	Dnet	0.46	0	6.53	79.4	2	2	0.0	7.9	7.9	54.4
Brant	LBT	10-Apr-03	Dnet	0.03	0	5.08	99.1	0	0	0.0	0.0	0.0	97.3
Brant	LBT	9-Jun-03	Dnet	0.07	0	5.26	97.3	3	3	0.0	2.7	2.7	92.7
Cochrane	LCT	7-Apr-02	Dnet	1.00	0	10.00	0.0	0	0	0.0	0.0	0.0	0.0
Cochrane	LCT	14-Apr-02	Dnet	0.92	3	7.56	4.2	1	1	0.0	2.3	2.3	9.5
Cochrane	LCT	14-May-02	Dnet	0.70	1	7.15	2.9	4	3	0.0	17.1	14.3	0.0
Henry	LHO	10-Sep-01	Dnet	0.95	2	7.95	22.1	7	7	40.0	29.3	29.3	0.0
Henry	LHO	10-Oct-01	Dnet	0.84	0	7.87	46.2	4	4	9.4	24.6	24.6	6.4
Henry	LHO	17-Apr-02	Dnet	0.51	1	6.61	86.9	4	4	2.8	12.4	12.4	46.9
Henry	LHO	27-Jun-02	Dnet	0.54	0	6.71	90.7	0	0	11.6	0.0	0.0	51.2
Henry	LHO	27-Jun-02	Dnet	0.83	0	7.33	16.7	1	1	0.0	16.7	16.7	16.7
Henry	LHO	16-Jul-02	Dnet	0.15	2	5.49	88.9	3	3	3.2	1.5	1.5	84.8
Henry	LHO	15-Aug-02	Dnet	0.29	0	6.19	71.9	5	5	0.7	7.0	7.0	70.9
Henry	LHO	14-Sep-02	Dnet	0.08	0	5.23	94.4	3	3	1.9	4.0	4.0	92.2
Henry	LHO	11-Apr-03	Dnet	0.02	0	5.09	98.0	3	3	0.0	1.7	1.7	97.7
Henry	LHO	11-Apr-03	Dnet	0.04	0	5.15	96.4	4	4	0.0	1.9	1.9	95.9
Henry	LHO	10-Jun-03	Dnet	0.10	1	5.27	96.5	1	1	0.3	1.6	1.6	89.1
Preston	LPO	10-Sep-01	Dnet	0.88	0	7.70	57.5	3	3	4.5	1.6	1.6	2.2
Preston	LPO	10-Oct-01	Dnet	0.96	0	7.91	90.8	3	3	3.0	2.0	2.0	3.0

Preston	LPO	17-Apr-02	Dnet	0.33	0	6.02	98.1	0	0	0.0	0.0	0.0	66.7
Preston	LPO	17-May-02	Dnet	0.38	0	6.06	96.9	0	0	3.1	0.0	0.0	65.6
Preston	LPO	18-Jun-02	Dnet	0.93	2	7.82	84.4	2	2	4.1	7.4	7.4	4.1
Preston	LPO	16-Jul-02	Dnet	0.41	0	6.41	91.2	3	3	0.0	8.8	8.8	58.8
Preston	LPO	15-Aug-02	Dnet	0.81	0	8.83	23.8	3	3	0.0	66.7	66.7	19.0
Preston	LPO	14-Sep-02	Dnet	0.24	2	5.53	75.6	0	0	13.7	0.0	0.0	71.1
Preston	LPO	11-Apr-03	Dnet	0.66	0	8.00	54.0	4	3	2.0	44.0	42.0	54.0
Preston	LPO	10-Jun-03	Dnet	0.88	0	9.37	12.3	4	4	0.0	87.7	87.7	12.3
Preston	LPT1R1	16-Apr-02	Dnet	1.00	0	8.00	28.6	0	0	0.0	0.0	0.0	0.0
Preston	LPT1R1	18-Apr-02	Dnet	0.10	0	5.80	0.0	3	1	0.0	100.0	30.0	0.0
Preston	LPT1R1	18-May-02	Dnet	0.15	0	6.16	2.4	4	2	0.0	80.5	43.9	2.4
Preston	LPT1R1	15-Jun-02	Dnet	0.15	2	5.39	16.9	1	1	1.3	2.6	2.6	23.4
Preston	LPT1R1	14-May-03	Dnet	0.02	1	5.61	1.9	3	2	1.2	97.5	58.6	1.2
Preston	LPT1R1	13-Jun-03	Dnet	0.87	1	7.12	12.5	8	5	0.0	67.8	64.0	21.8
Preston	LPT1R2	16-May-02	Dnet	1.00	0	8.08	7.7	2	2	0.0	23.1	23.1	7.7
Preston	LPT1R2	15-Jun-02	Dnet	1.00	0	8.00	40.0	0	0	0.0	0.0	0.0	60.0
Preston	LPT1R2	15-Jun-02	Dnet	0.00	1	4.92	15.4	0	0	0.0	0.0	0.0	15.4
Preston	LPT1R2	14-May-03	Dnet	0.50	2	5.36	58.2	4	2	0.0	61.2	11.9	1.5
Preston	LPT1R3	16-Apr-02	Dnet	0.20	0	6.05	33.3	3	2	6.7	60.0	26.7	26.7
Preston	LPT1R3	16-May-02	Dnet	0.11	0	5.29	25.8	4	3	9.7	74.2	12.9	16.1
Preston	LPT1R3	14-May-03	Dnet	0.07	1	4.83	17.5	6	3	11.7	80.8	8.3	1.7
Preston	LPT1R3	13-Jun-03	Dnet	0.85	1	7.06	7.4	9	7	0.3	70.8	65.4	14.1
Preston	LPT2R1	8-Apr-02	Dnet	0.50	0	7.15	0.0	0	0	0.0	0.0	0.0	0.0
Preston	LPT2R1	16-May-02	Dnet	0.40	1	6.15	33.3	2	2	0.0	13.3	13.3	13.3
Preston	LPT3R1	10-Sep-01	Dnet	0.90	1	7.89	14.4	8	6	0.0	21.6	19.6	4.6
Preston	LPT3R1	17-Apr-02	Dnet	0.83	0	8.93	0.0	4	4	0.0	83.3	83.3	0.0
Preston	LPT3R1	16-May-02	Dnet	0.56	0	7.18	22.2	1	1	0.0	11.1	11.1	33.3
Preston	LPT3R1	16-Jun-02	Dnet	0.14	0	5.50	86.7	0	0	0.0	0.0	0.0	80.0
Preston	LPT3R1	14-May-03	Dnet	0.55	1	6.70	51.2	4	3	0.0	22.0	17.1	46.3
Preston	LPT3R1	13-Jun-03	Dnet	0.62	2	6.27	24.2	2	2	0.0	1.0	1.0	25.2
Preston	LPT3R2	13-Apr-02	Dnet	0.92	1	7.57	3.8	2	2	0.0	86.5	86.5	3.8
Preston	LPT3R2	16-May-02	Dnet	0.00	0	5.14	86.7	2	1	0.0	20.0	13.3	80.0
Preston	LPT3R3	18-May-02	Dnet	0.00	0	6.00	0.0	1	1	0.0	100.0	100.0	0.0
Preston	LPT3R3	15-Jun-02	Dnet	1.00	0	7.60	0.0	0	0	0.0	0.0	0.0	0.0
Preston	LPT4R1	9-Apr-02	Dnet	0.00	0	6.30	0.0	0	0	0.0	0.0	0.0	0.0
Preston	LPT4R1	16-May-02	Dnet	0.01	0	6.23	62.0	1	0	0.5	59.6	0.0	2.8
Preston	LPT4R2	9-Apr-02	Dnet	0.33	0	6.67	0.0	2	2	0.0	100.0	100.0	0.0

Preston	LPT4R2	16-May-02	Dnet	0.04	2	1.85	85.3	3	2	84.0	9.8	6.7	2.2
Preston	LPT5R1	8-Apr-02	Dnet	0.70	0	7.40	33.3	2	2	0.0	53.3	53.3	0.0
Preston	LPT5R1	16-May-02	Dnet	0.13	1	5.38	12.5	3	2	5.0	65.0	20.0	7.5
Preston	LPT5R2	9-Apr-02	Dnet	0.83	0	7.60	6.0	2	2	0.0	85.1	85.1	6.0
Preston	LPT5R2	16-May-02	Dnet	1.00	0	7.62	0.0	3	3	0.0	84.6	84.6	0.0
Preston	LPT5R3	9-Apr-02	Dnet	0.80	1	7.72	0.0	1	1	0.0	40.0	40.0	0.0
Preston	LPT5R3	16-May-02	Dnet	1.00	0	8.78	0.0	1	1	0.0	50.0	50.0	0.0
Thompson	LTO	17-Apr-02	Dnet	1.00	0	8.88	0.0	5	5	6.3	93.8	93.8	0.0
Thompson	LTO	17-May-02	Dnet	0.89	2	7.88	14.3	2	2	17.9	35.7	35.7	3.6
Thompson	LTO	16-Jul-02	Dnet	0.03	0	5.11	99.0	1	1	0.0	0.7	0.7	97.4
Thompson	LTO	15-Aug-02	Dnet	0.17	0	5.63	83.3	2	2	0.0	6.3	6.3	83.0
Thompson	LTO	14-Sep-02	Dnet	0.42	0	6.75	72.9	4	4	0.0	27.1	27.1	62.5
Thompson	LTO	11-May-03	Dnet	0.12	0	5.51	78.8	4	2	0.0	13.2	2.6	75.5
Whitewood	LWO	17-Apr-02	Dnet	0.30	0	6.32	83.9	2	2	0.0	16.1	16.1	71.4
Whitewood	LWO	17-May-02	Dnet	0.70	1	6.81	74.7	2	2	0.0	2.1	2.1	0.0
Whitewood	LWO	17-May-02	Dnet	0.05	0	5.16	97.3	2	2	1.6	1.1	1.1	94.1
Whitewood	LWO	17-May-02	Dnet	0.04	0	5.15	96.4	2	2	0.0	1.8	1.8	96.4
Whitewood	LWO	16-Jul-02	Dnet	0.17	0	5.51	86.8	4	4	1.5	3.7	3.7	83.1
Whitewood	LWO	1-Aug-02	Dnet	0.45	0	6.30	65.8	1	1	0.4	0.8	0.8	52.9
Whitewood	LWO	14-Oct-02	Dnet	0.40	0	6.49	72.5	4	3	0.0	10.0	9.6	60.0
Whitewood	LWO	14-Oct-02	Dnet	0.13	0	5.42	92.5	1	1	0.3	1.6	1.6	87.5
Whitewood	LWO	11-May-03	Dnet	0.01	0	5.04	99.1	3	3	0.0	0.9	0.9	99.1
Whitewood	LWT1R1	25-Jul-01	Dnet	0.73	2	6.46	3.6	5	3	0.9	6.2	4.7	5.0
Whitewood	LWT1R1	5-Apr-02	Dnet	1.00	0	8.00	0.0	1	1	0.0	100.0	100.0	0.0
Whitewood	LWT1R1	18-May-02	Dnet	0.59	1	6.38	7.0	7	5	0.0	89.5	61.4	3.5
Whitewood	LWT1R1	18-May-02	Dnet	0.10	2	4.94	25.0	3	0	0.0	67.3	0.0	0.0
Whitewood	LWT1R1	9-Aug-02	Dnet	0.03	1	3.12	11.4	1	1	0.0	2.9	2.9	17.1
Whitewood	LWT1R2	25-Jul-01	Dnet	0.67	1	6.35	20.8	5	4	0.2	2.5	2.2	13.2
Whitewood	LWT1R2	5-Apr-02	Dnet	0.00	0	6.30	0.0	0	0	0.0	0.0	0.0	0.0
Whitewood	LWT1R2	18-Jun-02	Dnet	0.72	5	6.77	9.4	1	1	0.0	1.9	1.9	10.4
Whitewood	LWT1R2	9-Aug-02	Dnet	0.19	1	5.32	68.8	1	0	0.0	3.1	0.0	62.5
Whitewood	LWT2R1	18-May-02	Dnet	0.00	1	4.40	50.0	3	1	16.7	66.7	16.7	16.7
Whitewood	LWT2R1	17-Jun-02	Dnet	0.00	1	4.90	3.4	0	0	0.0	0.0	0.0	4.1
Whitewood	LWT2R1	17-Apr-03	Dnet	0.06	0	5.40	0.3	4	2	0.0	98.7	21.9	0.6
Whitewood	LWT2R1	15-May-03	Dnet	0.54	2	6.19	6.0	6	4	5.1	90.8	19.6	0.8
Whitewood	LWT2R1	14-Jun-03	Dnet	0.61	2	6.64	30.2	10	7	0.3	31.2	16.7	48.8
Whitewood	LWT2R2	18-Apr-02	Dnet	0.83	0	7.66	0.0	2	2	0.0	100.0	100.0	0.0

Whitewood	LWT2R2	17-Jun-02	Dnet	0.72	1	7.93	16.0	4	4	0.0	52.0	52.0	0.0
Whitewood	LWT2R2	17-Apr-03	Dnet	0.46	0	6.93	1.7	3	2	1.0	86.4	83.1	0.0
Whitewood	LWT2R2	15-May-03	Dnet	0.26	3	3.77	47.3	5	3	46.3	44.4	19.1	1.0
Whitewood	LWT2R2	14-Jun-03	Dnet	0.66	3	6.74	33.5	7	5	3.0	65.0	38.5	6.3
Whitewood	LWT2R3	4-Oct-01	Dnet	0.82	1	8.43	2.2	6	5	2.9	70.6	63.3	1.5
Whitewood	LWT2R3	18-Apr-02	Dnet	0.29	1	5.84	57.1	2	2	7.1	21.4	21.4	57.1
Whitewood	LWT2R3	18-Apr-02	Dnet	0.94	2	7.87	5.9	2	2	0.0	93.3	93.3	0.0
Whitewood	LWT2R3	17-Jun-02	Dnet	0.24	1	5.89	0.0	0	0	0.0	0.0	0.0	0.0
Whitewood	LWT2R3	17-Jul-02	Dnet	0.01	1	4.97	35.7	0	0	0.0	0.0	0.0	35.7
Whitewood	LWT2R3	16-Aug-02	Dnet	0.82	1	8.28	82.4	0	0	0.0	0.0	0.0	82.4
Whitewood	LWT2R3	15-Sep-02	Dnet	0.99	0	9.52	29.4	3	3	0.9	63.8	63.8	22.6
Whitewood	LWT2R3	17-Apr-03	Dnet	0.34	1	6.26	8.6	5	4	0.0	54.3	51.4	8.6
Whitewood	LWT2R3	15-May-03	Dnet	0.43	3	6.36	19.0	7	7	4.1	44.3	44.3	13.6
Whitewood	LWT2R3	14-Jun-03	Dnet	0.30	1	5.87	46.8	4	4	0.0	3.7	3.7	46.8
Whitewood	LWT3R1	8-Apr-02	Dnet	1.00	0	8.00	0.0	1	1	0.0	27.3	27.3	9.1
Whitewood	LWT3R1	18-May-02	Dnet	0.54	0	8.11	46.2	0	0	0.0	0.0	0.0	0.0
Whitewood	LWT4R1	26-Jul-01	Dnet	0.60	5	6.19	23.9	3	2	21.4	2.8	1.6	2.8
Whitewood	LWT4R1	5-Apr-02	Dnet	0.66	1	6.95	2.9	2	1	0.0	62.9	62.3	7.0
Alice	LAT	14-May-02	Hester	0.75	3	6.64	3.1	4	2	3.1	81.3	62.5	0.0
Alice	LAT	14-May-02	Hester	0.84	2	6.75	22.6	1	1	9.7	38.7	38.7	0.0
Alice	LAT	13-Jun-02	Hester	0.19	1	3.92	50.0	4	4	47.4	28.9	28.9	0.0
Alice	LAT	10-May-03	Hester	0.00	1	3.14	57.1	1	1	57.1	42.9	42.9	0.0
Alice	LAT	9-Jun-03	Hester	0.40	1	4.37	53.2	2	2	51.1	8.5	8.5	0.0
Brant	LBT	14-Sep-01	Hester	1.00	0	8.48	3.7	3	3	0.0	62.0	62.0	0.0
Brant	LBT	15-Oct-01	Hester	1.00	0	8.48	1.8	4	4	0.0	51.3	51.3	0.0
Brant	LBT	15-May-02	Hester	0.88	1	8.67	0.0	3	3	0.0	59.4	59.4	0.0
Brant	LBT	14-Jun-02	Hester	0.99	0	8.37	4.3	3	3	0.0	71.4	71.4	0.0
Brant	LBT	14-Jul-02	Hester	0.96	0	8.21	50.0	4	3	0.0	26.5	23.5	2.9
Brant	LBT	13-Aug-02	Hester	1.00	0	8.55	17.9	2	2	0.5	37.5	37.5	0.0
Brant	LBT	12-Sep-02	Hester	1.00	0	8.65	22.8	4	4	0.0	37.7	37.7	0.0
Brant	LBT	12-Oct-02	Hester	1.00	0	8.74	43.3	3	3	0.0	43.0	43.0	0.0
Brant	LBT	10-May-03	Hester	1.00	0	9.79	1.7	2	2	0.0	78.7	78.7	0.0
Brant	LBT	9-Jun-03	Hester	1.00	0	9.18	27.3	4	4	0.0	72.7	72.7	0.0
Cochrane	LCT	14-May-02	Hester	0.95	3	7.77	0.0	2	1	0.0	2.4	1.2	0.0
Henry	LHO	10-Sep-01	Hester	0.95	0	9.38	1.3	4	4	2.0	78.8	78.8	0.0
Henry	LHO	10-Oct-01	Hester	0.99	0	9.51	1.4	7	7	0.3	85.1	85.1	0.0
Henry	LHO	16-Jun-02	Hester	0.84	0	6.98	14.0	1	1	23.3	44.2	44.2	2.3

Henry	LHO	16-Jul-02	Hester	1.00	0	8.24	27.5	3	3	10.0	10.0	10.0	0.0
Henry	LHO	14-Sep-02	Hester	1.00	0	9.93	0.0	2	2	0.0	97.4	97.4	0.0
Henry	LHO	11-May-03	Hester	1.00	0	9.49	1.9	4	4	0.9	76.4	76.4	0.0
Henry	LHO	10-Jun-03	Hester	0.90	0	8.51	8.0	4	4	0.0	33.0	33.0	1.1
Preston	LPO	10-Sep-01	Hester	0.92	0	8.62	23.3	6	4	0.0	43.8	39.7	0.0
Preston	LPO	10-Oct-01	Hester	0.98	1	9.39	8.9	4	4	1.5	74.3	74.3	0.0
Preston	LPO	17-May-02	Hester	0.67	0	7.70	33.3	1	1	0.0	8.3	8.3	0.0
Preston	LPO	16-Jun-02	Hester	0.96	0	8.67	58.3	1	1	0.0	37.5	37.5	0.0
Preston	LPO	16-Jul-02	Hester	1.00	0	8.67	62.5	1	1	0.0	31.3	31.3	6.3
Preston	LPO	15-Aug-02	Hester	0.98	0	9.90	1.3	3	3	0.0	96.8	96.8	1.0
Preston	LPO	14-Sep-02	Hester	0.95	0	8.60	8.5	2	2	4.6	67.0	67.0	2.8
Preston	LPO	14-Oct-02	Hester	0.73	0	8.33	0.0	2	2	0.0	38.3	38.3	0.0
Preston	LPO	11-May-03	Hester	1.00	0	9.24	0.0	1	1	0.0	61.8	61.8	0.0
Preston	LPT1R1	18-May-02	Hester	0.06	1	6.02	0.0	3	2	0.0	87.9	81.8	0.0
Preston	LPT1R2	16-May-02	Hester	0.79	3	7.19	31.0	4	4	0.0	21.4	21.4	0.0
Preston	LPT1R3	16-May-02	Hester	0.15	2	5.34	2.2	4	1	0.0	87.0	2.2	0.0
Preston	LPT1R3	14-May-03	Hester	0.82	1	7.62	0.0	5	4	0.0	35.3	29.4	0.0
Preston	LPT3R1	10-Sep-01	Hester	1.00	0	9.96	0.0	4	4	0.0	29.1	29.1	0.0
Preston	LPT3R1	10-Oct-01	Hester	0.87	0	9.50	0.4	5	4	0.0	65.8	63.1	0.4
Preston	LPT3R1	16-May-02	Hester	0.92	1	7.89	0.0	6	5	0.0	11.9	10.2	0.0
Preston	LPT3R1	14-May-03	Hester	0.33	1	6.20	0.0	2	2	0.0	66.7	66.7	0.0
Preston	LPT3R2	16-May-02	Hester	0.73	1	7.24	0.0	3	3	13.3	80.0	80.0	0.0
Preston	LPT3R2	16-Jun-02	Hester	0.44	0	7.51	0.0	3	3	0.0	27.8	27.8	0.0
Preston	LPT4R2	16-May-02	Hester	0.13	1	3.40	59.3	3	2	57.4	40.7	35.2	1.9
Preston	LPT5R1	16-May-02	Hester	0.10	3	4.61	31.9	5	3	31.2	47.9	45.6	0.0
Thompson	LTO	10-Sep-01	Hester	0.99	1	9.54	6.4	4	3	0.3	80.4	80.1	0.0
Thompson	LTO	10-Oct-01	Hester	0.99	1	9.33	16.8	5	5	1.7	72.5	72.5	0.0
Thompson	LTO	17-May-02	Hester	0.97	0	9.47	0.0	3	3	5.8	79.7	79.7	0.0
Thompson	LTO	16-Jun-02	Hester	0.98	1	7.96	53.3	3	3	24.4	17.8	17.8	0.0
Thompson	LTO	16-Jul-02	Hester	0.90	1	8.99	0.0	5	5	6.7	53.3	53.3	0.0
Thompson	LTO	15-Aug-02	Hester	1.00	0	9.04	15.7	5	5	0.3	27.9	27.9	0.3
Thompson	LTO	14-Oct-02	Hester	1.00	1	8.32	36.7	1	1	0.0	15.8	15.8	0.0
Thompson	LTO	10-Jun-03	Hester	1.00	0	9.47	2.9	3	3	1.0	95.2	95.2	0.0
Whitewood	LWO	10-Sep-01	Hester	0.95	0	9.12	0.9	7	5	0.0	71.6	69.2	0.0
Whitewood	LWO	17-May-02	Hester	0.81	1	8.17	31.5	4	4	0.0	42.6	42.6	0.0
Whitewood	LWO	16-Jun-02	Hester	1.00	0	9.70	0.0	4	4	10.0	90.0	90.0	0.0
Whitewood	LWO	16-Jun-02	Hester	0.93	1	7.10	0.0	3	3	1.1	76.7	76.7	0.0

Whitewood	LWO	16-Jul-02	Hester	1.00	0	9.67	0.0	3	3	9.0	88.4	88.4	0.0
Whitewood	LWO	15-Aug-02	Hester	0.86	0	8.91	0.8	1	1	0.0	57.9	57.9	0.0
Whitewood	LWT1R2	18-May-02	Hester	0.64	0	7.13	0.0	0	0	0.0	0.0	0.0	0.0
Whitewood	LWT2R1	18-May-02	Hester	0.75	2	6.97	12.3	5	3	10.5	26.3	19.3	0.0
Whitewood	LWT2R1	14-Jun-02	Hester	0.63	2	6.93	3.4	6	6	0.0	50.6	50.6	12.6
Whitewood	LWT2R1	17-Jun-02	Hester	0.88	0	7.88	87.5	1	1	0.0	12.5	12.5	12.5
Whitewood	LWT2R1	15-May-03	Hester	0.78	1	7.48	1.6	3	2	1.6	89.5	80.6	0.0
Whitewood	LWT2R2	18-May-02	Hester	0.85	1	7.44	4.2	4	3	4.2	77.1	72.9	0.0
Whitewood	LWT2R2	17-Jun-02	Hester	0.77	0	7.92	23.1	6	6	0.0	61.5	61.5	0.0
Whitewood	LWT2R2	15-May-03	Hester	0.71	1	7.27	4.2	2	2	4.2	75.0	75.0	0.0
Whitewood	LWT2R2	14-Jun-03	Hester	0.33	0	6.33	0.0	3	3	0.0	100.0	100.0	0.0
Whitewood	LWT2R3	3-Sep-01	Hester	0.97	0	8.22	0.0	4	4	0.0	45.7	45.7	0.0
Whitewood	LWT2R3	4-Oct-01	Hester	0.64	1	8.00	9.1	4	4	0.0	50.0	50.0	0.0
Whitewood	LWT2R3	18-May-02	Hester	0.50	3	5.59	16.7	4	2	16.7	75.0	45.8	0.0
Whitewood	LWT2R3	17-Jun-02	Hester	1.00	0	9.00	0.0	4	4	0.0	100.0	100.0	0.0
Whitewood	LWT2R3	17-Jul-02	Hester	1.00	0	9.50	0.0	1	1	0.0	75.0	75.0	0.0
Whitewood	LWT2R3	16-Aug-02	Hester	0.83	0	8.38	0.0	1	1	0.0	33.3	33.3	0.0
Whitewood	LWT2R3	15-Sep-02	Hester	0.95	0	9.73	5.4	3	3	0.0	89.2	89.2	5.4
Whitewood	LWT2R3	15-Oct-02	Hester	1.00	0	9.79	0.0	2	2	0.0	85.8	85.8	0.0
Whitewood	LWT2R3	15-May-03	Hester	1.00	0	8.13	0.0	3	3	0.0	100.0	100.0	0.0
Alice	LAT	14-May-02	Hester	0.58	1	5.62	57.7	2	1	23.1	38.5	19.2	0.0
Alice	LAT	13-Jun-02	Hester	0.29	2	4.99	41.9	3	3	32.6	23.3	23.3	4.7
Alice	LAT	10-May-03	Hester	0.38	1	4.46	57.1	1	1	52.4	4.8	4.8	4.8
Alice	LAT	9-Jun-03	Hester	0.26	2	3.42	48.6	3	2	45.7	25.7	5.7	2.9
Brant	LBT	14-Sep-01	Hester	1.00	0	9.37	2.2	4	4	0.0	80.1	80.1	0.0
Brant	LBT	15-Oct-01	Hester	1.00	0	8.55	1.6	4	4	0.3	47.9	47.9	0.3
Brant	LBT	15-May-02	Hester	1.00	0	9.51	1.7	4	4	0.0	77.6	77.6	0.0
Brant	LBT	14-Jun-02	Hester	0.92	1	7.42	15.4	3	3	0.0	61.5	61.5	7.7
Brant	LBT	14-Jul-02	Hester	0.92	0	7.88	63.0	1	1	0.0	3.7	3.7	11.1
Brant	LBT	13-Aug-02	Hester	0.98	1	8.10	73.2	3	3	0.0	16.5	16.5	0.0
Brant	LBT	12-Sep-02	Hester	1.00	0	8.66	8.4	5	5	0.3	35.9	35.9	0.0
Brant	LBT	12-Oct-02	Hester	0.99	0	8.88	13.0	2	2	0.0	52.8	52.8	0.0
Brant	LBT	10-May-03	Hester	0.98	0	9.51	9.5	4	4	0.0	90.5	90.5	1.9
Brant	LBT	9-Jun-03	Hester	1.00	0	9.56	10.1	5	5	0.0	89.3	89.3	0.0
Cochrane	LCT	14-May-02	Hester	0.90	3	7.57	0.0	3	2	0.0	7.9	3.2	0.0
Henry	LHO	10-Sep-01	Hester	1.00	0	9.70	0.3	3	3	0.6	85.1	85.1	0.0
Henry	LHO	17-May-02	Hester	0.64	1	6.13	38.4	2	2	1.8	52.5	52.5	0.0

Henry	LHO	16-Jul-02	Hester	0.94	0	8.87	11.1	4	3	16.7	61.1	55.6	0.0
Henry	LHO	14-Sep-02	Hester	0.99	1	9.45	2.3	3	3	1.0	56.5	56.5	0.0
Henry	LHO	11-May-03	Hester	1.00	0	9.12	0.3	4	4	0.3	38.3	38.3	0.3
Henry	LHO	10-Jun-03	Hester	0.94	1	7.98	4.6	3	3	4.6	74.7	74.7	0.0
Preston	LPO	10-Sep-01	Hester	0.90	0	8.33	18.6	7	5	1.1	31.1	21.9	0.0
Preston	LPO	17-May-02	Hester	1.00	0	8.93	56.7	3	3	0.0	36.7	36.7	0.0
Preston	LPO	16-Jun-02	Hester	0.96	0	8.96	14.9	2	2	0.0	78.7	78.7	0.0
Preston	LPO	16-Jul-02	Hester	0.70	0	8.12	0.0	3	2	0.0	50.0	33.3	0.0
Preston	LPO	15-Aug-02	Hester	0.86	0	9.20	3.5	1	1	0.0	69.2	69.2	0.0
Preston	LPO	14-Sep-02	Hester	0.99	0	8.38	5.6	2	2	0.7	23.3	23.3	1.0
Preston	LPO	14-Oct-02	Hester	0.95	0	8.87	0.4	3	3	1.3	44.9	44.9	0.4
Preston	LPO	11-May-03	Hester	1.00	0	9.95	0.0	4	4	1.5	98.5	98.5	0.0
Preston	LPT1R1	15-Jun-02	Hester	1.00	0	7.92	75.0	0	0	0.0	0.0	0.0	12.5
Preston	LPT1R2	16-May-02	Hester	0.88	0	7.94	8.0	1	1	0.0	4.0	4.0	0.0
Preston	LPT1R2	14-May-03	Hester	0.26	0	6.42	0.0	3	2	0.0	78.3	43.5	0.0
Preston	LPT1R2	14-May-03	Hester	0.78	1	7.47	33.3	1	1	0.0	11.1	11.1	0.0
Preston	LPT1R3	16-May-02	Hester	0.78	1	6.89	11.1	2	2	44.4	22.2	22.2	0.0
Preston	LPT3R1	10-Sep-01	Hester	0.98	0	9.88	0.0	7	6	0.0	33.5	33.0	0.5
Preston	LPT3R1	10-Oct-01	Hester	0.96	1	9.80	0.9	4	3	0.0	63.8	63.4	0.0
Preston	LPT3R1	16-May-02	Hester	0.74	0	8.25	1.6	4	4	0.8	27.9	27.9	0.0
Preston	LPT3R1	13-Jun-02	Hester	0.55	1	6.56	9.1	2	2	0.0	36.4	36.4	9.1
Preston	LPT3R1	16-Jun-02	Hester	0.50	0	7.25	25.0	3	3	0.0	75.0	75.0	25.0
Preston	LPT3R1	14-May-03	Hester	0.10	0	6.47	0.0	1	1	0.0	10.0	10.0	0.0
Preston	LPT3R2	16-May-02	Hester	0.57	0	7.14	0.0	3	3	0.0	95.7	95.7	0.0
Preston	LPT4R2	16-May-02	Hester	0.07	1	2.88	64.9	4	3	64.9	35.1	33.3	0.0
Preston	LPT5R1	16-May-02	Hester	0.00	2	4.87	22.4	3	2	22.4	53.1	49.0	0.0
Thompson	LTO	10-Sep-01	Hester	0.96	1	9.13	0.6	5	3	0.3	62.4	61.8	0.0
Thompson	LTO	10-Oct-01	Hester	0.93	0	9.10	20.6	4	4	2.3	63.6	63.6	0.0
Thompson	LTO	17-May-02	Hester	0.97	1	8.55	30.9	3	3	6.0	45.1	45.1	0.0
Thompson	LTO	16-Jun-02	Hester	0.98	0	8.46	62.5	3	2	7.8	26.6	21.9	1.6
Thompson	LTO	16-Jul-02	Hester	1.00	0	8.33	36.5	4	4	13.5	48.1	48.1	0.0
Thompson	LTO	15-Aug-02	Hester	1.00	0	8.52	14.7	4	4	0.0	31.4	31.4	0.0
Thompson	LTO	14-Oct-02	Hester	1.00	0	8.27	52.5	1	1	0.9	15.7	15.7	0.0
Thompson	LTO	11-May-03	Hester	1.00	0	8.58	66.7	3	3	0.0	25.0	25.0	0.0
Whitewood	LWO	10-Sep-01	Hester	0.98	2	9.27	0.3	6	6	0.6	82.0	82.0	0.0
Whitewood	LWO	17-May-02	Hester	0.93	0	8.15	31.1	5	4	0.0	18.9	18.0	0.0
Whitewood	LWO	16-Jun-02	Hester	0.28	1	5.83	0.0	6	6	1.6	26.6	26.6	0.0

Whitewood	LWO	16-Jul-02	Hester	1.00	0	9.92	0.0	2	2	0.3	96.2	96.2	0.0
Whitewood	LWO	15-Aug-02	Hester	0.96	0	8.90	43.9	2	2	0.0	47.7	47.7	0.0
Whitewood	LWO	14-Oct-02	Hester	1.00	0	8.26	2.2	3	3	0.3	89.7	89.7	0.0
Whitewood	LWT1R2	18-May-02	Hester	0.49	0	6.79	4.7	4	3	0.0	44.2	30.2	0.0
Whitewood	LWT2R1	18-May-02	Hester	0.67	2	6.58	14.3	1	1	14.3	14.3	14.3	14.3
Whitewood	LWT2R1	17-Jun-02	Hester	1.00	0	9.44	0.0	3	3	0.0	100.0	100.0	0.0
Whitewood	LWT2R1	15-May-03	Hester	0.52	0	7.18	0.0	1	1	0.0	51.9	51.9	0.0
Whitewood	LWT2R1	14-Jun-03	Hester	0.19	0	6.45	0.0	4	4	0.0	81.3	81.3	0.0
Whitewood	LWT2R1	14-Jun-03	Hester	0.55	1	7.08	5.6	2	2	0.0	55.6	55.6	6.7
Whitewood	LWT2R2	18-May-02	Hester	0.82	2	6.56	16.0	3	2	16.0	54.0	52.0	0.0
Whitewood	LWT2R2	17-Jun-02	Hester	1.00	0	9.00	0.0	1	1	0.0	66.7	66.7	33.3
Whitewood	LWT2R2	15-May-03	Hester	0.22	1	4.22	60.0	2	2	40.0	40.0	40.0	10.0
Whitewood	LWT2R2	14-Jun-03	Hester	0.63	0	7.27	0.0	11	11	0.0	83.7	83.7	0.0
Whitewood	LWT2R3	3-Sep-01	Hester	0.81	0	8.91	0.0	7	7	0.0	75.9	75.9	0.0
Whitewood	LWT2R3	4-Oct-01	Hester	0.99	0	9.75	0.0	6	6	0.0	99.0	99.0	0.0
Whitewood	LWT2R3	18-May-02	Hester	0.09	0	6.32	0.0	4	3	0.0	23.5	17.6	0.0
Whitewood	LWT2R3	17-Jun-02	Hester	1.00	0	7.00	0.0	0	0	100.0	0.0	0.0	0.0
Whitewood	LWT2R3	17-Jul-02	Hester	1.00	0	8.00	100.0	0	0	0.0	0.0	0.0	0.0
Whitewood	LWT2R3	16-Aug-02	Hester	0.94	0	8.53	35.3	1	1	0.0	5.9	5.9	5.9
Whitewood	LWT2R3	15-Sep-02	Hester	0.91	0	9.54	0.0	3	3	0.0	84.4	84.4	0.0
Whitewood	LWT2R3	15-Oct-02	Hester	0.99	0	9.80	2.3	4	3	0.0	94.2	93.0	0.0
Whitewood	LWT2R3	15-May-03	Hester	0.80	1	7.00	20.0	2	2	20.0	80.0	80.0	0.0
Whitewood	LWT2R3	14-Jun-03	Hester	0.40	0	6.91	0.0	4	4	0.0	75.0	75.0	0.0
Whitewood	LWT3R1	18-May-02	Hester	0.00	0	5.65	0.0	0	0	0.0	0.0	0.0	50.0
Alice	LAT	10-May-02	Hester	0.32	1	6.14	24.0	3	1	12.0	60.0	36.0	0.0
Alice	LAT	14-May-02	Hester	0.29	1	4.50	28.6	2	1	28.6	64.3	28.6	0.0
Alice	LAT	13-Jun-02	Hester	0.50	1	6.94	6.5	8	8	0.0	58.1	58.1	0.0
Alice	LAT	9-Jun-03	Hester	0.57	2	6.24	35.1	6	5	13.5	29.7	27.0	8.1
Brant	LBT	15-Oct-01	Hester	1.00	0	8.56	4.1	4	4	0.0	38.0	38.0	0.0
Brant	LBT	15-May-02	Hester	0.93	2	8.73	8.7	3	3	0.0	62.7	62.7	0.0
Brant	LBT	14-Jun-02	Hester	0.98	0	8.64	2.4	5	5	0.3	84.3	84.3	0.7
Brant	LBT	14-Jul-02	Hester	0.98	0	9.42	10.8	5	3	0.0	80.0	77.0	0.3
Brant	LBT	13-Aug-02	Hester	1.00	0	8.13	49.1	3	3	0.0	14.8	14.8	0.0
Brant	LBT	12-Sep-02	Hester	1.00	0	8.72	14.3	4	4	0.0	45.0	45.0	0.0
Brant	LBT	12-Oct-02	Hester	1.00	0	8.89	35.3	2	2	0.0	40.3	40.3	0.0
Brant	LBT	10-May-03	Hester	1.00	0	9.83	7.4	3	3	0.0	92.6	92.6	0.0
Brant	LBT	9-Jun-03	Hester	1.00	0	9.77	8.4	2	2	2.1	89.5	89.5	0.0

Cochrane	LCT	14-May-02	Hester	0.94	0	7.88	0.0	2	2	0.0	1.8	1.8	0.0
Henry	LHO	10-Sep-01	Hester	0.94	0	9.35	1.2	3	3	0.3	84.5	84.5	0.0
Henry	LHO	16-Jun-02	Hester	0.85	0	6.98	11.5	1	1	6.4	64.1	64.1	0.0
Henry	LHO	16-Jul-02	Hester	0.85	0	7.65	66.7	0	0	9.5	0.0	0.0	4.8
Henry	LHO	15-Aug-02	Hester	0.94	0	8.89	0.0	2	2	4.3	50.7	50.7	0.0
Henry	LHO	11-Sep-02	Hester	1.00	0	9.74	2.6	3	3	0.0	90.5	90.5	0.0
Henry	LHO	11-May-03	Hester	0.98	0	9.01	2.6	3	3	0.0	48.9	48.9	2.3
Henry	LHO	10-Jun-03	Hester	0.98	0	8.24	11.4	3	3	0.6	58.9	58.9	0.0
Preston	LPO	10-Sep-01	Hester	0.99	0	8.94	20.5	7	7	0.5	49.7	49.7	0.0
Preston	LPO	10-Oct-01	Hester	0.97	0	8.60	54.0	3	2	2.3	32.8	32.4	0.0
Preston	LPO	17-May-02	Hester	0.99	1	8.11	80.9	1	1	0.0	7.8	7.8	0.9
Preston	LPO	16-Jun-02	Hester	1.00	0	9.38	31.0	2	2	0.0	65.5	65.5	0.0
Preston	LPO	16-Jul-02	Hester	0.83	0	8.60	15.6	1	1	0.0	25.0	25.0	0.0
Preston	LPO	15-Aug-02	Hester	0.99	0	9.87	2.0	1	1	0.7	94.0	94.0	0.0
Preston	LPO	14-Sep-02	Hester	1.00	0	9.23	3.9	4	4	17.9	72.6	72.6	0.0
Preston	LPT1R1	18-May-02	Hester	0.12	2	5.81	13.0	4	2	6.5	85.7	64.9	0.0
Preston	LPT1R1	15-Jun-02	Hester	0.33	1	6.53	50.0	0	0	0.0	0.0	0.0	25.0
Preston	LPT1R2	16-May-02	Hester	0.65	0	7.92	19.2	2	2	0.0	7.7	7.7	0.0
Preston	LPT1R2	14-May-03	Hester	0.57	0	7.13	0.0	2	2	0.0	57.1	57.1	0.0
Preston	LPT1R3	16-May-02	Hester	0.86	1	8.14	14.3	0	0	14.3	0.0	0.0	0.0
Preston	LPT3R1	10-Sep-01	Hester	0.96	0	9.62	0.2	7	6	0.0	28.8	27.8	0.0
Preston	LPT3R1	10-Oct-01	Hester	0.93	0	9.56	3.3	7	6	0.0	80.0	79.0	0.5
Preston	LPT3R1	16-May-02	Hester	0.55	1	7.95	0.0	3	3	0.0	42.4	42.4	0.0
Preston	LPT3R1	16-Jun-02	Hester	1.00	0	8.00	50.0	1	1	0.0	50.0	50.0	0.0
Preston	LPT3R1	14-May-03	Hester	0.83	0	9.33	0.0	2	2	0.0	28.6	28.6	0.0
Preston	LPT3R1	13-Jun-03	Hester	0.59	1	8.09	0.0	5	5	0.0	94.9	94.9	2.5
Preston	LPT3R2	16-May-02	Hester	1.00	0	7.00	0.0	1	1	0.0	100.0	100.0	0.0
Preston	LPT4R2	16-May-02	Hester	0.33	1	3.74	61.2	2	2	61.2	6.1	6.1	0.0
Preston	LPT5R1	16-May-02	Hester	0.05	2	5.22	15.4	3	3	15.4	59.0	59.0	0.0
Thompson	LTO	10-Sep-01	Hester	0.79	0	8.59	3.2	6	4	3.5	52.0	51.3	0.0
Thompson	LTO	10-Oct-01	Hester	0.99	0	9.47	3.6	5	5	0.7	78.3	78.3	0.0
Thompson	LTO	17-May-02	Hester	0.77	1	7.97	49.0	1	1	2.3	42.3	42.3	9.3
Thompson	LTO	16-Jun-02	Hester	1.00	0	8.74	40.3	3	3	5.6	45.8	45.8	0.0
Thompson	LTO	16-Jul-02	Hester	0.95	0	8.00	62.0	4	4	4.7	7.8	7.8	2.4
Thompson	LTO	15-Aug-02	Hester	0.97	0	8.30	15.3	4	4	0.6	21.9	21.9	3.4
Thompson	LTO	14-Sep-02	Hester	1.00	0	8.84	42.7	2	2	0.4	44.7	44.7	0.0
Thompson	LTO	14-Oct-02	Hester	0.99	0	8.54	26.4	6	5	0.0	29.2	28.9	0.3

Thompson	LTO	11-May-03	Hester	1.00	0	8.43	33.3	4	4	4.8	42.9	42.9	0.0
Thompson	LTO	10-Jun-03	Hester	1.00	0	9.75	0.0	2	2	0.0	99.4	99.4	0.0
Whitewood	LWO	10-Sep-01	Hester	0.96	1	9.19	4.9	7	6	0.6	69.3	69.0	0.0
Whitewood	LWO	10-Oct-01	Hester	1.00	0	9.18	2.6	9	9	0.1	65.2	65.2	0.0
Whitewood	LWO	17-May-02	Hester	0.83	1	7.42	10.1	4	4	9.2	56.8	56.8	0.0
Whitewood	LWO	16-Jun-02	Hester	1.00	0	8.50	0.0	2	2	50.0	50.0	50.0	0.0
Whitewood	LWO	15-Aug-02	Hester	0.84	0	9.09	0.5	4	3	0.0	49.2	48.6	0.5
Whitewood	LWO	14-Oct-02	Hester	0.99	0	9.36	6.2	3	3	0.7	68.5	68.5	0.0
Whitewood	LWT1R2	18-May-02	Hester	1.00	0	7.53	0.0	0	0	0.0	0.0	0.0	12.5
Whitewood	LWT1R2	18-Jun-02	Hester	0.50	0	7.50	0.0	0	0	0.0	0.0	0.0	66.7
Whitewood	LWT2R1	18-May-02	Hester	0.82	1	7.18	0.0	2	2	0.0	81.8	81.8	0.0
Whitewood	LWT2R1	17-Jun-02	Hester	0.91	1	7.59	0.0	3	3	27.3	63.6	63.6	0.0
Whitewood	LWT2R2	18-May-02	Hester	0.85	1	7.12	0.0	4	2	0.0	80.6	65.7	0.0
Whitewood	LWT2R2	15-May-03	Hester	0.76	1	7.25	10.2	3	2	8.0	75.0	73.9	0.0
Whitewood	LWT2R2	14-Jun-03	Hester	0.38	0	7.50	0.0	3	3	0.0	100.0	100.0	0.0
Whitewood	LWT2R2	14-Jun-03	Hester	0.50	1	6.86	7.1	5	5	0.0	92.9	92.9	7.1
Whitewood	LWT2R3	3-Sep-01	Hester	0.98	0	9.14	0.0	6	6	0.2	93.9	93.9	0.0
Whitewood	LWT2R3	4-Oct-01	Hester	0.98	0	9.40	0.8	6	6	0.4	87.8	87.8	0.0
Whitewood	LWT2R3	18-May-02	Hester	1.00	0	8.67	0.0	0	0	0.0	0.0	0.0	0.0
Whitewood	LWT2R3	17-Jun-02	Hester	1.00	0	8.67	66.7	1	1	0.0	33.3	33.3	0.0
Whitewood	LWT2R3	17-Jul-02	Hester	1.00	0	10.00	0.0	1	1	0.0	100.0	100.0	0.0
Whitewood	LWT2R3	16-Aug-02	Hester	1.00	0	10.00	0.0	1	1	0.0	50.0	50.0	0.0
Whitewood	LWT2R3	15-Sep-02	Hester	1.00	0	9.84	0.0	2	2	0.0	88.2	88.2	0.0
Whitewood	LWT2R3	15-Oct-02	Hester	1.00	0	9.83	3.8	3	3	0.0	96.2	96.2	0.0
Whitewood	LWT2R3	15-May-03	Hester	0.71	0	8.29	0.0	4	4	0.0	100.0	100.0	0.0
Whitewood	LWT2R3	15-May-03	Hester	0.36	2	6.36	1.4	7	4	0.0	95.7	57.1	0.0
Whitewood	LWT2R3	14-Jun-03	Hester	1.00	0	9.70	0.0	2	2	0.0	87.5	87.5	0.0
Whitewood	LWT3R1	18-May-02	Hester	1.00	0	8.56	18.8	2	2	31.3	43.8	43.8	0.0

APPENDIX IX – Lake Sampling Locations

Lake	Site	Latitude deg.min	Longitude deg.min
Alice	North	44.53.070	96.38.390
Alice	Middle	44.52.443	96.37.594
Alice	South	44.52.168	96.37.302
Brant	North	43.55.317	96.57.118
Brant	Middle	43.55.147	96.56.482
Brant	South	43.55.007	96.56.279
Cochrane	North	44.42.153	96.29.147
Cochrane	Middle	44.42.317	96.28.454
Cochrane	South	44.42.358	96.28.148
Henry	Middle	44.19.326	97.28.458
Preston	East	44.22.333	97.22.169
Preston	Middle	44.22.504	97.18.288
Preston	West	44.23.040	97.17.119
Thompson	North	44.17.289	97.28.170
Thompson	Middle	44.16.102	97.27.091
Thompson	South	44.14.261	97.26.299
Whitewood	East	44.20.414	97.16.076
Whitewood	Middle	44.20.044	97.18.504
Whitewood	West	44.19.035	97.20.545

APPENDIX X – Lake Physical and Chemical Data

Basic Physical and Chemical Data

Lake	Basin	Depth	JD	Date	Wtemp oC	Cond uS/cm	DO mg/l	TS mg/L	TDS mg/L	TSS mg/L	Turb ntu	Alkal mg/L	pH
Thompson	No	Surf	189	9-Jul-01	26.7	1170	16.9	907	887	19.6	19.1	248	8.79
Thompson	No	Bot	189	9-Jul-01	22.2	1198	4.6	884	880	3.6	2.8	194	7.99
Thompson	Mid	Surf	189	9-Jul-01	26.1	1169	15.0	909	895	14.0	35.5	221	8.71
Thompson	Mid	Bot	189	9-Jul-01	22.0	1200	2.5	921	920	1.2	3.2	223	7.89
Thompson	So	Surf	189	9-Jul-01	26.0	1162	12.0	915	906	9.6	25.7	228	8.82
Thompson	So	Bot	189	9-Jul-01	22.1	1191	8.0	879	875	4.0	2.4	248	8.16
Whitewood	We	Surf	189	9-Jul-01	28.0	1155	16.0	1012	994	18.8	10.9	205	9.14
Whitewood	We	Bot	189	9-Jul-01	19.8	1182	9.8	900	887	13.2	5.6	183	8.56
Whitewood	Mid	Surf	189	9-Jul-01	24.7	1182	6.6	897	890	7.6	2.1	194	8.62
Whitewood	Mid	Bot	189	9-Jul-01	23.6	1176	3.5	925	916	9.2	10.3	198	8.39
Whitewood	Ea	Surf	189	9-Jul-01	26.6	1179	5.3	1018	1009	9.2	11.6	188	8.59
Whitewood	Ea	Bot	189	9-Jul-01	23.6	1188	4.8	1055	1047	8.4	3.1	193	8.33
Henry	Mid	Surf	191	11-Jul-01	24.3	1034	8.0	790	780	10.8	9.9	207	8.63
Preston	We	Surf	191	11-Jul-01	25.9	1335	8.1	991	972	18.8	14.7	211	8.47
Preston	We	Bot	191	11-Jul-01	25.7	1333	7.4	1027	1013	14.0	11.9	209	8.41
Preston	Mid	Surf	191	11-Jul-01	25.6	1311	6.1	1033	1010	22.4	14.2	189	8.17
Preston	Mid	Bot	191	11-Jul-01	25.5	1309	6.3	970	954	16.4	12.1	180	8.15
Preston	Ea	Surf	191	11-Jul-01	25.4	1298	6.8	993	982	11.2	7.1	191	8.23
Preston	Ea	Bot	191	11-Jul-01	25.4	1298	7.1	897	887	9.6	7.3	193	8.23
Henry	Mid	Surf	238	27-Aug-01	23.5	1088	8.9	929	915	13.5	24.7	327	8.43
Preston	We	Surf	239	28-Aug-01	24.1	1334	7.8	1022	992	30.5	43.2	189	8.75
Preston	We	Bot	239	28-Aug-01	23.4	1339	6.2	2049	1996	53.0	42.7	387	8.66
Preston	Mid	Surf	239	28-Aug-01	23.9	1290	7.6	1023	1005	18.5	34.0	235	8.52
Preston	Mid	Bot	239	28-Aug-01	23.9	1292	6.9	3736	3523	213.3	32.2	234	8.50
Preston	Ea	Surf	239	28-Aug-01	23.6	1287	6.3	1067	1042	25.5	36.7	224	8.34
Preston	Ea	Bot	239	28-Aug-01	23.7	1288	6.7	1018	986	32.5	42.9	237	8.40
Thompson	No	Surf	240	29-Aug-01	23.8	1199	7.9	855	837	18.0	21.8	292	8.69
Thompson	No	Bot	240	29-Aug-01	23.8	1199	8.5	933	911	22.0	21.1	277	8.69
Thompson	Mid	Surf	240	29-Aug-01	23.1	1200	7.0	896	880	16.5	26.8	279	8.65
Thompson	Mid	Bot	240	29-Aug-01	23.1	1199	7.6	900	882	18.0	24.4	272	8.64
Thompson	So	Surf	240	29-Aug-01	22.7	1201	8.1	895	882	13.5	12.0	259	8.61
Thompson	So	Bot	240	29-Aug-01	22.8	1202	8.3	915	900	15.0	14.7	249	8.64
Whitewood	We	Surf	240	29-Aug-01	23.8	1225	8.4	947	924	23.5	30.2	272	9.07
Whitewood	We	Bot	240	29-Aug-01	23.7	1227	8.5	962	935	27.0	26.4	250	9.08
Whitewood	Mid	Surf	240	29-Aug-01	23.6	1233	8.1	930	887	43.0	47.2	260	9.03
Whitewood	Mid	Bot	240	29-Aug-01	23.6	1235	8.4	1010	962	48.0	50.5	250	9.04
Whitewood	Ea	Surf	240	29-Aug-01	23.4	1207	6.9	982	926	56.0	78.4	256	8.96
Whitewood	Ea	Bot	240	29-Aug-01	23.3	1246	7.7	1040	968	72.0	75.4	258	8.96

Thompson	No	Surf	259	17-Sep-01	16.7	1217	9.2	939	928	12.0	27.2	272	8.88
Thompson	No	Bot	259	17-Sep-01	16.7	1220	8.5	862	847	15.0	17.8	279	8.85
Thompson	Mid	Surf	259	17-Sep-01	16.8	1224	8.3	890	878	12.0	24.0	284	8.84
Thompson	Mid	Bot	259	17-Sep-01	16.7	1224	8.0	908	896	12.5	22.6	275	8.82
Thompson	So	Surf	259	17-Sep-01	15.5	1228	9.1	985	973	11.5	17.5	267	8.72
Thompson	So	Bot	259	17-Sep-01	15.5	1228	10.2	970	948	22.5	13.2	285	8.89
Whitewood	We	Surf	259	17-Sep-01	15.1	1209	10.0	960	935	24.5	31.3	252	9.29
Whitewood	We	Bot	259	17-Sep-01	14.9	1213	9.5	965	940	25.0	34.3	295	9.28
Whitewood	Mid	Surf	259	17-Sep-01	15.0	1233	9.2	975	953	22.5	31.9	240	9.08
Whitewood	Mid	Bot	259	17-Sep-01	15.0	1234	8.6	921	895	26.0	34.0	251	9.10
Whitewood	Ea	Surf	259	17-Sep-01	14.9	1214	8.9	960	933	27.5	40.6	248	8.88
Whitewood	Ea	Bot	259	17-Sep-01	14.8	1217	9.8	956	932	24.5	42.2	218	8.98
Henry	Mid	Surf	261	19-Sep-01	16.4	1139	10.5	921	913	8.0	7.4	263	8.70
Preston	We	Surf	261	19-Sep-01	15.8	1359	13.2	927	878	49.0	56.0	225	8.67
Preston	We	Bot	261	19-Sep-01	15.1	1361	11.7	1169	1132	37.0	57.7	252	8.53
Preston	Mid	Surf	261	19-Sep-01	16.3	1357	11.4	1027	997	30.0	56.5	225	8.54
Preston	Mid	Bot	261	19-Sep-01	14.6	1349	9.5	1149	1115	34.0	54.1	252	8.45
Preston	Ea	Surf	261	19-Sep-01	15.1	1364	10.4	1212	1176	36.5	45.9	245	8.50
Preston	Ea	Bot	261	19-Sep-01	14.6	1350	8.4	1001	972	29.5	47.9	238	8.40
Thompson	No	Surf	111	22-Apr-02	7.6	1219	11.9	914	906	8.4	12.7	291	8.36
Thompson	No	Bot	111	22-Apr-02	7.8	1216	12.3	944	933	11.2	12.9	300	8.39
Thompson	Mid	Surf	111	22-Apr-02	7.5	1218	10.6	905	892	12.4	14.0	294	8.30
Thompson	Mid	Bot	111	22-Apr-02	7.6	1216	10.7	912	897	14.4	15.0	316	8.37
Thompson	So	Surf	111	22-Apr-02	7.1	1217	11.8	948	931	16.8	13.3	308	7.44
Thompson	So	Bot	111	22-Apr-02	7.2	1213	12.2	919	902	17.2	18.1	318	8.23
Whitewood	We	Surf	118	29-Apr-02	5.5	1310	11.9	1098	1073	25.0	38.7	302	7.90
Whitewood	We	Bot	118	29-Apr-02	5.5	1289	11.1	1171	1153	18.0	188.4	305	8.09
Whitewood	Mid	Surf	118	29-Apr-02	5.4	1261	10.4	979	953	25.5	49.3	294	8.29
Whitewood	Mid	Bot	118	29-Apr-02	8.4	1262	10.4	996	967	29.5	51.5	297	8.30
Whitewood	Ea	Surf	118	29-Apr-02	5.5	1274	10.5	1025	990	34.5	33.4	287	8.28
Whitewood	Ea	Bot	118	29-Apr-02	5.6	1275	10.8	1001	969	32.0	30.8	287	8.27
Preston	We	Surf	118	29-Apr-02	6.0	1309	12.4	1031	904	127.0	274.9	285	8.12
Preston	We	Bot	118	29-Apr-02	6.0	1309	12.5	1181	1045	136.0	282.6	287	8.10
Preston	Mid	Surf	118	29-Apr-02	5.7	1330	12.0	1372	1170	202.0	310.1	279	8.23
Preston	Mid	Bot	118	29-Apr-02	5.8	1330	11.9	982	840	142.0	312.0	284	8.25
Preston	Ea	Surf	118	29-Apr-02	6.2	1331	12.2	1298	1076	222.0	515.0	278	8.27
Preston	Ea	Bot	118	29-Apr-02	6.2	1328	12.1	1712	1232	480.0	506.2	288	8.27
Henry	Mid	Surf	111	22-Apr-02	7.8	1097	10.7	861	849	11.6	13.4	268	8.24
Thompson	No	Surf	139	20-May-02	13.0	1268	9.0	191	173	18.0	1.9	294	8.94
Thompson	No	Bot	139	20-May-02	12.0	1259	9.1	198	192	6.5	2.6	316	8.94
Thompson	Mid	Surf	139	20-May-02	12.3	1252	9.2	539	533	6.0	2.0	334	8.92
Thompson	Mid	Bot	139	20-May-02	12.0	1259	9.3	409	405	3.5	2.3	305	8.92
Thompson	So	Surf	139	20-May-02	12.0	1226	9.4	891	889	1.5	2.1	338	8.91
Thompson	So	Bot	139	20-May-02	11.7	1239	9.5	825	818	6.5	2.5	338	8.91
Whitewood	We	Surf	147	28-May-02	17.1	1196	9.8	516	506	10.0	47.8	305	8.56
Whitewood	We	Bot	147	28-May-02	17.0	1196	9.6	928	916	11.5	48.3	308	8.56

Whitewood	Mid	Surf	147	28-May-02	15.9	1205	9.3	880	868	12.5	56.6	298	8.28
Whitewood	Mid	Bot	147	28-May-02	15.6	1205	9.1	164	111	53.5	46.1	303	8.45
Whitewood	Ea	Surf	140	21-May-02	12.7	1185	10.1	900	849	51.0	52.4	281	8.44
Whitewood	Ea	Bot	140	21-May-02	12.7	1187	9.9	164	111	53.5	55.5	272	8.47
Preston	We	Surf	147	28-May-02	17.9	1442	9.2	1107	1089	18.0	57.8	288	8.59
Preston	We	Bot	147	28-May-02	17.0	1440	8.8	1204	1179	25.5	56.5	300	8.52
Preston	Mid	Surf	147	28-May-02	18.6	1320	9.8	1084	1040	43.5	68.5	283	8.56
Preston	Mid	Bot	147	28-May-02	18.5	1320	9.6	1116	1068	48.0	68.5	288	8.54
Preston	Ea	Surf	147	28-May-02	16.4	1314	9.1	1596	1527	69.0	68.6	281	8.42
Preston	Ea	Bot	147	28-May-02	16.3	1314	8.8	1672	1602	70.0	69.9	290	8.43
Henry	Mid	Surf	139	20-May-02	13.8	1139	8.5	51	38	13.0	1.6	275	8.70
Thompson	No	Surf	170	20-Jun-02	21.6	1263	8.6	183	179	3.5	2.6	370	8.51
Thompson	No	Bot	170	20-Jun-02	20.8	1262	7.7	202	189	13.0	7.7	330	8.49
Thompson	Mid	Surf	170	20-Jun-02	21.3	1261	8.9	249	243	5.5	7.7	357	8.40
Thompson	Mid	Bot	170	20-Jun-02	20.6	1259	7.8	191	129	61.5	10.2	342	8.46
Thompson	So	Surf	170	20-Jun-02	21.3	1264	8.2	276	262	14.0	14.0	320	8.43
Thompson	So	Bot	170	20-Jun-02	20.6	1263	7.6	336	318	18.5	44.9	312	8.34
Whitewood	We	Surf	169	19-Jun-02	21.5	1236	7.9	566	536	30.0	29.8	270	8.46
Whitewood	We	Bot	169	19-Jun-02	21.5	1236	7.6	827	800	27.0	32.2	291	8.44
Whitewood	Mid	Surf	169	19-Jun-02	21.5	1248	7.8	821	793	28.0	34.5	290	8.47
Whitewood	Mid	Bot	169	19-Jun-02	21.5	1248	7.6	1034	997	37.5	35.5	308	8.41
Whitewood	Ea	Surf	169	19-Jun-02	21.5	1253	7.5	1001	958	43.0	37.7	287	8.45
Whitewood	Ea	Bot	169	19-Jun-02	21.4	1253	7.3	1027	986	41.5	38.6	309	8.40
Preston	We	Surf	174	24-Jun-02	24.0	1474	7.7	1203	1164	39.0	54.6	294	8.36
Preston	We	Bot	174	24-Jun-02	24.0	1474	7.5	848	803	45.0	70.2	301	8.37
Preston	Mid	Surf	174	24-Jun-02	24.4	1390	7.7	870	839	31.0	108.5	270	8.36
Preston	Mid	Bot	174	24-Jun-02	24.3	1391	7.5	1271	1191	80.0	118.4	282	8.33
Preston	Ea	Surf	174	24-Jun-02	24.3	1388	7.9	1292	1227	65.3	95.3	277	8.42
Preston	Ea	Bot	174	24-Jun-02	24.3	1389	7.7	1087	1031	56.0	97.3	282	8.33
Henry	Mid	Surf	169	19-Jun-02	22.1	1169	6.9	927	918	9.0	10.1	275	8.34
Thompson	No	Surf	202	22-Jul-02	25.2	1274	6.6	912	899	12.5	12.3	318	8.55
Thompson	No	Bot	202	22-Jul-02	25.3	1274	6.4	1030	1011	19.0	3.5	349	8.61
Thompson	Mid	Surf	202	22-Jul-02	24.7	1282	6.4	992	973	19.0	4.2	328	8.54
Thompson	Mid	Bot	202	22-Jul-02	24.7	1282	6.0	933	915	17.5	6.9	359	8.53
Thompson	So	Surf	202	22-Jul-02	24.4	1278	6.9	985	963	21.5	12.3	316	8.59
Thompson	So	Bot	202	22-Jul-02	24.3	1278	6.9	979	959	20.0	18.9	347	8.68
Whitewood	We	Surf	202	22-Jul-02	25.4	1214	7.7	955	912	43.0	66.1	248	8.88
Whitewood	We	Bot	202	22-Jul-02	25.4	1214	7.6	859	827	32.0	62.3	261	8.87
Whitewood	Mid	Surf	202	22-Jul-02	25.2	1228	6.2	964	926	38.0	54.2	240	8.62
Whitewood	Mid	Bot	202	22-Jul-02	25.1	1229	5.9	1529	1495	34.0	54.2	229	8.62
Whitewood	Ea	Surf	202	22-Jul-02	25.1	1236	6.2	992	951	41.0	65.4	242	8.48
Whitewood	Ea	Bot	202	22-Jul-02	25.1	1236	6.2	1017	988	29.0	63.7	240	8.48
Preston	We	Surf	203	23-Jul-02	23.8	1541	6.2	1578	1515	63.0	104.0	303	8.65
Preston	We	Bot	203	23-Jul-02	23.7	1544	5.1	1237	1184	52.5	112.4	308	8.64
Preston	Mid	Surf	203	23-Jul-02	23.0	1481	7.9	1117	1053	63.3	94.3	336	8.52
Preston	Mid	Bot	203	23-Jul-02	22.9	1481	7.7	1188	1123	65.3	108.3	309	8.51

Preston	Ea	Surf	203	23-Jul-02	23.1	1483	7.9	1203	1145	57.3	74.0	306	8.55
Preston	Ea	Bot	203	23-Jul-02	23.1	1483	7.9	1261	1196	64.7	76.1	302	8.55
Henry	Mid	Surf	203	23-Jul-02	24.3	1181	8.2	925	896	29.5	17.3	277	8.57
Thompson	No	Surf	238	27-Aug-02	22.5	1302	8.7	967	956	11.0	6.2	370	8.95
Thompson	No	Bot	238	27-Aug-02	21.5	1305	7.4	889	869	20.0	3.4	335	8.90
Thompson	Mid	Surf	238	27-Aug-02	22.0	1290	6.3	930	902	28.0	18.5	320	8.85
Thompson	Mid	Bot	238	27-Aug-02	21.0	1320	5.2	1022	997	25.0	3.0	337	8.84
Thompson	So	Surf	238	27-Aug-02	22.0	1290	6.4	956	943	13.0	6.9	337	8.84
Thompson	So	Bot	238	27-Aug-02	21.0	1320	4.9	953	927	26.0	19.4	347	8.85
Whitewood	We	Surf	239	28-Aug-02	22.8	1277	7.4	1018	978	40.0	44.8	283	8.91
Whitewood	We	Bot	239	28-Aug-02	22.6	1272	7.1	1094	1062	32.5	37.9	284	8.89
Whitewood	Mid	Surf	239	28-Aug-02	23.3	1277	5.6	1134	1097	37.0	47.9	286	8.94
Whitewood	Mid	Bot	239	28-Aug-02	23.3	1277	5.6	984	944	39.5	45.6	282	8.87
Whitewood	Ea	Surf	239	28-Aug-02	23.2	1280	5.1	1103	1060	42.5	41.6	276	8.84
Whitewood	Ea	Bot	239	28-Aug-02	23.2	1317	4.7	1096	1051	45.5	47.9	277	8.77
Preston	We	Surf	239	28-Aug-02	25.0	1510	6.9	1381	1328	53.0	53.5	364	8.92
Preston	We	Bot	239	28-Aug-02	24.7	1536	6.1	1434	1345	88.7	69.2	350	8.94
Preston	Mid	Surf	239	28-Aug-02	24.1	1503	7.7	1483	1401	82.0	65.0	342	8.96
Preston	Mid	Bot	239	28-Aug-02	24.1	1508	7.8	1475	1395	80.0	79.5	349	8.93
Preston	Ea	Surf	239	28-Aug-02	24.0	1512	7.3	1462	1392	70.0	64.7	346	8.94
Preston	Ea	Bot	239	28-Aug-02	23.7	1523	7.1	1345	1249	96.0	70.8	364	8.85
Henry	Mid	Surf	237	26-Aug-02	23.2	1150	6.5	1079	1069	9.5	9.1	271	8.60
Thompson	No	Surf	272	30-Sep-02	14.3	1331	8.8	981	959	21.5	10.3	373	9.22
Thompson	No	Bot	272	30-Sep-02	13.5	1352	8.1	978	970	8.0	18.3	349	9.13
Thompson	Mid	Surf	272	30-Sep-02	13.5	1320	8.4	1019	1003	16.5	22.7	358	9.23
Thompson	Mid	Bot	272	30-Sep-02	14.0	1339	8.3	1038	1016	22.0	13.3	351	9.14
Thompson	So	Surf	272	30-Sep-02	14.1	1273	10.2	939	931	8.5	10.0	346	9.23
Thompson	So	Bot	272	30-Sep-02	13.5	1159	10.3	1074	1050	24.5	14.6	360	9.19
Whitewood	We	Surf	272	30-Sep-02	13.4	1419	9.8	1022	977	45.5	43.3	309	8.99
Whitewood	We	Bot	272	30-Sep-02	13.4	1419	9.7	1022	985	37.0	49.2	296	8.91
Whitewood	Mid	Surf	272	30-Sep-02	13.5	1416	8.6	1132	1088	44.5	52.1	310	8.86
Whitewood	Mid	Bot	272	30-Sep-02	13.2	1425	7.9	1026	982	43.5	63.6	301	8.75
Whitewood	Ea	Surf	272	30-Sep-02	13.5	1288	9.3	1158	1112	46.5	80.1	294	8.84
Whitewood	Ea	Bot	272	30-Sep-02	13.5	1352	9.3	1130	1088	42.5	50.4	288	8.95
Preston	We	Surf	273	1-Oct-02	13.8	1728	7.7	1413	1353	59.5	69.1	393	8.98
Preston	We	Bot	273	1-Oct-02	13.8	1728	7.6	1416	1358	58.5	69.4	399	8.93
Preston	Mid	Surf	273	1-Oct-02	13.9	1661	8.8	1434	1341	93.0	96.1	370	9.03
Preston	Mid	Bot	273	1-Oct-02	13.9	1661	8.8	1473	1376	97.0	94.4	390	8.95
Preston	Ea	Surf	273	1-Oct-02	14.1	1654	9.2	1299	1218	81.0	83.5	365	8.94
Preston	Ea	Bot	273	1-Oct-02	14.0	1658	9.0	1376	1301	75.0	77.6	386	8.98
Henry	Mid	Surf	273	1-Oct-02	13.9	1278	9.4	963	950	12.5	10.3	295	8.75
Thompson	No	Surf	110	21-Apr-03	8.3	1217	10.9	914	906	8.0	1.2	325	7.99
Thompson	No	Deep	110	21-Apr-03	7.7	1218	10.2	1118	1105	12.5	57.0	309	8.02
Thompson	Mid	Surf	110	21-Apr-03	8.8	1218	11.4	924	912	11.5	4.4	306	7.94
Thompson	Mid	Deep	110	21-Apr-03	7.7	1220	10.9	904	886	18.0	9.6	308	7.97
Thompson	So	Surf	110	21-Apr-03	7.8	1213	11.2	1050	1031	19.0	9.7	309	7.90

Thompson	So	Deep	110	21-Apr-03	7.2	1214	11.1	868	845	23.0	20.9	304	7.89
Whitewood	We	Surf	111	22-Apr-03	8.9	1282	11.8	1046	1013	33.5	34.8	272	7.72
Whitewood	We	Deep	111	22-Apr-03	8.8	1282	11.1	1027	998	29.0	34.7	268	7.72
Whitewood	Mid	Surf	111	22-Apr-03	8.8	1277	12.1	950	920	29.5	34.6	261	7.73
Whitewood	Mid	Deep	111	22-Apr-03	8.7	1277	11.6	1048	1010	38.0	75.5	259	7.73
Whitewood	Ea	Surf	111	22-Apr-03	8.7	1278	11.5	978	940	38.5	24.2	267	7.54
Whitewood	Ea	Deep	111	22-Apr-03	8.7	1277	11.2	999	959	39.5	134.0	263	7.64
Preston	We	Surf	111	22-Apr-03	10.0	1567	14.1	1242	1213	29.5	26.4	319	7.96
Preston	We	Deep	111	22-Apr-03	8.9	1571	11.4	1293	1258	35.0	65.5	323	7.91
Preston	Mid	Surf	111	22-Apr-03	9.8	1500	13.7	1618	1516	102.0	71.2	327	7.95
Preston	Mid	Deep	111	22-Apr-03	9.1	1498	12.8	1538	1435	103.0	105.3	326	7.96
Preston	Ea	Surf	111	22-Apr-03	10.2	1496	12.9	1451	1350	101.0	119.6	317	7.96
Preston	Ea	Deep	111	22-Apr-03	8.8	1494	8.1	1229	1141	88.0	134.5	327	7.93
Henry	Mid	Surf	110	21-Apr-03	8.2	1126	13.1	844	833	11.0	14.9	318	7.92
Thompson	No	Surf	139	20-May-03	13.7	1343	10.6	881	876	5.5	7.3	337	7.79
Thompson	No	Deep	139	20-May-03	13.4	1342	10.1	868	856	12.0	30.3	309	7.92
Thompson	Mid	Surf	139	20-May-03	13.3	1344	10.1	871	853	18.0	13.6	316	7.94
Thompson	Mid	Deep	139	20-May-03	13.0	1343	9.7	917	896	21.0	39.6	318	7.89
Thompson	So	Surf	139	20-May-03	13.2	1337	10.1	896	869	26.5	65.7	309	8.04
Thompson	So	Deep	139	20-May-03	12.2	1341	10.4	883	853	30.5	62.5	314	7.95
Whitewood	We	Surf	141	22-May-03	15.5	1430	10.1	1033	1009	23.5	46.6	274	7.93
Whitewood	We	Deep	141	22-May-03	14.4	1430	7.5	1018	993	25.5	71.1	265	7.75
Whitewood	Mid	Surf	141	22-May-03	15.0	1429	10.2	938	915	22.5	45.7	262	7.89
Whitewood	Mid	Deep	141	22-May-03	14.6	1431	8.5	988	959	28.5	54.2	266	7.82
Whitewood	Ea	Surf	141	22-May-03	15.0	1429	10.2	898	877	21.5	50.1	274	7.81
Whitewood	Ea	Deep	141	22-May-03	14.7	1431	8.9	963	938	25.0	60.3	282	7.74
Preston	We	Surf	141	22-May-03	16.3	1754	9.7	1040	998	42.0	68.2	308	8.06
Preston	We	Deep	141	22-May-03	16.3	1754	9.7	1122	952	170.0	78.3	294	8.01
Preston	Mid	Surf	141	22-May-03	15.8	1687	10.7	1094	986	108.0	186.1	314	8.16
Preston	Mid	Deep	141	22-May-03	15.8	1687	10.8	747	657	90.0	252.0	343	8.13
Preston	Ea	Surf	141	22-May-03	15.5	1690	10.7	723	649	74.0	186.9	358	7.94
Preston	Ea	Deep	141	22-May-03	15.4	1690	10.5	859	775	84.0	196.8	372	7.96
Henry	Mid	Surf	139	20-May-03	14.7	1267	9.4	893	879	13.5	13.3	271	7.74
Thompson	No	Surf	173	23-Jun-03	22.4	1279	8.8	924	920	4.5	2.6	326	8.84
Thompson	No	Deep	173	23-Jun-03	21.4	1278	7.6	825	820	5.0	5.0	318	8.86
Thompson	Mid	Surf	173	23-Jun-03	22.0	1278	8.0	881	876	5.0	4.5	310	8.79
Thompson	Mid	Deep	173	23-Jun-03	21.5	1279	7.2	827	824	2.5	8.0	319	8.75
Thompson	So	Surf	173	23-Jun-03	22.2	1275	8.9	877	876	1.0	4.0	314	8.78
Thompson	So	Deep	173	23-Jun-03	21.8	1273	7.7	929	923	5.5	6.4	312	8.75
Whitewood	We	Surf	169	19-Jun-03	22.7	1375	8.9	979	958	22.0	45.1	290	8.79
Whitewood	We	Deep	169	19-Jun-03	22.6	1375	8.6	1037	1013	24.0	45.5	291	8.74
Whitewood	Mid	Surf	169	19-Jun-03	22.7	1372	9.3	991	978	13.5	39.9	288	8.77
Whitewood	Mid	Deep	169	19-Jun-03	22.3	1373	8.8	1018	998	20.5	37.2	292	8.72
Whitewood	Ea	Surf	169	19-Jun-03	22.9	1369	8.5	1062	1031	31.0	45.6	289	8.80
Whitewood	Ea	Deep	169	19-Jun-03	22.9	1369	8.2	1089	1063	25.5	48.6	289	8.74
Preston	We	Surf	180	30-Jun-03	22.4	1617	13.6	1096	1055	40.8	60.9	295	9.05

Preston	We	Deep	180	30-Jun-03	21.2	1624	9.0	1290	1239	50.5	78.0	292	8.90
Preston	Mid	Surf	180	30-Jun-03	21.6	1597	11.2	1290	1218	72.0	81.3	308	9.01
Preston	Mid	Deep	180	30-Jun-03	21.3	1598	10.9	1219	1156	63.0	87.2	309	8.98
Preston	Ea	Surf	180	30-Jun-03	21.2	1601	10.8	1353	1271	82.0	83.3	304	9.05
Preston	Ea	Deep	180	30-Jun-03	20.7	1600	10.5	1295	1216	79.0	88.4	309	9.03
Henry	Mid	Surf	173	23-Jun-03	22.5	1222	7.9	1430	1410	20.5	20.5	258	8.75
Alice	No	Surf	235	24-Aug-01	23.6	1217	6.6	m	m	m	m	m	8.71
Alice	No	Bot	235	24-Aug-01	23.5	1219	6.8	m	m	m	m	m	8.75
Alice	Mid	Surf	235	24-Aug-01	23.3	1219	6.3	m	m	m	m	m	8.74
Alice	Mid	Bot	235	24-Aug-01	23.1	1220	6.4	m	m	m	m	m	8.73
Alice	So	Surf	235	24-Aug-01	23.3	1217	5.9	m	m	m	m	m	8.78
Alice	So	Bot	235	24-Aug-01	23.1	1221	6.4	m	m	m	m	m	8.73
Brant	We	Surf	236	25-Aug-01	23.6	1602	7.9	m	m	m	m	m	8.58
Brant	We	Bot	236	25-Aug-01	23.6	1603	8.0	m	m	m	m	m	8.56
Brant	Mid	Surf	236	25-Aug-01	23.5	1601	8.5	m	m	m	m	m	8.59
Brant	Mid	Bot	236	25-Aug-01	23.5	1603	8.3	m	m	m	m	m	8.57
Brant	Ea	Surf	236	25-Aug-01	23.7	1602	9.0	m	m	m	m	m	8.60
Brant	Ea	Bot	236	25-Aug-01	23.4	1603	8.3	m	m	m	m	m	8.55
Cochrane	We	Surf	235	24-Aug-01	23.8	1865	7.4	m	m	m	m	m	8.50
Cochrane	We	Bot	235	24-Aug-01	23.2	1868	5.8	m	m	m	m	m	8.56
Cochrane	Mid	Surf	235	24-Aug-01	23.5	1862	6.3	m	m	m	m	m	8.65
Cochrane	Mid	Bot	235	24-Aug-01	22.9	1865	5.2	m	m	m	m	m	8.57
Cochrane	Ea	Surf	235	24-Aug-01	23.4	1869	6.1	m	m	m	m	m	8.66
Cochrane	Ea	Bot	235	24-Aug-01	22.3	1885	2.0	m	m	m	m	m	8.33
Alice	No	Surf	176	26-Jun-02	25.1	1236	9.6	m	m	m	m	m	8.30
Alice	No	Bot	176	26-Jun-02	24.9	1236	9.5	m	m	m	m	m	8.32
Alice	Mid	Surf	176	26-Jun-02	24.9	1237	9.3	m	m	m	m	m	8.45
Alice	Mid	Bot	176	26-Jun-02	24.1	1236	9.4	m	m	m	m	m	8.46
Alice	So	Surf	176	26-Jun-02	25.4	1237	9.5	m	m	m	m	m	8.39
Alice	So	Bot	176	26-Jun-02	25.1	1235	9.5	m	m	m	m	m	8.46
Brant	We	Surf	175	25-Jun-02	24.7	1665	7.9	m	m	m	m	m	7.95
Brant	We	Bot	175	25-Jun-02	24.3	1663	7.7	m	m	m	m	m	7.87
Brant	Mid	Surf	175	25-Jun-02	25.1	1669	8.4	m	m	m	m	m	8.10
Brant	Mid	Bot	175	25-Jun-02	24.2	1665	7.2	m	m	m	m	m	7.87
Brant	Ea	Surf	175	25-Jun-02	25.3	1666	8.1	m	m	m	m	m	8.08
Brant	Ea	Bot	175	25-Jun-02	23.7	1664	6.9	m	m	m	m	m	7.78
Cochrane	We	Surf	176	26-Jun-02	24.4	1900	9.3	m	m	m	m	m	8.01
Cochrane	We	Bot	176	26-Jun-02	23.3	1909	3.4	m	m	m	m	m	7.91
Cochrane	Mid	Surf	176	26-Jun-02	24.5	1901	9.0	m	m	m	m	m	8.18
Cochrane	Mid	Bot	176	26-Jun-02	22.3	1866	1.1	m	m	m	m	m	7.84
Cochrane	Ea	Surf	176	26-Jun-02	24.9	1901	9.0	m	m	m	m	m	8.24
Cochrane	Ea	Bot	176	26-Jun-02	22.6	1910	1.2	m	m	m	m	m	7.81
Alice	No	Surf	198	18-Jul-02	25.7	1228	10.0	m	m	m	m	m	8.60
Alice	No	Bot	198	18-Jul-02	25.8	1228	9.9	m	m	m	m	m	8.61
Alice	Mid	Surf	198	18-Jul-02	25.3	1237	10.1	m	m	m	m	m	8.60
Alice	Mid	Bot	198	18-Jul-02	25.2	1235	9.4	m	m	m	m	m	8.61

Alice	So	Surf	198	18-Jul-02	24.3	1238	10.2	m	m	m	m	m	8.64
Alice	So	Bot	198	18-Jul-02	25.4	1236	9.9	m	m	m	m	m	8.60
Brant	We	Surf	199	19-Jul-02	26.9	1693	7.9	m	m	m	m	m	8.49
Brant	We	Bot	199	19-Jul-02	26.6	1695	6.4	m	m	m	m	m	8.41
Brant	Mid	Surf	199	19-Jul-02	26.3	1694	7.2	m	m	m	m	m	8.41
Brant	Mid	Bot	199	19-Jul-02	25.8	1698	4.5	m	m	m	m	m	8.19
Brant	Ea	Surf	199	19-Jul-02	26.2	1696	6.3	m	m	m	m	m	8.30
Brant	Ea	Bot	199	19-Jul-02	25.7	1696	5.4	m	m	m	m	m	8.25
Cochrane	We	Surf	198	18-Jul-02	27.0	1934	9.0	m	m	m	m	m	8.44
Cochrane	We	Bot	198	18-Jul-02	26.2	1933	8.1	m	m	m	m	m	8.37
Cochrane	Mid	Surf	198	18-Jul-02	26.2	1928	9.1	m	m	m	m	m	8.42
Cochrane	Mid	Bot	198	18-Jul-02	25.3	1930	6.9	m	m	m	m	m	8.28
Cochrane	Ea	Surf	198	18-Jul-02	25.9	1922	9.3	m	m	m	m	m	8.40
Cochrane	Ea	Bot	198	18-Jul-02	24.5	1876	1.7	m	m	m	m	m	7.97
Alice	No	Surf	233	22-Aug-02	20.2	1232	8.2	m	m	m	m	m	9.08
Alice	No	Bot	233	22-Aug-02	20.1	1246	8.2	m	m	m	m	m	9.00
Alice	Mid	Surf	233	22-Aug-02	19.8	1243	7.8	m	m	m	m	m	9.09
Alice	Mid	Bot	233	22-Aug-02	19.8	1187	6.6	m	m	m	m	m	9.02
Alice	So	Surf	233	22-Aug-02	19.5	779	8.2	m	m	m	m	m	9.10
Alice	So	Bot	233	22-Aug-02	19.3	1268	8.0	m	m	m	m	m	9.02
Brant	We	Surf	232	21-Aug-02	20.7	1689	7.5	m	m	m	m	m	8.95
Brant	We	Bot	232	21-Aug-02	20.7	1717	6.6	m	m	m	m	m	8.92
Brant	Mid	Surf	232	21-Aug-02	20.7	1689	7.8	m	m	m	m	m	9.00
Brant	Mid	Bot	232	21-Aug-02	20.6	1693	7.3	m	m	m	m	m	8.94
Brant	Ea	Surf	232	21-Aug-02	20.8	1658	7.4	m	m	m	m	m	9.02
Brant	Ea	Bot	232	21-Aug-02	20.7	1689	7.3	m	m	m	m	m	8.96
Cochrane	We	Surf	233	22-Aug-02	21.0	1925	8.2	m	m	m	m	m	8.86
Cochrane	We	Bot	233	22-Aug-02	20.9	1957	0.2	m	m	m	m	m	8.84
Cochrane	Mid	Surf	233	22-Aug-02	20.7	1938	7.8	m	m	m	m	m	8.60
Cochrane	Mid	Bot	233	22-Aug-02	20.2	1876	0.1	m	m	m	m	m	8.80
Cochrane	Ea	Surf	233	22-Aug-02	20.4	1951	7.9	m	m	m	m	m	8.79
Cochrane	Ea	Bot	233	22-Aug-02	19.5	1905	0.3	m	m	m	m	m	8.76
Alice	No	Surf	174	24-Jun-03	22.5	1227	9.0	m	m	m	m	m	8.92
Alice	No	Bot	174	24-Jun-03	22.5	1226	8.8	m	m	m	m	m	8.92
Alice	Mid	Surf	174	24-Jun-03	22.4	1228	8.5	m	m	m	m	m	8.83
Alice	Mid	Bot	174	24-Jun-03	22.2	1227	8.4	m	m	m	m	m	8.84
Alice	So	Surf	174	24-Jun-03	22.4	1227	8.4	m	m	m	m	m	8.89
Alice	So	Bot	174	24-Jun-03	22.3	1226	8.4	m	m	m	m	m	8.89
Brant	We	Surf	177	27-Jun-03	21.1	1663	9.4	m	m	m	m	m	8.65
Brant	We	Bot	177	27-Jun-03	20.8	1657	9.1	m	m	m	m	m	8.60
Brant	Mid	Surf	177	27-Jun-03	21.2	1657	9.2	m	m	m	m	m	8.61
Brant	Mid	Bot	177	27-Jun-03	20.7	1663	8.2	m	m	m	m	m	8.51
Brant	Ea	Surf	177	27-Jun-03	21.2	1662	9.8	m	m	m	m	m	8.53
Brant	Ea	Bot	177	27-Jun-03	20.8	1665	9.0	m	m	m	m	m	8.48
Cochrane	We	Surf	177	27-Jun-03	21.0	1883	9.1	m	m	m	m	m	8.75
Cochrane	We	Bot	177	27-Jun-03	20.4	1882	8.7	m	m	m	m	m	8.69

Cochrane	Mid	Surf	177	27-Jun-03	21.1	1885	9.1	m	m	m	m	m	8.74
Cochrane	Mid	Bot	177	27-Jun-03	20.2	1882	8.1	m	m	m	m	m	8.65
Cochrane	Ea	Surf	177	27-Jun-03	21.2	1882	9.4	m	m	m	m	m	8.48
Cochrane	Ea	Bot	177	27-Jun-03	20.0	1884	7.8	m	m	m	m	m	8.58

Nutrient and Trophic State Index Data

Lake	Basin	Depth	JD	Date	NO3 mg/L	NO2 mg/L	NH3 mg/L	Uamm mg/L	TKN mg/L	Onit mg/L	TotN mg/L	TP mg/L	TDP mg/L	NPRat	CChla (ug/L)	TSI(CHL)	TSI(TP)
Thompson	No	Surf	189	9-Jul-01	0.054	0.000	0.101	0.029	3.0	2.9	3.0	0.340	0.207	8.9	112.7	77	88
Thompson	No	Bot	189	9-Jul-01	0.218	0.000	0.206	0.009	1.6	1.4	1.8	0.283	0.269	6.5	3.7	44	86
Thompson	Mid	Surf	189	9-Jul-01	0.054	0.000	0.167	0.040	2.5	2.3	2.5	0.314	0.204	8.1	57.7	70	87
Thompson	Mid	Bot	189	9-Jul-01	0.226	0.000	0.166	0.006	1.6	1.4	1.8	0.289	0.272	6.3	2.7	40	86
Thompson	So	Surf	189	9-Jul-01	0.078	0.000	0.120	0.034	2.2	2.1	2.3	0.249	0.197	9.2	47.5	68	84
Thompson	So	Bot	189	9-Jul-01	0.060	0.000	0.082	0.005	1.7	1.6	1.8	0.244	0.261	7.3	19.8	60	83
Whitewood	We	Surf	189	9-Jul-01	0.068	0.000	0.254	0.125	2.9	2.6	3.0	0.602	0.490	4.9	66.8	72	96
Whitewood	We	Bot	189	9-Jul-01	0.074	0.000	0.238	0.030	2.4	2.2	2.5	0.613	0.534	4.0	142.6	79	97
Whitewood	Mid	Surf	189	9-Jul-01	0.114	0.000	0.716	0.135	2.7	1.9	2.8	0.759	0.720	3.6	10.1	53	100
Whitewood	Mid	Bot	189	9-Jul-01	0.096	0.000	0.760	0.085	2.7	1.9	2.8	0.910	0.839	3.0	7.1	50	102
Whitewood	Ea	Surf	189	9-Jul-01	0.098	0.000	0.846	0.168	3.5	2.7	3.6	0.774	0.725	4.7	16.0	58	100
Whitewood	Ea	Bot	189	9-Jul-01	0.098	0.000	0.860	0.085	3.3	2.4	3.4	0.778	0.708	4.3	11.7	55	100
Henry	Mid	Surf	191	11-Jul-01	0.053	0.000	0.112	0.021	1.7	1.6	1.7	0.337	0.300	5.1	18.7	59	88
Preston	We	Surf	191	11-Jul-01	0.134	0.000	0.225	0.034	2.0	1.8	2.2	0.799	0.753	2.7	24.6	62	101
Preston	We	Bot	191	11-Jul-01	0.137	0.000	0.241	0.032	1.9	1.7	2.1	0.789	0.742	2.6	9.6	53	100
Preston	Mid	Surf	191	11-Jul-01	0.242	0.000	0.168	0.014	1.8	1.7	2.1	0.528	0.520	3.9	8.5	52	95
Preston	Mid	Bot	191	11-Jul-01	0.239	0.000	0.222	0.017	1.9	1.6	2.1	0.598	0.531	3.5	14.5	57	96
Preston	Ea	Surf	191	11-Jul-01	0.174	0.000	0.144	0.013	1.7	1.5	1.8	0.521	0.476	3.5	10.7	54	94
Preston	Ea	Bot	191	11-Jul-01	0.181	0.000	0.172	0.016	2.3	2.1	2.5	0.517	0.475	4.8	12.8	56	94
Henry	Mid	Surf	238	27-Aug-01	0.086	0.000	0.126	0.015	1.7	1.6	1.8	0.450	0.400	3.9	28.5	63	92
Preston	We	Surf	239	28-Aug-01	0.070	0.000	0.106	0.024	1.9	1.8	2.0	0.555	0.353	3.6	66.2	72	95
Preston	We	Bot	239	28-Aug-01	0.074	0.000	0.121	0.023	2.1	1.9	2.1	0.567	0.444	3.7	88.1	75	96
Preston	Mid	Surf	239	28-Aug-01	0.080	0.000	0.051	0.008	1.9	1.8	2.0	0.577	0.477	3.4	53.4	70	96
Preston	Mid	Bot	239	28-Aug-01	0.072	0.000	0.192	0.027	2.4	2.2	2.4	0.567	0.476	4.3	45.4	68	96
Preston	Ea	Surf	239	28-Aug-01	0.086	0.000	0.066	0.007	2.2	2.1	2.3	0.784	0.657	2.9	58.7	71	100
Preston	Ea	Bot	239	28-Aug-01	0.084	0.000	0.046	0.005	2.7	2.7	2.8	0.809	0.643	3.5	53.4	70	101
Thompson	No	Surf	240	29-Aug-01	0.038	0.001	0.138	0.028	2.0	1.9	2.0	0.400	0.349	5.1	41.1	67	91
Thompson	No	Bot	240	29-Aug-01	0.031	0.001	0.138	0.028	1.9	1.8	1.9	0.417	0.348	4.6	33.2	65	91
Thompson	Mid	Surf	240	29-Aug-01	0.078	0.000	0.111	0.020	1.5	1.4	1.6	0.413	0.366	3.9	9.6	53	91
Thompson	Mid	Bot	240	29-Aug-01	0.047	0.001	0.076	0.014	1.6	1.5	1.6	0.404	0.389	4.0	10.1	53	91
Thompson	So	Surf	240	29-Aug-01	0.064	0.000	0.060	0.010	1.5	1.4	1.5	0.393	0.360	3.9	10.7	54	90
Thompson	So	Bot	240	29-Aug-01	0.028	0.000	0.082	0.014	1.5	1.5	1.6	0.394	0.359	4.0	9.1	52	90
Whitewood	We	Surf	240	29-Aug-01	0.030	0.001	0.152	0.058	2.3	2.1	2.3	0.859	0.617	2.7	26.7	63	102
Whitewood	We	Bot	240	29-Aug-01	0.022	0.001	0.107	0.041	2.4	2.3	2.4	0.847	0.618	2.9	50.2	69	101
Whitewood	Mid	Surf	240	29-Aug-01	0.024	0.001	0.164	0.058	2.2	2.0	2.2	0.843	0.582	2.6	81.4	74	101
Whitewood	Mid	Bot	240	29-Aug-01	0.024	0.001	0.140	0.051	2.3	2.2	2.4	0.916	0.621	2.6	80.1	74	102

Whitewood	Ea	Surf	240	29-Aug-01	0.026	0.001	0.132	0.042	2.3	2.2	2.3	0.906	0.600	2.6	106.8	76	102
Whitewood	Ea	Bot	240	29-Aug-01	0.030	0.001	0.120	0.038	2.6	2.5	2.6	0.936	0.575	2.8	113.9	77	103
Thompson	No	Surf	259	17-Sep-01	0.118	0.000	0.102	0.019	2.0	1.9	2.1	0.421	0.364	5.0	77.4	73	91
Thompson	No	Bot	259	17-Sep-01	0.098	0.003	0.192	0.035	2.3	2.2	2.4	0.392	0.358	6.2	37.4	66	90
Thompson	Mid	Surf	259	17-Sep-01	0.100	0.001	0.102	0.018	1.7	1.6	1.8	0.404	0.367	4.6	28.3	63	91
Thompson	Mid	Bot	259	17-Sep-01	0.107	0.001	0.152	0.026	2.1	1.9	2.2	0.398	0.365	5.5	33.1	65	90
Thompson	So	Surf	259	17-Sep-01	0.120	0.000	0.056	0.007	1.8	1.7	1.9	0.376	0.331	5.0	44.3	68	90
Thompson	So	Bot	259	17-Sep-01	0.092	0.000	0.119	0.022	2.6	2.4	2.7	0.432	0.337	6.1	42.2	67	92
Whitewood	We	Surf	259	17-Sep-01	0.080	0.000	0.109	0.038	2.3	2.2	2.4	0.646	0.481	3.6	49.4	69	97
Whitewood	We	Bot	259	17-Sep-01	0.079	0.000	0.051	0.017	2.0	2.0	2.1	0.680	0.514	3.1	72.1	73	98
Whitewood	Mid	Surf	259	17-Sep-01	0.100	0.000	0.136	0.034	1.8	1.7	1.9	0.591	0.487	3.2	44.7	68	96
Whitewood	Mid	Bot	259	17-Sep-01	0.106	0.000	0.122	0.031	1.9	1.8	2.0	0.606	0.498	3.3	57.7	70	97
Whitewood	Ea	Surf	259	17-Sep-01	0.089	0.001	0.097	0.017	1.9	1.8	2.0	0.453	0.336	4.4	51.9	69	92
Whitewood	Ea	Bot	259	17-Sep-01	0.082	0.000	0.074	0.015	1.9	1.8	2.0	0.453	0.337	4.4	52.5	69	92
Henry	Mid	Surf	261	19-Sep-01	0.164	0.000	0.314	0.042	1.8	1.5	2.0	0.336	0.309	5.9	13.9	56	88
Preston	We	Surf	261	19-Sep-01	0.097	0.000	0.150	0.018	2.1	1.9	2.2	0.520	0.418	4.2	53.4	70	94
Preston	We	Bot	261	19-Sep-01	0.066	0.000	0.074	0.006	2.0	1.9	2.1	0.549	0.428	3.8	53.4	70	95
Preston	Mid	Surf	261	19-Sep-01	0.091	0.000	0.181	0.017	2.8	2.6	2.9	0.599	0.415	4.8	117.5	77	96
Preston	Mid	Bot	261	19-Sep-01	0.072	0.000	0.226	0.016	2.6	2.3	2.6	0.576	0.429	4.6	81.9	74	96
Preston	Ea	Surf	261	19-Sep-01	0.064	0.000	0.106	0.009	2.6	2.5	2.7	0.542	0.396	4.9	80.9	74	95
Preston	Ea	Bot	261	19-Sep-01	0.098	0.001	0.182	0.011	2.5	2.3	2.6	0.516	0.407	5.0	70.2	72	94
Thompson	No	Surf	111	22-Apr-02	0.079	0.002	0.166	0.006	1.8	1.7	1.9	0.221	0.164	8.7	52.9	70	82
Thompson	No	Bot	111	22-Apr-02	0.059	0.001	0.124	0.005	2.0	1.9	2.0	0.226	0.160	9.0	47.0	68	82
Thompson	Mid	Surf	111	22-Apr-02	0.086	0.002	0.198	0.006	1.7	1.5	1.8	0.224	0.168	8.0	44.3	68	82
Thompson	Mid	Bot	111	22-Apr-02	0.090	0.002	0.131	0.005	1.7	1.6	1.8	0.236	0.172	7.8	41.1	67	83
Thompson	So	Surf	111	22-Apr-02	0.132	0.001	0.110	0.000	2.2	2.1	2.3	0.223	0.153	10.4	54.5	70	82
Thompson	So	Bot	111	22-Apr-02	0.089	0.002	0.136	0.003	2.1	2.0	2.2	0.260	0.157	8.4	38.4	66	84
Whitewood	We	Surf	118	29-Apr-02	0.170	0.001	0.058	0.001	1.6	1.6	1.8	0.287	0.170	6.3	27.8	63	86
Whitewood	We	Bot	118	29-Apr-02	0.080	0.001	0.154	0.002	2.3	2.1	2.4	0.299	0.184	8.0	26.7	63	86
Whitewood	Mid	Surf	118	29-Apr-02	0.054	0.001	0.162	0.004	1.7	1.6	1.8	0.296	0.164	6.1	33.2	65	86
Whitewood	Mid	Bot	118	29-Apr-02	0.064	0.001	0.113	0.004	1.8	1.7	1.9	0.288	0.161	6.5	32.0	65	86
Whitewood	Ea	Surf	118	29-Apr-02	0.065	0.002	0.036	0.001	1.7	1.7	1.8	0.303	0.148	5.9	34.7	65	87
Whitewood	Ea	Bot	118	29-Apr-02	0.066	0.001	0.113	0.003	2.2	2.1	2.3	0.260	0.142	8.9	36.0	66	84
Preston	We	Surf	118	29-Apr-02	0.082	0.002	0.244	0.004	2.8	2.6	2.9	0.666	0.241	4.3	69.4	72	98
Preston	We	Bot	118	29-Apr-02	0.095	0.003	0.150	0.003	2.7	2.6	2.8	0.695	0.262	4.1	106.8	76	99
Preston	Mid	Surf	118	29-Apr-02	0.096	0.005	0.176	0.004	3.1	2.9	3.2	0.855	0.261	3.7	69.4	72	102
Preston	Mid	Bot	118	29-Apr-02	0.120	0.004	0.296	0.007	3.2	2.9	3.3	0.828	0.259	4.0	74.8	73	101
Preston	Ea	Surf	118	29-Apr-02	0.116	0.006	0.217	0.005	4.0	3.8	4.1	1.006	0.238	4.1	85.4	74	104
Preston	Ea	Bot	118	29-Apr-02	0.146	0.006	0.202	0.005	3.8	3.6	4.0	0.941	0.232	4.2	85.4	74	103
Henry	Mid	Surf	111	22-Apr-02	0.086	0.002	0.188	0.005	1.6	1.4	1.7	0.129	0.041	13.1	16.6	58	74
Thompson	No	Surf	139	20-May-02	0.034	0.000	0.027	0.005	1.3	1.3	1.4	0.152	0.152	8.9	3.7	44	77
Thompson	No	Bot	139	20-May-02	0.045	0.002	0.124	0.020	1.6	1.5	1.6	0.185	0.144	8.8	4.0	44	79
Thompson	Mid	Surf	139	20-May-02	0.034	0.000	0.166	0.026	1.7	1.5	1.7	0.172	0.148	10.0	1.9	37	78
Thompson	Mid	Bot	139	20-May-02	0.044	0.000	0.131	0.020	1.6	1.4	1.6	0.163	0.143	9.9	2.4	39	78
Thompson	So	Surf	139	20-May-02	0.024	0.001	0.087	0.013	1.3	1.3	1.4	0.123	0.133	11.1	1.6	35	74
Thompson	So	Bot	139	20-May-02	0.034	0.000	0.220	0.032	2.0	1.8	2.0	0.130	0.139	15.7	3.2	42	74

Whitewood	We	Surf	147	28-May-02	0.028	0.002	0.044	0.005	1.8	1.8	1.9	0.231	0.182	8.0	17.5	59	83
Whitewood	We	Bot	147	28-May-02	0.040	0.002	0.148	0.015	1.9	1.8	2.0	0.234	0.150	8.5	22.1	61	83
Whitewood	Mid	Surf	147	28-May-02	0.030	0.001	0.128	0.007	1.5	1.4	1.6	0.227	0.172	6.9	24.0	62	82
Whitewood	Mid	Bot	147	28-May-02	0.042	0.002	0.158	0.012	2.0	1.8	2.0	0.273	0.149	7.5	11.6	55	85
Whitewood	Ea	Surf	140	21-May-02	0.055	0.001	0.118	0.007	2.2	2.1	2.3	0.310	0.123	7.4	12.3	55	87
Whitewood	Ea	Bot	140	21-May-02	0.055	0.001	0.143	0.009	1.9	1.7	1.9	0.335	0.124	5.7	12.3	55	88
Preston	We	Surf	147	28-May-02	0.033	0.002	0.128	0.015	1.8	1.7	1.9	0.269	0.147	7.0	26.7	63	85
Preston	We	Bot	147	28-May-02	0.039	0.002	0.150	0.014	2.1	2.0	2.2	0.286	0.150	7.6	32.0	65	86
Preston	Mid	Surf	147	28-May-02	0.035	0.001	0.060	0.007	2.0	1.9	2.0	0.469	0.264	4.3	37.4	66	93
Preston	Mid	Bot	147	28-May-02	0.036	0.002	0.152	0.017	2.6	2.4	2.6	0.471	0.245	5.5	39.2	67	93
Preston	Ea	Surf	147	28-May-02	0.040	0.001	0.100	0.007	2.0	1.9	2.0	0.416	0.237	4.9	48.1	69	91
Preston	Ea	Bot	147	28-May-02	0.039	0.002	0.102	0.008	2.3	2.2	2.4	0.424	0.236	5.6	80.1	74	91
Henry	Mid	Surf	139	20-May-02	0.036	0.000	0.108	0.012	1.4	1.3	1.5	0.078	0.050	18.8	3.7	44	67
Thompson	No	Surf	170	20-Jun-02	0.032	0.000	0.164	0.021	1.5	1.4	1.6	0.257	0.259	6.0	7.5	50	84
Thompson	No	Bot	170	20-Jun-02	0.038	0.000	0.188	0.022	1.7	1.5	1.8	0.292	0.259	6.0	6.2	48	86
Thompson	Mid	Surf	170	20-Jun-02	0.031	0.000	0.170	0.017	1.5	1.4	1.6	0.271	0.240	5.7	6.4	49	85
Thompson	Mid	Bot	170	20-Jun-02	0.034	0.000	0.186	0.020	2.3	2.1	2.3	0.395	0.260	5.8	10.7	54	90
Thompson	So	Surf	170	20-Jun-02	0.026	0.000	0.190	0.020	1.6	1.4	1.6	0.274	0.255	5.9	10.7	54	85
Thompson	So	Bot	170	20-Jun-02	0.033	0.000	0.164	0.014	1.8	1.6	1.8	0.294	0.250	6.2	14.4	57	86
Whitewood	We	Surf	169	19-Jun-02	0.014	0.001	0.124	0.014	1.7	1.6	1.7	0.370	0.249	4.6	29.9	64	89
Whitewood	We	Bot	169	19-Jun-02	0.022	0.001	0.074	0.008	2.2	2.1	2.2	0.453	0.294	4.9	34.7	65	92
Whitewood	Mid	Surf	169	19-Jun-02	0.032	0.001	0.130	0.015	2.7	2.5	2.7	0.289	0.210	9.4	44.1	68	86
Whitewood	Mid	Bot	169	19-Jun-02	0.012	0.001	0.099	0.010	1.9	1.8	1.9	0.402	0.245	4.7	46.7	68	91
Whitewood	Ea	Surf	169	19-Jun-02	0.010	0.001	0.138	0.015	2.2	2.0	2.2	0.387	0.185	5.6	41.4	67	90
Whitewood	Ea	Bot	169	19-Jun-02	0.010	0.001	0.133	0.013	2.1	2.0	2.1	0.401	0.174	5.3	36.0	66	91
Preston	We	Surf	174	24-Jun-02	0.029	0.000	0.072	0.008	2.6	2.6	2.7	0.574	0.228	4.6	65.4	72	96
Preston	We	Bot	174	24-Jun-02	0.046	0.000	0.163	0.018	3.5	3.4	3.6	0.627	0.241	5.7	68.1	72	97
Preston	Mid	Surf	174	24-Jun-02	0.025	0.001	0.084	0.009	2.1	2.0	2.1	0.624	0.492	3.3	45.4	68	97
Preston	Mid	Bot	174	24-Jun-02	0.036	0.001	0.150	0.016	2.6	2.4	2.6	0.785	0.488	3.4	32.0	65	100
Preston	Ea	Surf	174	24-Jun-02	0.025	0.000	0.085	0.011	2.0	1.9	2.1	0.662	0.423	3.1	8.9	52	98
Preston	Ea	Bot	174	24-Jun-02	0.039	0.001	0.142	0.015	2.3	2.2	2.4	0.655	0.427	3.6	30.3	64	98
Henry	Mid	Surf	169	19-Jun-02	0.043	0.000	0.199	0.018	1.6	1.4	1.7	0.312	0.220	5.3	4.8	46	87
Thompson	No	Surf	202	22-Jul-02	0.029	0.000	0.327	0.056	1.7	1.4	1.7	0.347	0.299	5.0	27.8	63	88
Thompson	No	Bot	202	22-Jul-02	0.016	0.000	0.313	0.060	2.0	1.7	2.0	0.312	0.394	6.4	23.5	62	87
Thompson	Mid	Surf	202	22-Jul-02	0.016	0.000	0.311	0.050	1.9	1.6	1.9	0.347	0.309	5.6	9.6	53	88
Thompson	Mid	Bot	202	22-Jul-02	0.030	0.000	0.318	0.051	1.9	1.6	1.9	0.385	0.313	5.0	8.0	51	90
Thompson	So	Surf	202	22-Jul-02	0.046	0.000	0.292	0.051	2.9	2.6	2.9	0.353	0.276	8.3	16.6	58	89
Thompson	So	Bot	202	22-Jul-02	0.280	0.000	0.281	0.058	2.1	1.9	2.4	0.367	0.306	6.6	21.4	61	89
Whitewood	We	Surf	202	22-Jul-02	0.010	0.000	0.207	0.063	3.0	2.8	3.1	0.666	0.407	4.6	91.8	75	98
Whitewood	We	Bot	202	22-Jul-02	0.010	0.000	0.214	0.065	3.4	3.2	3.4	0.658	0.400	5.2	105.9	76	98
Whitewood	Mid	Surf	202	22-Jul-02	0.008	0.000	0.238	0.046	3.7	3.4	3.7	0.703	0.469	5.2	142.4	79	99
Whitewood	Mid	Bot	202	22-Jul-02	0.009	0.000	0.243	0.047	3.6	3.3	3.6	0.682	0.458	5.3	150.3	80	98
Whitewood	Ea	Surf	202	22-Jul-02	0.009	0.000	0.199	0.029	3.3	3.1	3.4	0.625	0.424	5.4	150.4	80	97
Whitewood	Ea	Bot	202	22-Jul-02	0.006	0.000	0.270	0.040	3.8	3.6	3.8	0.385	0.643	10.0	181.6	82	90
Preston	We	Surf	203	23-Jul-02	0.012	0.000	0.203	0.038	3.9	3.7	3.9	1.308	0.871	3.0	176.2	81	108
Preston	We	Bot	203	23-Jul-02	0.018	0.000	0.230	0.042	4.1	3.9	4.1	1.276	0.853	3.2	179.8	82	107

Preston	Mid	Surf	203	23-Jul-02	0.021	0.001	0.406	0.057	2.7	2.3	2.8	0.813	0.557	3.4	64.1	71	101
Preston	Mid	Bot	203	23-Jul-02	0.016	0.000	0.210	0.029	2.3	2.1	2.3	0.798	0.527	2.9	58.7	71	101
Preston	Ea	Surf	203	23-Jul-02	0.024	0.000	0.188	0.028	2.1	1.9	2.1	0.761	0.551	2.8	40.1	67	100
Preston	Ea	Bot	203	23-Jul-02	0.021	0.000	0.183	0.027	2.6	2.4	2.6	0.755	0.530	3.4	32.0	65	100
Henry	Mid	Surf	203	23-Jul-02	0.044	0.001	0.280	0.047	3.3	3.0	3.4	0.404	0.289	8.3	138.0	79	91
Thompson	No	Surf	238	27-Aug-02	0.028	0.002	0.420	0.125	2.5	2.1	2.5	0.351	0.279	7.1	36.3	66	89
Thompson	No	Bot	238	27-Aug-02	0.034	0.002	0.502	0.131	2.2	1.7	2.2	0.331	0.291	6.8	16.0	58	88
Thompson	Mid	Surf	238	27-Aug-02	0.034	0.002	0.583	0.143	2.3	1.7	2.3	0.304	0.286	7.5	14.4	57	87
Thompson	Mid	Bot	238	27-Aug-02	0.038	0.002	0.682	0.156	2.6	1.9	2.7	0.318	0.308	8.4	1.6	35	87
Thompson	So	Surf	238	27-Aug-02	0.038	0.002	0.448	0.108	2.2	1.8	2.2	0.350	0.307	6.4	13.4	56	89
Thompson	So	Bot	238	27-Aug-02	0.040	0.003	0.523	0.121	2.4	1.9	2.4	0.400	0.363	6.0	5.3	47	91
Whitewood	We	Surf	239	28-Aug-02	0.020	0.001	0.172	0.049	3.6	3.4	3.6	1.061	0.756	3.4	74.1	73	105
Whitewood	We	Bot	239	28-Aug-02	0.019	0.000	0.108	0.029	3.7	3.6	3.7	0.974	0.748	3.8	104.4	76	103
Whitewood	Mid	Surf	239	28-Aug-02	0.017	0.000	0.194	0.059	3.3	3.1	3.3	0.929	0.714	3.6	74.1	73	103
Whitewood	Mid	Bot	239	28-Aug-02	0.020	0.000	0.158	0.043	3.5	3.3	3.5	0.942	0.657	3.7	76.3	73	103
Whitewood	Ea	Surf	239	28-Aug-02	0.018	0.000	0.175	0.045	3.6	3.4	3.6	0.985	0.701	3.6	76.1	73	104
Whitewood	Ea	Bot	239	28-Aug-02	0.020	0.000	0.170	0.039	3.9	3.7	3.9	1.008	0.726	3.9	62.1	71	104
Preston	We	Surf	239	28-Aug-02	0.013	0.000	0.138	0.044	4.2	4.0	4.2	1.493	1.113	2.8	128.2	78	110
Preston	We	Bot	239	28-Aug-02	0.014	0.000	0.154	0.050	4.3	4.2	4.3	1.489	1.147	2.9	129.2	78	110
Preston	Mid	Surf	239	28-Aug-02	0.013	0.001	0.175	0.057	2.5	2.3	2.5	0.713	0.502	3.6	40.1	67	99
Preston	Mid	Bot	239	28-Aug-02	0.014	0.001	0.162	0.051	2.5	2.3	2.5	0.146	0.107	17.1	66.8	72	76
Preston	Ea	Surf	239	28-Aug-02	0.014	0.000	0.094	0.030	2.2	2.1	2.2	0.732	0.519	3.1	64.1	71	99
Preston	Ea	Bot	239	28-Aug-02	0.025	0.001	0.126	0.034	2.9	2.8	3.0	0.158	0.114	18.8	40.1	67	77
Henry	Mid	Surf	237	26-Aug-02	0.008	0.001	0.436	0.072	3.0	2.5	3.0	0.364	0.306	8.2	48.1	69	89
Thompson	No	Surf	272	30-Sep-02	0.037	0.001	0.296	0.089	2.6	2.3	2.7	0.313	0.236	8.5	113.2	77	87
Thompson	No	Bot	272	30-Sep-02	0.038	0.002	0.312	0.077	2.7	2.4	2.8	0.314	0.267	8.9	79.0	73	87
Thompson	Mid	Surf	272	30-Sep-02	0.040	0.002	0.284	0.083	2.3	2.0	2.3	0.335	0.272	6.8	52.9	70	88
Thompson	Mid	Bot	272	30-Sep-02	0.053	0.002	0.325	0.084	2.4	2.1	2.5	0.330	0.274	7.5	64.6	71	88
Thompson	So	Surf	272	30-Sep-02	0.021	0.000	0.181	0.055	2.2	2.0	2.2	0.306	0.221	7.2	90.2	75	87
Thompson	So	Bot	272	30-Sep-02	0.036	0.001	0.174	0.048	2.6	2.5	2.7	0.298	0.224	8.9	74.2	73	86
Whitewood	We	Surf	272	30-Sep-02	0.023	0.000	0.234	0.045	3.9	3.7	3.9	0.922	0.640	4.2	134.8	79	103
Whitewood	We	Bot	272	30-Sep-02	0.022	0.000	0.240	0.040	4.0	3.8	4.0	0.874	0.602	4.6	132.2	79	102
Whitewood	Mid	Surf	272	30-Sep-02	0.019	0.000	0.245	0.037	3.9	3.6	3.9	0.919	0.640	4.2	128.2	78	103
Whitewood	Mid	Bot	272	30-Sep-02	0.013	0.000	0.165	0.020	4.0	3.8	4.0	0.896	0.565	4.5	148.2	80	102
Whitewood	Ea	Surf	272	30-Sep-02	0.018	0.001	0.212	0.031	3.6	3.4	3.7	0.843	0.559	4.3	129.5	78	101
Whitewood	Ea	Bot	272	30-Sep-02	0.012	0.000	0.180	0.032	3.6	3.4	3.6	0.772	0.550	4.7	122.8	78	100
Preston	We	Surf	273	1-Oct-02	0.030	0.001	0.246	0.047	4.7	4.5	4.8	1.250	0.925	3.8	180.2	82	107
Preston	We	Bot	273	1-Oct-02	0.035	0.001	0.208	0.036	4.7	4.5	4.8	1.219	0.936	3.9	93.1	75	107
Preston	Mid	Surf	273	1-Oct-02	0.116	0.002	0.208	0.044	2.8	2.6	3.0	0.953	0.630	3.1	74.8	73	103
Preston	Mid	Bot	273	1-Oct-02	0.116	0.001	0.296	0.054	2.8	2.5	2.9	1.018	0.640	2.8	77.4	73	104
Preston	Ea	Surf	273	1-Oct-02	0.100	0.002	0.363	0.066	2.7	2.3	2.8	0.913	0.642	3.1	45.4	68	102
Preston	Ea	Bot	273	1-Oct-02	0.100	0.001	0.302	0.059	3.0	2.7	3.1	0.945	0.632	3.2	42.7	67	103
Henry	Mid	Surf	273	1-Oct-02	0.040	0.001	0.374	0.046	3.0	2.6	3.0	0.440	0.409	6.8	36.3	66	92
Thompson	No	Surf	110	21-Apr-03	0.050	0.010	0.010	0.000	1.6	1.6	1.7	0.239	0.177	6.9	11.7	55	83
Thompson	No	Deep	110	21-Apr-03	0.050	0.010	0.010	0.000	1.5	1.5	1.5	0.263	0.185	5.8	23.0	61	85
Thompson	Mid	Surf	110	21-Apr-03	0.050	0.010	0.010	0.000	1.4	1.4	1.5	0.242	0.184	6.2	23.0	61	83

Thompson	Mid	Deep	110	21-Apr-03	0.050	0.010	0.010	0.000	1.7	1.7	1.8	0.271	0.180	6.5	37.4	66	85
Thompson	So	Surf	110	21-Apr-03	0.050	0.010	0.010	0.000	1.6	1.6	1.6	0.247	0.185	6.6	25.6	62	84
Thompson	So	Deep	110	21-Apr-03	0.050	0.010	0.010	0.000	1.4	1.4	1.5	0.335	0.161	4.3	43.3	68	88
Whitewood	We	Surf	111	22-Apr-03	0.050	0.010	0.010	0.000	1.5	1.5	1.6	0.269	0.096	5.9	50.7	69	85
Whitewood	We	Deep	111	22-Apr-03	0.050	0.010	0.010	0.000	1.3	1.3	1.4	0.267	0.107	5.2	50.7	69	85
Whitewood	Mid	Surf	111	22-Apr-03	0.050	0.010	0.010	0.000	1.7	1.7	1.8	0.287	0.110	6.1	44.1	68	86
Whitewood	Mid	Deep	111	22-Apr-03	0.050	0.010	0.010	0.000	1.6	1.6	1.7	0.280	0.104	5.9	32.0	65	85
Whitewood	Ea	Surf	111	22-Apr-03	0.050	0.010	0.010	0.000	1.4	1.4	1.4	0.277	0.086	5.2	45.4	68	85
Whitewood	Ea	Deep	111	22-Apr-03	0.050	0.010	0.010	0.000	1.6	1.6	1.6	0.293	0.099	5.6	48.1	69	86
Preston	We	Surf	111	22-Apr-03	0.050	0.010	0.010	0.000	2.0	2.0	2.1	0.238	0.063	8.7	43.8	68	83
Preston	We	Deep	111	22-Apr-03	0.050	0.010	0.010	0.000	1.7	1.7	1.8	0.237	0.076	7.4	46.7	68	83
Preston	Mid	Surf	111	22-Apr-03	0.050	0.040	0.010	0.000	1.6	1.6	1.7	0.700	0.393	2.4	56.1	70	99
Preston	Mid	Deep	111	22-Apr-03	0.050	0.040	0.010	0.000	1.8	1.8	1.9	0.732	0.407	2.6	66.8	72	99
Preston	Ea	Surf	111	22-Apr-03	0.050	0.040	0.010	0.000	1.8	1.7	1.8	0.778	0.435	2.4	48.1	69	100
Preston	Ea	Deep	111	22-Apr-03	0.050	0.040	0.010	0.000	2.0	2.0	2.1	0.754	0.430	2.7	40.1	67	100
Henry	Mid	Surf	110	21-Apr-03	0.050	0.010	0.080	0.001	1.8	1.7	1.9	0.217	0.166	8.6	9.1	52	82
Thompson	No	Surf	139	20-May-03	0.050	0.010	0.010	0.000	1.5	1.4	1.5	0.238	0.208	6.3	10.1	53	83
Thompson	No	Deep	139	20-May-03	0.050	0.010	0.020	0.000	1.6	1.6	1.6	0.263	0.207	6.2	48.6	69	85
Thompson	Mid	Surf	139	20-May-03	0.050	0.010	0.040	0.001	1.8	1.8	1.9	0.292	0.208	6.5	8.4	51	86
Thompson	Mid	Deep	139	20-May-03	0.050	0.010	0.060	0.001	2.2	2.1	2.2	0.282	0.206	7.9	8.4	51	86
Thompson	So	Surf	139	20-May-03	0.050	0.010	0.010	0.000	1.8	1.8	1.9	0.270	0.176	7.0	35.2	66	85
Thompson	So	Deep	139	20-May-03	0.050	0.010	0.010	0.000	1.6	1.6	1.6	0.274	0.158	5.9	41.1	67	85
Whitewood	We	Surf	141	22-May-03	0.050	0.010	0.010	0.000	1.6	1.5	1.6	0.265	0.136	6.1	40.1	67	85
Whitewood	We	Deep	141	22-May-03	0.050	0.010	0.010	0.000	1.7	1.7	1.8	0.318	0.163	5.6	45.4	68	87
Whitewood	Mid	Surf	141	22-May-03	0.050	0.010	0.010	0.000	1.5	1.5	1.6	0.303	0.172	5.3	38.4	66	87
Whitewood	Mid	Deep	141	22-May-03	0.050	0.010	0.010	0.000	2.4	2.4	2.5	0.275	0.130	9.0	46.7	68	85
Whitewood	Ea	Surf	141	22-May-03	0.050	0.010	0.010	0.000	2.5	2.5	2.5	0.291	0.161	8.7	48.1	69	86
Whitewood	Ea	Deep	141	22-May-03	0.050	0.010	0.010	0.000	2.0	2.0	2.1	0.308	0.160	6.8	57.4	70	87
Preston	We	Surf	141	22-May-03	0.050	0.010	0.010	0.000	2.2	2.2	2.3	0.310	0.095	7.3	37.4	66	87
Preston	We	Deep	141	22-May-03	0.050	0.010	0.010	0.000	2.0	2.0	2.1	0.346	0.098	6.0	34.7	65	88
Preston	Mid	Surf	141	22-May-03	0.050	0.040	0.010	0.000	2.8	2.8	2.9	0.671	0.269	4.3	90.8	75	98
Preston	Mid	Deep	141	22-May-03	0.050	0.060	0.010	0.000	2.0	2.0	2.1	0.731	0.273	2.9	32.0	65	99
Preston	Ea	Surf	141	22-May-03	0.050	0.040	0.010	0.000	1.7	1.7	1.8	0.690	0.291	2.6	64.1	71	98
Preston	Ea	Deep	141	22-May-03	0.050	0.050	0.010	0.000	2.0	2.0	2.1	0.699	0.301	3.0	69.4	72	99
Henry	Mid	Surf	139	20-May-03	0.050	0.010	0.310	0.004	2.3	2.0	2.3	0.328	0.273	7.1	1.1	31	88
Thompson	No	Surf	173	23-Jun-03	0.050	0.010	0.110	0.027	1.7	1.6	1.8	0.326	0.297	5.5	7.5	50	88
Thompson	No	Deep	173	23-Jun-03	0.050	0.010	0.160	0.039	1.8	1.6	1.9	0.346	0.304	5.4	13.9	56	88
Thompson	Mid	Surf	173	23-Jun-03	0.050	0.010	0.150	0.033	1.7	1.5	1.7	0.307	0.283	5.6	13.4	56	87
Thompson	Mid	Deep	173	23-Jun-03	0.050	0.010	0.200	0.040	1.8	1.6	1.9	0.346	0.301	5.3	8.5	52	88
Thompson	So	Surf	173	23-Jun-03	0.050	0.010	0.160	0.035	1.6	1.5	1.7	0.309	0.283	5.5	5.9	48	87
Thompson	So	Deep	173	23-Jun-03	0.050	0.010	0.180	0.037	1.7	1.5	1.8	0.321	0.287	5.5	7.5	50	87
Whitewood	We	Surf	169	19-Jun-03	0.050	0.010	0.010	0.002	1.7	1.7	1.8	0.618	0.432	2.8	70.8	72	97
Whitewood	We	Deep	169	19-Jun-03	0.050	0.010	0.010	0.002	2.0	1.9	2.0	0.639	0.429	3.1	48.8	69	97
Whitewood	Mid	Surf	169	19-Jun-03	0.050	0.010	0.010	0.002	2.2	2.2	2.2	0.696	0.481	3.2	54.2	70	99
Whitewood	Mid	Deep	169	19-Jun-03	0.050	0.010	0.010	0.002	2.2	2.2	2.2	0.695	0.504	3.2	59.5	71	99
Whitewood	Ea	Surf	169	19-Jun-03	0.050	0.010	0.010	0.002	2.0	2.0	2.0	0.825	0.619	2.4	45.9	68	101

Whitewood	Ea	Deep	169	19-Jun-03	0.050	0.010	0.010	0.002	2.3	2.3	2.4	0.844	0.626	2.8	66.8	72	101
Preston	We	Surf	180	30-Jun-03	0.050	0.010	0.010	0.003	2.4	2.4	2.5	0.444	0.210	5.5	89.7	75	92
Preston	We	Deep	180	30-Jun-03	0.050	0.010	0.010	0.003	1.9	1.9	2.0	0.524	0.250	3.8	88.1	75	94
Preston	Mid	Surf	180	30-Jun-03	0.100	0.060	0.010	0.003	1.7	1.7	1.9	0.619	0.351	3.1	58.7	71	97
Preston	Mid	Deep	180	30-Jun-03	0.100	0.060	0.010	0.003	1.8	1.8	1.9	0.609	0.347	3.2	45.4	68	97
Preston	Ea	Surf	180	30-Jun-03	0.050	0.040	0.010	0.003	1.8	1.8	1.9	0.585	0.313	3.3	45.4	68	96
Preston	Ea	Deep	180	30-Jun-03	0.050	0.050	0.010	0.003	1.9	1.9	2.0	0.576	0.315	3.5	56.1	70	96
Henry	Mid	Surf	173	23-Jun-03	0.050	0.010	0.010	0.002	1.9	1.9	1.9	0.316	0.248	6.1	17.1	58	87
Alice	No	Surf	235	24-Aug-01	m	m	m	m	m	m	m	m	m	m	97.5	76	m
Alice	No	Bot	235	24-Aug-01	m	m	m	m	m	m	m	m	m	m	93.5	75	m
Alice	Mid	Surf	235	24-Aug-01	m	m	m	m	m	m	m	m	m	m	69.4	72	m
Alice	Mid	Bot	235	24-Aug-01	m	m	m	m	m	m	m	m	m	m	76.1	73	m
Alice	So	Surf	235	24-Aug-01	m	m	m	m	m	m	m	m	m	m	69.4	72	m
Alice	So	Bot	235	24-Aug-01	m	m	m	m	m	m	m	m	m	m	62.7	71	m
Brant	We	Surf	236	25-Aug-01	m	m	m	m	m	m	m	m	m	m	52.3	69	m
Brant	We	Bot	236	25-Aug-01	m	m	m	m	m	m	m	m	m	m	50.7	69	m
Brant	Mid	Surf	236	25-Aug-01	m	m	m	m	m	m	m	m	m	m	52.3	69	m
Brant	Mid	Bot	236	25-Aug-01	m	m	m	m	m	m	m	m	m	m	34.4	65	m
Brant	Ea	Surf	236	25-Aug-01	m	m	m	m	m	m	m	m	m	m	54.5	70	m
Brant	Ea	Bot	236	25-Aug-01	m	m	m	m	m	m	m	m	m	m	25.6	62	m
Cochrane	We	Surf	235	24-Aug-01	m	m	m	m	m	m	m	m	m	m	51.3	69	m
Cochrane	We	Bot	235	24-Aug-01	m	m	m	m	m	m	m	m	m	m	43.3	68	m
Cochrane	Mid	Surf	235	24-Aug-01	m	m	m	m	m	m	m	m	m	m	39.5	67	m
Cochrane	Mid	Bot	235	24-Aug-01	m	m	m	m	m	m	m	m	m	m	34.2	65	m
Cochrane	Ea	Surf	235	24-Aug-01	m	m	m	m	m	m	m	m	m	m	38.4	66	m
Cochrane	Ea	Bot	235	24-Aug-01	m	m	m	m	m	m	m	m	m	m	37.9	66	m
Alice	No	Surf	176	26-Jun-02	m	m	m	m	m	m	m	m	m	m	22.9	61	m
Alice	No	Bot	176	26-Jun-02	m	m	m	m	m	m	m	m	m	m	22.9	61	m
Alice	Mid	Surf	176	26-Jun-02	m	m	m	m	m	m	m	m	m	m	23.6	62	m
Alice	Mid	Bot	176	26-Jun-02	m	m	m	m	m	m	m	m	m	m	22.9	61	m
Alice	So	Surf	176	26-Jun-02	m	m	m	m	m	m	m	m	m	m	18.3	59	m
Alice	So	Bot	176	26-Jun-02	m	m	m	m	m	m	m	m	m	m	19.8	60	m
Brant	We	Surf	175	25-Jun-02	m	m	m	m	m	m	m	m	m	m	6.4	49	m
Brant	We	Bot	175	25-Jun-02	m	m	m	m	m	m	m	m	m	m	12.3	55	m
Brant	Mid	Surf	175	25-Jun-02	m	m	m	m	m	m	m	m	m	m	12.3	55	m
Brant	Mid	Bot	175	25-Jun-02	m	m	m	m	m	m	m	m	m	m	12.3	55	m
Brant	Ea	Surf	175	25-Jun-02	m	m	m	m	m	m	m	m	m	m	9.1	52	m
Brant	Ea	Bot	175	25-Jun-02	m	m	m	m	m	m	m	m	m	m	9.6	53	m
Cochrane	We	Surf	176	26-Jun-02	m	m	m	m	m	m	m	m	m	m	12.8	56	m
Cochrane	We	Bot	176	26-Jun-02	m	m	m	m	m	m	m	m	m	m	10.7	54	m
Cochrane	Mid	Surf	176	26-Jun-02	m	m	m	m	m	m	m	m	m	m	17.6	59	m
Cochrane	Mid	Bot	176	26-Jun-02	m	m	m	m	m	m	m	m	m	m	10.7	54	m
Cochrane	Ea	Surf	176	26-Jun-02	m	m	m	m	m	m	m	m	m	m	6.9	50	m
Cochrane	Ea	Bot	176	26-Jun-02	m	m	m	m	m	m	m	m	m	m	13.9	56	m
Alice	No	Surf	198	18-Jul-02	m	m	m	m	m	m	m	m	m	m	19.2	60	m
Alice	No	Bot	198	18-Jul-02	m	m	m	m	m	m	m	m	m	m	23.5	62	m

Alice	Mid	Surf	198	18-Jul-02	m	m	m	m	m	m	m	m	m	m	26.7	63	m
Alice	Mid	Bot	198	18-Jul-02	m	m	m	m	m	m	m	m	m	m	26.7	63	m
Alice	So	Surf	198	18-Jul-02	m	m	m	m	m	m	m	m	m	m	34.7	65	m
Alice	So	Bot	198	18-Jul-02	m	m	m	m	m	m	m	m	m	m	29.4	64	m
Brant	We	Surf	199	19-Jul-02	m	m	m	m	m	m	m	m	m	m	87.6	74	m
Brant	We	Bot	199	19-Jul-02	m	m	m	m	m	m	m	m	m	m	70.0	72	m
Brant	Mid	Surf	199	19-Jul-02	m	m	m	m	m	m	m	m	m	m	11.7	55	m
Brant	Mid	Bot	199	19-Jul-02	m	m	m	m	m	m	m	m	m	m	3.7	44	m
Brant	Ea	Surf	199	19-Jul-02	m	m	m	m	m	m	m	m	m	m	5.9	48	m
Brant	Ea	Bot	199	19-Jul-02	m	m	m	m	m	m	m	m	m	m	3.2	42	m
Cochrane	We	Surf	198	18-Jul-02	m	m	m	m	m	m	m	m	m	m	27.8	63	m
Cochrane	We	Bot	198	18-Jul-02	m	m	m	m	m	m	m	m	m	m	23.5	62	m
Cochrane	Mid	Surf	198	18-Jul-02	m	m	m	m	m	m	m	m	m	m	27.8	63	m
Cochrane	Mid	Bot	198	18-Jul-02	m	m	m	m	m	m	m	m	m	m	16.6	58	m
Cochrane	Ea	Surf	198	18-Jul-02	m	m	m	m	m	m	m	m	m	m	30.4	64	m
Cochrane	Ea	Bot	198	18-Jul-02	m	m	m	m	m	m	m	m	m	m	16.0	58	m
Alice	No	Surf	233	22-Aug-02	m	m	m	m	m	m	m	m	m	m	21.4	61	m
Alice	No	Bot	233	22-Aug-02	m	m	m	m	m	m	m	m	m	m	27.5	63	m
Alice	Mid	Surf	233	22-Aug-02	m	m	m	m	m	m	m	m	m	m	22.7	61	m
Alice	Mid	Bot	233	22-Aug-02	m	m	m	m	m	m	m	m	m	m	24.0	62	m
Alice	So	Surf	233	22-Aug-02	m	m	m	m	m	m	m	m	m	m	26.7	63	m
Alice	So	Bot	233	22-Aug-02	m	m	m	m	m	m	m	m	m	m	10.7	54	m
Brant	We	Surf	232	21-Aug-02	m	m	m	m	m	m	m	m	m	m	247.8	85	m
Brant	We	Bot	232	21-Aug-02	m	m	m	m	m	m	m	m	m	m	178.9	81	m
Brant	Mid	Surf	232	21-Aug-02	m	m	m	m	m	m	m	m	m	m	193.3	82	m
Brant	Mid	Bot	232	21-Aug-02	m	m	m	m	m	m	m	m	m	m	176.2	81	m
Brant	Ea	Surf	232	21-Aug-02	m	m	m	m	m	m	m	m	m	m	44.9	68	m
Brant	Ea	Bot	232	21-Aug-02	m	m	m	m	m	m	m	m	m	m	32.0	65	m
Cochrane	We	Surf	233	22-Aug-02	m	m	m	m	m	m	m	m	m	m	80.6	74	m
Cochrane	We	Bot	233	22-Aug-02	m	m	m	m	m	m	m	m	m	m	26.7	63	m
Cochrane	Mid	Surf	233	22-Aug-02	m	m	m	m	m	m	m	m	m	m	40.6	67	m
Cochrane	Mid	Bot	233	22-Aug-02	m	m	m	m	m	m	m	m	m	m	16.0	58	m
Cochrane	Ea	Surf	233	22-Aug-02	m	m	m	m	m	m	m	m	m	m	16.6	58	m
Cochrane	Ea	Bot	233	22-Aug-02	m	m	m	m	m	m	m	m	m	m	11.7	55	m
Alice	No	Surf	174	24-Jun-03	m	m	m	m	m	m	m	m	m	m	10.1	53	m
Alice	No	Bot	174	24-Jun-03	m	m	m	m	m	m	m	m	m	m	13.4	56	m
Alice	Mid	Surf	174	24-Jun-03	m	m	m	m	m	m	m	m	m	m	9.6	53	m
Alice	Mid	Bot	174	24-Jun-03	m	m	m	m	m	m	m	m	m	m	9.6	53	m
Alice	So	Surf	174	24-Jun-03	m	m	m	m	m	m	m	m	m	m	9.6	53	m
Alice	So	Bot	174	24-Jun-03	m	m	m	m	m	m	m	m	m	m	11.2	54	m
Brant	We	Surf	177	27-Jun-03	m	m	m	m	m	m	m	m	m	m	42.7	67	m
Brant	We	Bot	177	27-Jun-03	m	m	m	m	m	m	m	m	m	m	38.4	66	m
Brant	Mid	Surf	177	27-Jun-03	m	m	m	m	m	m	m	m	m	m	10.7	54	m
Brant	Mid	Bot	177	27-Jun-03	m	m	m	m	m	m	m	m	m	m	9.6	53	m
Brant	Ea	Surf	177	27-Jun-03	m	m	m	m	m	m	m	m	m	m	47.0	68	m
Brant	Ea	Bot	177	27-Jun-03	m	m	m	m	m	m	m	m	m	m	31.5	64	m

Cochrane	We	Surf	177	27-Jun-03	m	m	m	m	m	m	m	m	m	m	13.9	56	m
Cochrane	We	Bot	177	27-Jun-03	m	m	m	m	m	m	m	m	m	m	17.1	58	m
Cochrane	Mid	Surf	177	27-Jun-03	m	m	m	m	m	m	m	m	m	m	17.6	59	m
Cochrane	Mid	Bot	177	27-Jun-03	m	m	m	m	m	m	m	m	m	m	13.4	56	m
Cochrane	Ea	Surf	177	27-Jun-03	m	m	m	m	m	m	m	m	m	m	10.1	53	m
Cochrane	Ea	Bot	177	27-Jun-03	m	m	m	m	m	m	m	m	m	m	13.4	56	m

APPENDIX XI – Whole Lake Characteristics

Lake	Basin	Julian	Date	Total Depth m	Atemp oC	Secchi cm	TSI(SD)	TSI(Ov)	Fecals (#/100 ml)
Thompson	No	189	9-Jul-01	7.1	31.0	100	60	75	-10
Thompson	Mid	189	9-Jul-01	7.0	28.2	115	58	72	-10
Thompson	So	189	9-Jul-01	4.3	27.5	145	55	69	-10
Whitewood	We	189	9-Jul-01	3.1	31.6	105	59	76	-10
Whitewood	Mid	189	9-Jul-01	3.1	31.4	248	47	67	-10
Whitewood	Ea	189	9-Jul-01	2.9	31.3	220	49	69	-10
Henry	Mid	191	11-Jul-01	3.5	25.7	130	56	68	-10
Preston	We	191	11-Jul-01	2.6	27.2	106	59	74	30
Preston	Mid	191	11-Jul-01	2.2	27.4	78	64	70	20
Preston	Ea	191	11-Jul-01	2.0	26.1	125	57	68	250
Henry	Mid	238	27-Aug-01	3.5	20.8	95	61	72	12000
Preston	We	239	28-Aug-01	2.4	22.8	48	71	79	40
Preston	Mid	239	28-Aug-01	2.4	19.9	55	69	78	10
Preston	Ea	239	28-Aug-01	2.3	18.6	55	69	80	-10
Thompson	No	240	29-Aug-01	6.7	23.6	80	63	74	-10
Thompson	Mid	240	29-Aug-01	6.4	21.4	85	62	69	-10
Thompson	So	240	29-Aug-01	4.0	19.8	110	59	68	-10
Whitewood	We	240	29-Aug-01	2.6	28.8	55	69	78	100
Whitewood	Mid	240	29-Aug-01	2.6	27.7	38	74	83	-10
Whitewood	Ea	240	29-Aug-01	2.5	27.4	50	70	83	-10
Thompson	No	259	17-Sep-01	7.0	18.4	124	57	74	10
Thompson	Mid	259	17-Sep-01	6.6	17.2	108	59	71	20
Thompson	So	259	17-Sep-01	4.3	14.5	156	54	70	-10
Whitewood	We	259	17-Sep-01	2.5	15.9	64	66	78	-10
Whitewood	Mid	259	17-Sep-01	2.6	15.4	70	65	76	20
Whitewood	Ea	259	17-Sep-01	2.5	17.8	60	67	76	60
Henry	Mid	261	19-Sep-01	3.8	24.3	250	47	64	-10
Preston	We	261	19-Sep-01	2.0	22.3	35	75	80	720
Preston	Mid	261	19-Sep-01	2.1	22.3	31	77	84	500
Preston	Ea	261	19-Sep-01	2.3	22.5	30	77	82	240
Thompson	No	111	22-Apr-02	6.8	3.4	120	57	70	-10
Thompson	Mid	111	22-Apr-02	6.3	2.6	98	60	70	-10

Thompson	So	111	22-Apr-02	4.0	2.0	108	59	70	-10
Whitewood	We	118	29-Apr-02	3.0	9.9	50	70	73	20
Whitewood	Mid	118	29-Apr-02	2.6	9.2	50	70	74	40
Whitewood	Ea	118	29-Apr-02	2.5	10.7	44	72	75	-10
Preston	We	118	29-Apr-02	1.5	10.5	10	93	88	-10
Preston	Mid	118	29-Apr-02	1.8	11.4	8	96	90	10
Preston	Ea	118	29-Apr-02	1.8	11.3	6	101	93	-10
Henry	Mid	111	22-Apr-02	3.0	7.0	122	57	63	-10
Thompson	No	139	20-May-02	4.0	10.7	310	44	55	-10
Thompson	Mid	139	20-May-02	6.4	12.6	360	42	52	-10
Thompson	So	139	20-May-02	7.1	11.7	610	34	48	-10
Whitewood	We	147	28-May-02	2.6	17.9	55	69	70	-10
Whitewood	Mid	147	28-May-02	2.7	18.1	56	68	71	-10
Whitewood	Ea	140	21-May-02	2.6	10.2	45	72	71	-10
Preston	We	147	28-May-02	2.0	22.0	38	74	74	-10
Preston	Mid	147	28-May-02	1.9	20.5	28	78	79	-10
Preston	Ea	147	28-May-02	2.2	19.0	31	77	79	-10
Henry	Mid	139	20-May-02	2.9	12.1	290	45	52	-10
Thompson	No	170	20-Jun-02	6.8	24.8	214	49	61	-10
Thompson	Mid	170	20-Jun-02	6.8	21.4	144	55	63	-10
Thompson	So	170	20-Jun-02	3.4	18.1	78	64	68	-10
Whitewood	We	169	19-Jun-02	2.6	24.6	50	70	74	-10
Whitewood	Mid	169	19-Jun-02	2.6	24.5	44	72	75	-10
Whitewood	Ea	169	19-Jun-02	2.3	23.7	37	74	77	-10
Preston	We	174	24-Jun-02	2.1	25.2	32	76	81	-10
Preston	Mid	174	24-Jun-02	1.7	26.7	16	86	84	-10
Preston	Ea	174	24-Jun-02	1.7	27.8	24	81	77	-10
Henry	Mid	169	19-Jun-02	2.8	26.9	155	54	62	-10
Thompson	No	202	22-Jul-02	6.1	23.9	86	62	71	-10
Thompson	Mid	202	22-Jul-02	6.2	23.5	100	60	67	-10
Thompson	So	202	22-Jul-02	4.0	23.6	80	63	70	-10
Whitewood	We	202	22-Jul-02	2.2	25.1	80	63	79	-10
Whitewood	Mid	202	22-Jul-02	2.6	23.5	54	69	82	-10
Whitewood	Ea	202	22-Jul-02	2.1	22.4	54	69	82	20
Preston	We	203	23-Jul-02	2.0	20.0	23	81	90	-10
Preston	Mid	203	23-Jul-02	1.8	20.1	22	82	85	-10
Preston	Ea	203	23-Jul-02	1.5	19.9	23	81	83	-10

Henry	Mid	203	23-Jul-02	3.0	21.0	48	71	80	20
Thompson	No	238	27-Aug-02	6.3	26.6	256	46	67	m
Thompson	Mid	238	27-Aug-02	6.3	24.5	258	46	63	-10
Thompson	So	238	27-Aug-02	3.7	26.6	158	53	66	-10
Whitewood	We	239	28-Aug-02	2.5	24.1	26	79	86	60
Whitewood	Mid	239	28-Aug-02	2.6	23.7	26	79	85	10
Whitewood	Ea	239	28-Aug-02	2.9	23.6	26	79	85	30
Preston	We	239	28-Aug-02	1.9	27.0	20	83	90	60
Preston	Mid	239	28-Aug-02	1.7	26.4	18	85	83	-10
Preston	Ea	239	28-Aug-02	1.8	25.7	20	83	85	-10
Henry	Mid	237	26-Aug-02	3.1	27.6	178	52	70	-10
Thompson	No	272	30-Sep-02	6.5	19.4	137	55	73	-10
Thompson	Mid	272	30-Sep-02	6.7	19.4	104	59	72	10
Thompson	So	272	30-Sep-02	2.7	19.1	52	69	77	50
Whitewood	We	272	30-Sep-02	2.3	20.2	29	78	86	320
Whitewood	Mid	272	30-Sep-02	2.5	19.2	32	76	86	30
Whitewood	Ea	273	30-Sep-02	2.2	22.6	31	77	85	170
Preston	We	273	1-Oct-02	1.7	15.9	24	81	90	150
Preston	Mid	273	1-Oct-02	1.7	15.0	22	82	86	20
Preston	Ea	273	1-Oct-02	1.9	14.6	24	81	84	130
Henry	Mid	273	1-Oct-02	3.4	16.8	96	61	73	-10
Thompson	No	110	21-Apr-03	6.5	11.9	262	46	61	-10
Thompson	Mid	110	21-Apr-03	6.2	10.9	136	56	67	-10
Thompson	So	110	21-Apr-03	3.4	9.9	83	63	70	-10
Whitewood	We	110	22-Apr-03	2.5	11.4	25	80	78	190
Whitewood	Mid	110	22-Apr-03	2.6	10.8	26	79	78	320
Whitewood	Ea	110	22-Apr-03	2.3	9.5	24	81	78	60
Preston	We	111	22-Apr-03	2.2	13.4	29	78	76	-10
Preston	Mid	111	22-Apr-03	1.7	13.5	21	82	84	-10
Preston	Ea	111	22-Apr-03	1.8	13.2	14	88	86	30
Henry	Mid	111	21-Apr-03	3.1	12.3	108	59	64	10
Thompson	No	111	20-May-03	6.6	8.2	185	51	63	-10
Thompson	Mid	111	20-May-03	6.7	7.3	58	68	68	-10
Thompson	So	111	20-May-03	3.3	7.5	68	66	72	-10
Whitewood	We	111	22-May-03	2.5	16.0	36	75	75	-10
Whitewood	Mid	111	22-May-03	2.4	16.9	34	76	76	-10
Whitewood	Ea	111	22-May-03	2.3	16.7	30	77	77	-10

Preston	We	111	22-May-03	1.9	16.3	26	79	77	-10
Preston	Mid	111	22-May-03	1.7	16.0	14	88	87	-10
Preston	Ea	110	22-May-03	1.7	15.5	14	88	86	10
Henry	Mid	139	20-May-03	2.8	10.4	69	65	61	-10
Thompson	No	139	23-Jun-03	6.6	23.1	283	45	61	-10
Thompson	Mid	139	23-Jun-03	6.3	25.8	207	50	64	-10
Thompson	So	139	23-Jun-03	3.7	23.2	155	54	63	-10
Whitewood	We	139	19-Jun-03	2.3	23.5	30	77	82	-10
Whitewood	Mid	139	19-Jun-03	2.3	23.2	35	75	81	-10
Whitewood	Ea	141	19-Jun-03	2.1	23.3	26	79	83	-10
Preston	We	141	30-Jun-03	1.8	24.5	24	81	82	-10
Preston	Mid	141	30-Jun-03	1.4	23.7	14	88	85	-10
Preston	Ea	141	30-Jun-03	1.7	29.8	16	86	83	-10
Henry	Mid	141	23-Jun-03	2.7	23.8	77	64	70	-10
Alice	No	235	24-Aug-01	3.4	25.6	105	59	67	m
Alice	Mid	235	24-Aug-01	3.6	26.8	115	58	65	m
Alice	So	235	24-Aug-01	3.5	28.3	105	59	66	m
Brant	We	236	25-Aug-01	4.3	24.4	130	56	63	m
Brant	Mid	236	25-Aug-01	5.0	25.4	160	53	61	m
Brant	Ea	236	25-Aug-01	4.2	25.8	225	48	59	m
Cochrane	We	235	24-Aug-01	4.1	21.4	175	52	61	m
Cochrane	Mid	235	24-Aug-01	5.7	23.2	190	51	59	m
Cochrane	Ea	235	24-Aug-01	7.3	24.1	220	49	57	m
Alice	No	176	26-Jun-02	3.6	27.1	86	62	62	m
Alice	Mid	176	26-Jun-02	3.6	27.6	100	60	61	m
Alice	So	176	26-Jun-02	3.5	26.7	82	63	61	m
Brant	We	175	25-Jun-02	4.8	27.9	136	56	52	m
Brant	Mid	175	25-Jun-02	4.5	30.3	126	57	56	m
Brant	Ea	175	25-Jun-02	4.8	28.9	114	58	55	m
Cochrane	We	176	26-Jun-02	4.3	23.0	188	51	53	m
Cochrane	Mid	176	26-Jun-02	6.3	23.1	186	51	55	m
Cochrane	Ea	176	26-Jun-02	8.1	23.5	184	51	50	m
Alice	No	198	18-Jul-02	3.4	24.9	47	71	65	m
Alice	Mid	198	18-Jul-02	3.9	24.0	47	71	67	m
Alice	So	198	18-Jul-02	3.3	27.1	48	71	68	m
Brant	We	199	19-Jul-02	4.2	25.6	120	57	66	m
Brant	Mid	199	19-Jul-02	4.6	25.7	190	51	53	m

Brant	Ea	199	19-Jul-02	4.3	25.4	185	51	50	m
Cochrane	We	198	18-Jul-02	4.1	28.3	135	56	59	m
Cochrane	Mid	198	18-Jul-02	6.0	29.2	140	55	59	m
Cochrane	Ea	198	18-Jul-02	8.1	29.0	156	54	59	m
Alice	No	233	22-Aug-02	3.5	17.9	63	67	64	m
Alice	Mid	233	22-Aug-02	3.7	17.9	63	67	64	m
Alice	So	233	22-Aug-02	3.7	18.7	62	67	65	m
Brant	We	232	21-Aug-02	4.4	22.1	65	66	75	m
Brant	Mid	232	21-Aug-02	4.6	23.1	91	61	72	m
Brant	Ea	232	21-Aug-02	4.4	23.3	160	53	61	m
Cochrane	We	233	22-Aug-02	4.1	19.3	137	55	65	m
Cochrane	Mid	233	22-Aug-02	6.6	19.3	182	51	59	m
Cochrane	Ea	233	22-Aug-02	8.5	19.4	201	50	54	m
Alice	No	174	24-Jun-03	3.6	23.1	310	44	49	m
Alice	Mid	174	24-Jun-03	3.3	23.5	315	43	48	m
Alice	So	174	24-Jun-03	3.3	23.5	320	43	48	m
Brant	We	177	27-Jun-03	4.5	24.9	122	57	62	m
Brant	Mid	177	27-Jun-03	4.7	24.7	102	60	57	m
Brant	Ea	177	27-Jun-03	3.6	24.5	115	58	63	m
Cochrane	We	177	27-Jun-03	3.8	18.9	115	58	57	m
Cochrane	Mid	177	27-Jun-03	6.2	20.6	115	58	58	m
Cochrane	Ea	177	27-Jun-03	8.1	22.1	102	60	57	m

APPENDIX XII – Lake Profile Data

Lake	Basin	Julian	Date	Depth (m)	Tw (C)	Cond (uS/cm)	DO (mg/L)	pH	Turb (NTU)	Light (%)
Thompson	North	148	29-May-01	0.25	15.0	1219	8.0	m	m	m
Thompson	North	148	29-May-01	0.50	15.0	1219	8.0	m	m	m
Thompson	North	148	29-May-01	1.00	15.0	1219	8.2	m	m	m
Thompson	North	148	29-May-01	2.00	15.0	1219	8.6	m	m	m
Thompson	North	148	29-May-01	3.00	15.0	1250	8.7	m	m	m
Thompson	North	148	29-May-01	4.00	15.0	1250	8.9	m	m	m
Thompson	North	148	29-May-01	5.00	15.0	1250	8.9	m	m	m
Thompson	North	148	29-May-01	6.00	14.5	1263	8.9	m	m	m
Thompson	North	148	29-May-01	7.00	14.0	1275	8.9	m	m	m
Whitewood	Middle	148	29-May-01	0.25	16.5	1213	9.0	m	m	m
Whitewood	Middle	148	29-May-01	0.50	16.5	1213	9.0	m	m	m
Whitewood	Middle	148	29-May-01	1.00	16.5	1225	9.0	m	m	m
Whitewood	Middle	148	29-May-01	1.50	16.5	1225	9.0	m	m	m
Whitewood	Middle	148	29-May-01	2.00	16.5	1225	9.9	m	m	m
Whitewood	Middle	148	29-May-01	2.50	16.5	1225	10.0	m	m	m
Preston	Middle	148	29-May-01	0.25	18.0	1189	8.2	m	m	m
Preston	Middle	148	29-May-01	0.50	17.5	1193	8.1	m	m	m
Preston	Middle	148	29-May-01	1.00	17.0	1200	8.1	m	m	m
Preston	Middle	148	29-May-01	1.50	16.9	1203	7.7	m	m	m
Preston	Middle	148	29-May-01	2.00	16.8	1205	6.5	m	m	m
Thompson	North	176	26-Jun-01	0.25	22.1	1197	6.3	8.30	7.1	m
Thompson	North	176	26-Jun-01	0.50	22.1	1197	6.3	8.31	8.7	m
Thompson	North	176	26-Jun-01	1.00	22.1	1197	6.6	8.31	8.1	m
Thompson	North	176	26-Jun-01	1.50	22.1	1198	6.9	8.31	8.0	m
Thompson	North	176	26-Jun-01	2.00	22.1	1198	7.0	8.31	7.6	m
Thompson	North	176	26-Jun-01	2.50	22.1	1198	7.2	8.31	8.7	m
Thompson	North	176	26-Jun-01	3.00	22.1	1198	7.3	8.32	7.7	m
Thompson	North	176	26-Jun-01	3.50	22.2	1198	7.4	8.32	8.4	m
Thompson	North	176	26-Jun-01	4.00	22.2	1199	7.5	8.32	8.4	m
Thompson	North	176	26-Jun-01	4.50	22.2	1199	7.6	8.32	30.0	m
Whitewood	West	176	26-Jun-01	0.25	23.5	1188	7.3	8.63	6.3	m
Whitewood	West	176	26-Jun-01	0.50	23.4	1190	7.4	8.63	8.2	m
Whitewood	West	176	26-Jun-01	0.75	23.4	1191	7.5	8.63	6.8	m

Whitewood	West	176	26-Jun-01	1.00	23.4	1191	7.6	8.63	6.6	m
Whitewood	West	176	26-Jun-01	1.25	23.4	1192	7.8	8.63	6.6	m
Whitewood	West	176	26-Jun-01	1.50	23.4	1191	8.0	8.64	9.0	m
Whitewood	West	176	26-Jun-01	1.75	23.4	1191	8.2	8.65	7.8	m
Whitewood	West	176	26-Jun-01	2.00	23.4	1191	8.3	8.65	6.4	m
Whitewood	West	176	26-Jun-01	2.25	23.4	1189	8.5	8.65	6.5	m
Whitewood	West	176	26-Jun-01	2.50	23.4	1191	8.5	8.62	8.1	m
Whitewood	East	176	26-Jun-01	0.25	24.0	1175	7.9	8.95	m	m
Whitewood	East	176	26-Jun-01	0.50	24.0	1171	10.9	8.97	10.1	m
Whitewood	East	176	26-Jun-01	0.75	23.9	1172	10.4	8.95	23.0	m
Whitewood	East	176	26-Jun-01	1.00	23.7	1172	9.9	8.92	7.8	m
Whitewood	East	176	26-Jun-01	1.25	23.5	1174	9.1	8.93	17.5	m
Whitewood	East	176	26-Jun-01	1.50	23.5	1174	9.0	8.95	15.0	m
Whitewood	East	176	26-Jun-01	1.75	23.4	1174	9.0	8.96	m	m
Whitewood	East	176	26-Jun-01	2.00	23.4	1174	9.3	8.98	8.3	m
Whitewood	East	176	26-Jun-01	2.25	23.4	1175	9.6	8.98	8.9	m
Whitewood	East	176	26-Jun-01	2.50	23.4	1175	9.7	8.99	9.3	m
Whitewood	East	176	26-Jun-01	2.75	23.4	1175	9.7	8.99	8.9	m
Preston	East	177	27-Jun-01	0.25	23.5	1259	16.8	8.06	15.4	m
Preston	East	177	27-Jun-01	0.50	23.5	1258	16.4	8.04	14.5	m
Preston	East	177	27-Jun-01	0.75	23.5	1259	15.8	8.03	15.0	m
Preston	East	177	27-Jun-01	1.00	23.5	1258	16.3	8.03	14.3	m
Preston	East	177	27-Jun-01	1.25	23.5	1259	16.6	8.02	14.5	m
Preston	East	177	27-Jun-01	1.50	23.5	1259	16.7	8.02	14.8	m
Preston	East	177	27-Jun-01	1.75	23.5	1258	16.5	8.02	16.0	m
Preston	East	177	27-Jun-01	2.00	23.4	1258	16.1	8.01	15.5	m
Preston	East	177	27-Jun-01	2.25	23.4	1259	16.1	7.99	16.9	m
Thompson	North	189	9-Jul-01	0.25	26.7	1163	15.2	8.80	6.7	m
Thompson	North	189	9-Jul-01	0.50	26.7	1170	16.9	8.79	19.1	m
Thompson	North	189	9-Jul-01	1.00	26.6	1173	17.1	8.75	15.6	m
Thompson	North	189	9-Jul-01	1.50	26.1	1173	16.7	8.70	10.0	m
Thompson	North	189	9-Jul-01	2.00	25.6	1178	15.4	8.60	7.8	m
Thompson	North	189	9-Jul-01	2.50	24.7	1188	13.1	8.48	6.0	m
Thompson	North	189	9-Jul-01	3.00	23.9	1190	11.2	8.41	1.5	m
Thompson	North	189	9-Jul-01	3.50	23.4	1190	9.6	8.34	1.3	m
Thompson	North	189	9-Jul-01	4.00	23.1	1191	8.3	8.30	1.4	m
Thompson	North	189	9-Jul-01	4.50	22.9	1192	7.7	8.27	1.4	m

Thompson	North	189	9-Jul-01	5.00	22.9	1192	7.5	8.26	1.7	m
Thompson	North	189	9-Jul-01	5.50	22.7	1192	7.0	8.25	2.0	m
Thompson	North	189	9-Jul-01	6.00	22.5	1194	6.4	8.13	3.9	m
Thompson	North	189	9-Jul-01	6.50	22.2	1198	4.6	8.05	2.8	m
Thompson	North	189	9-Jul-01	7.00	22.1	1200	3.1	7.99	7.1	m
Thompson	Middle	189	9-Jul-01	0.25	26.3	1158	15.7	8.75	57.2	m
Thompson	Middle	189	9-Jul-01	0.50	26.1	1169	15.0	8.71	35.5	m
Thompson	Middle	189	9-Jul-01	1.00	25.9	1173	15.0	8.69	45.2	m
Thompson	Middle	189	9-Jul-01	1.50	25.7	1177	14.8	8.66	39.9	m
Thompson	Middle	189	9-Jul-01	2.00	25.3	1180	13.9	8.60	26.9	m
Thompson	Middle	189	9-Jul-01	2.50	24.7	1184	12.2	8.51	8.1	m
Thompson	Middle	189	9-Jul-01	3.00	23.3	1190	8.1	8.34	3.0	m
Thompson	Middle	189	9-Jul-01	3.50	22.9	1189	7.3	8.31	1.6	m
Thompson	Middle	189	9-Jul-01	4.00	22.7	1190	6.7	8.25	1.4	m
Thompson	Middle	189	9-Jul-01	4.50	22.6	1190	6.2	8.26	1.6	m
Thompson	Middle	189	9-Jul-01	5.00	22.5	1192	5.7	8.18	2.2	m
Thompson	Middle	189	9-Jul-01	5.50	22.4	1194	4.6	8.13	2.7	m
Thompson	Middle	189	9-Jul-01	6.00	22.3	1194	4.3	8.11	2.8	m
Thompson	Middle	189	9-Jul-01	6.50	22.0	1200	2.5	7.97	16.9	m
Thompson	Middle	189	9-Jul-01	7.00	21.8	1203	1.5	7.89	m	m
Thompson	South	189	9-Jul-01	0.25	25.8	1163	12.1	8.77	13.0	m
Thompson	South	189	9-Jul-01	0.50	26.0	1162	12.0	8.82	25.7	m
Thompson	South	189	9-Jul-01	1.00	26.0	1162	12.1	8.83	15.7	m
Thompson	South	189	9-Jul-01	1.50	25.9	1163	12.0	8.82	22.4	m
Thompson	South	189	9-Jul-01	2.00	25.8	1163	12.0	8.80	18.7	m
Thompson	South	189	9-Jul-01	2.50	25.6	1166	11.8	8.74	9.4	m
Thompson	South	189	9-Jul-01	3.00	23.4	1177	11.8	8.49	12.1	m
Thompson	South	189	9-Jul-01	3.50	23.2	1179	9.8	8.46	16.9	m
Thompson	South	189	9-Jul-01	4.00	22.1	1191	8.0	8.16	2.4	m
Whitewood	West	189	9-Jul-01	0.25	28.5	1156	7.4	9.13	0.8	m
Whitewood	West	189	9-Jul-01	0.50	28.0	1155	6.0	9.14	10.9	m
Whitewood	West	189	9-Jul-01	0.75	27.5	1152	7.9	9.13	50.9	m
Whitewood	West	189	9-Jul-01	1.00	27.1	1150	9.0	9.12	43.0	m
Whitewood	West	189	9-Jul-01	1.25	26.7	1150	9.5	9.08	67.4	m
Whitewood	West	189	9-Jul-01	1.50	26.4	1154	8.6	9.03	39.4	m
Whitewood	West	189	9-Jul-01	1.75	25.9	1153	7.4	8.97	1.3	m
Whitewood	West	189	9-Jul-01	2.00	25.1	1160	6.5	8.88	1.3	m

Whitewood	West	189	9-Jul-01	2.25	24.3	1167	4.1	8.78	2.7	m
Whitewood	West	189	9-Jul-01	2.50	23.4	1182	1.8	8.56	5.6	m
Whitewood	Middle	189	9-Jul-01	0.25	m	m	m	m	m	m
Whitewood	Middle	189	9-Jul-01	0.50	27.4	1182	6.6	8.62	2.1	m
Whitewood	Middle	189	9-Jul-01	0.75	27.4	1182	7.2	8.61	1.5	m
Whitewood	Middle	189	9-Jul-01	1.00	27.2	1181	7.8	8.62	1.0	m
Whitewood	Middle	189	9-Jul-01	1.25	26.9	1181	8.3	8.62	0.9	m
Whitewood	Middle	189	9-Jul-01	1.50	26.7	1181	9.0	8.63	1.5	m
Whitewood	Middle	189	9-Jul-01	1.75	26.3	1178	9.3	8.64	3.4	m
Whitewood	Middle	189	9-Jul-01	2.00	25.7	1170	8.9	8.62	4.5	m
Whitewood	Middle	189	9-Jul-01	2.25	24.6	1171	8.1	8.54	2.3	m
Whitewood	Middle	189	9-Jul-01	2.50	23.6	1176	3.5	8.39	10.3	m
Whitewood	Middle	189	9-Jul-01	2.75	23.4	1184	1.7	8.33	31.5	m
Whitewood	Middle	189	9-Jul-01	3.00	23.4	1184	1.3	8.28	31.5	m
Whitewood	East	189	9-Jul-01	0.25	26.5	1179	5.4	8.58	11.0	m
Whitewood	East	189	9-Jul-01	0.50	26.6	1179	5.3	8.59	11.6	m
Whitewood	East	189	9-Jul-01	0.75	26.6	1161	5.1	8.59	11.3	m
Whitewood	East	189	9-Jul-01	1.00	26.6	1165	5.1	8.59	12.6	m
Whitewood	East	189	9-Jul-01	1.25	26.5	1161	5.0	8.58	12.7	m
Whitewood	East	189	9-Jul-01	1.50	26.4	1167	5.0	8.58	5.0	m
Whitewood	East	189	9-Jul-01	1.75	26.2	1175	5.0	8.57	1.4	m
Whitewood	East	189	9-Jul-01	2.00	25.5	1181	4.9	8.49	1.6	m
Whitewood	East	189	9-Jul-01	2.25	23.8	1177	4.9	8.42	1.7	m
Whitewood	East	189	9-Jul-01	2.50	23.6	1188	4.8	4.34	3.1	m
Whitewood	East	189	9-Jul-01	2.75	23.6	1189	4.7	8.33	2.3	m
Preston	West	191	11-Jul-01	0.25	25.8	1335	7.9	8.48	9.0	m
Preston	West	191	11-Jul-01	0.50	25.9	1335	8.1	8.47	14.7	m
Preston	West	191	11-Jul-01	0.75	25.8	1335	8.2	8.46	10.7	m
Preston	West	191	11-Jul-01	1.00	25.8	1334	8.1	8.46	9.6	m
Preston	West	191	11-Jul-01	1.25	25.8	1334	8.1	8.45	13.9	m
Preston	West	191	11-Jul-01	1.50	25.8	1334	8.0	8.44	13.7	m
Preston	West	191	11-Jul-01	1.75	25.8	1333	7.9	8.42	15.2	m
Preston	West	191	11-Jul-01	2.00	25.8	1333	7.6	8.42	12.2	m
Preston	West	191	11-Jul-01	2.25	25.8	1333	7.6	8.41	11.4	m
Preston	West	191	11-Jul-01	2.50	25.7	1333	7.4	8.41	11.9	m
Preston	West	191	11-Jul-01	2.60	25.7	1332	7.3	8.39	71.6	m
Preston	Middle	191	11-Jul-01	0.25	25.6	1311	5.8	8.18	18.8	m

Preston	Middle	191	11-Jul-01	0.50	25.6	1311	6.1	8.17	14.2	m
Preston	Middle	191	11-Jul-01	0.75	25.6	1311	6.2	8.17	18.1	m
Preston	Middle	191	11-Jul-01	1.00	25.6	1311	6.2	8.16	18.4	m
Preston	Middle	191	11-Jul-01	1.25	25.6	1311	6.3	8.16	22.4	m
Preston	Middle	191	11-Jul-01	1.50	25.6	1310	6.3	8.16	19.5	m
Preston	Middle	191	11-Jul-01	1.75	25.5	1309	6.3	8.15	12.1	m
Preston	Middle	191	11-Jul-01	2.00	25.5	1309	6.3	8.15	15.1	m
Preston	Middle	191	11-Jul-01	2.20	25.5	1309	6.3	8.12	m	m
Preston	East	191	11-Jul-01	0.25	25.4	1298	6.4	8.22	7.8	m
Preston	East	191	11-Jul-01	0.50	25.4	1298	6.8	8.23	7.1	m
Preston	East	191	11-Jul-01	0.75	25.4	1298	6.9	8.23	10.0	m
Preston	East	191	11-Jul-01	1.00	25.4	1298	7.0	8.23	8.9	m
Preston	East	191	11-Jul-01	1.25	25.4	1298	7.1	8.23	9.3	m
Preston	East	191	11-Jul-01	1.50	25.4	1298	7.1	8.23	7.3	m
Preston	East	191	11-Jul-01	1.75	25.4	1298	7.1	8.23	8.9	m
Preston	East	191	11-Jul-01	2.00	25.4	1298	7.1	8.22	36.2	m
Henry	Middle	191	11-Jul-01	0.25	24.3	1036	7.9	8.56	18.6	m
Henry	Middle	191	11-Jul-01	0.50	24.3	1034	8.0	8.63	9.9	m
Henry	Middle	191	11-Jul-01	0.75	24.3	1034	8.3	8.64	12.1	m
Henry	Middle	191	11-Jul-01	1.00	24.3	1034	8.4	8.65	10.7	m
Henry	Middle	191	11-Jul-01	1.25	24.3	1034	8.6	8.66	11.6	m
Henry	Middle	191	11-Jul-01	1.50	24.3	1033	8.7	8.66	12.7	m
Henry	Middle	191	11-Jul-01	1.75	24.3	1034	8.9	8.66	9.3	m
Henry	Middle	191	11-Jul-01	2.00	24.3	1034	9.0	8.66	8.5	m
Henry	Middle	191	11-Jul-01	2.25	24.3	1034	9.1	8.67	12.1	m
Henry	Middle	191	11-Jul-01	2.50	24.3	1034	9.2	8.66	10.5	m
Henry	Middle	191	11-Jul-01	2.75	24.3	1034	9.3	8.66	11.8	m
Henry	Middle	191	11-Jul-01	3.00	24.3	1034	9.4	8.67	11.5	m
Henry	Middle	191	11-Jul-01	3.25	24.3	1033	9.4	8.66	10.9	m
Henry	Middle	191	11-Jul-01	3.50	24.3	1034	9.1	8.65	m	m
Henry	Middle	238	27-Aug-01	0.25	23.5	1091	9.0	8.26	17.0	m
Henry	Middle	238	27-Aug-01	0.50	23.5	1088	8.9	8.43	24.7	m
Henry	Middle	238	27-Aug-01	1.00	23.5	1088	7.8	8.52	17.1	m
Henry	Middle	238	27-Aug-01	1.50	23.5	1087	7.5	8.55	15.6	m
Henry	Middle	238	27-Aug-01	2.00	23.5	1087	7.9	8.58	18.3	m
Henry	Middle	238	27-Aug-01	2.50	23.5	1087	8.0	8.59	16.8	m
Henry	Middle	238	27-Aug-01	3.00	23.5	1087	7.8	8.61	25.2	m

Henry	Middle	238	27-Aug-01	3.50	23.5	1087	7.6	8.61	m	m
Preston	West	239	28-Aug-01	0.25	24.1	1336	7.5	8.74	39.2	m
Preston	West	239	28-Aug-01	0.50	24.1	1334	7.8	8.75	43.2	m
Preston	West	239	28-Aug-01	0.75	24.1	1334	6.9	8.75	39.7	m
Preston	West	239	28-Aug-01	1.00	24.1	1334	7.0	8.74	41.2	m
Preston	West	239	28-Aug-01	1.25	24.0	1334	7.5	8.74	40.8	m
Preston	West	239	28-Aug-01	1.50	23.8	1335	7.3	8.72	41.0	m
Preston	West	239	28-Aug-01	1.75	23.5	1337	7.6	8.68	40.2	m
Preston	West	239	28-Aug-01	2.00	23.4	1339	6.2	8.66	42.7	m
Preston	West	239	28-Aug-01	2.25	23.4	1339	6.5	8.63	50.7	m
Preston	Middle	239	28-Aug-01	0.25	23.8	1290	8.1	8.53	32.5	m
Preston	Middle	239	28-Aug-01	0.50	23.9	1290	7.6	8.52	34.0	m
Preston	Middle	239	28-Aug-01	0.75	23.9	1290	7.1	8.51	31.0	m
Preston	Middle	239	28-Aug-01	1.00	23.9	1291	7.1	8.51	30.0	m
Preston	Middle	239	28-Aug-01	1.25	23.9	1291	6.4	8.51	30.9	m
Preston	Middle	239	28-Aug-01	1.50	23.9	1291	6.6	8.50	29.7	m
Preston	Middle	239	28-Aug-01	1.75	23.9	1292	6.6	8.50	30.7	m
Preston	Middle	239	28-Aug-01	2.00	23.9	1292	6.9	8.50	32.2	m
Preston	Middle	239	28-Aug-01	2.25	23.9	1291	6.5	8.50	34.4	m
Preston	East	239	28-Aug-01	0.25	23.6	1286	6.9	8.30	36.7	m
Preston	East	239	28-Aug-01	0.50	23.6	1287	6.3	8.34	36.7	m
Preston	East	239	28-Aug-01	0.75	23.6	1288	7.0	8.37	35.2	m
Preston	East	239	28-Aug-01	1.00	23.7	1288	7.0	8.38	33.4	m
Preston	East	239	28-Aug-01	1.25	23.7	1288	6.8	8.39	35.4	m
Preston	East	239	28-Aug-01	1.50	23.7	1288	6.9	8.40	47.5	m
Preston	East	239	28-Aug-01	1.75	23.7	1288	6.7	8.40	42.9	m
Preston	East	239	28-Aug-01	2.00	23.7	1288	6.1	8.40	53.5	m
Preston	East	239	28-Aug-01	2.25	23.7	1288	6.1	8.40	59.0	m
Thompson	North	240	29-Aug-01	0.25	23.8	1199	7.5	8.69	22.3	m
Thompson	North	240	29-Aug-01	0.50	23.8	1199	7.9	8.69	21.8	m
Thompson	North	240	29-Aug-01	1.00	23.8	1199	8.0	8.69	19.8	m
Thompson	North	240	29-Aug-01	1.50	23.8	1199	8.1	8.70	20.4	m
Thompson	North	240	29-Aug-01	2.00	23.8	1199	8.2	8.70	26.8	m
Thompson	North	240	29-Aug-01	2.50	23.8	1199	8.4	8.70	25.5	m
Thompson	North	240	29-Aug-01	3.00	23.8	1199	8.5	8.70	23.7	m
Thompson	North	240	29-Aug-01	3.50	23.8	1198	8.6	8.70	24.0	m
Thompson	North	240	29-Aug-01	4.00	23.8	1198	8.6	8.69	23.8	m

Thompson	North	240	29-Aug-01	4.50	23.8	1199	8.5	8.69	25.5	m
Thompson	North	240	29-Aug-01	5.00	23.8	1198	8.5	8.69	22.7	m
Thompson	North	240	29-Aug-01	5.50	23.8	1198	8.5	8.69	23.7	m
Thompson	North	240	29-Aug-01	6.00	23.8	1199	8.5	8.69	21.1	m
Thompson	North	240	29-Aug-01	6.50	23.8	1198	8.5	8.69	24.8	m
Thompson	Middle	240	29-Aug-01	0.25	23.1	1200	6.7	8.64	22.5	m
Thompson	Middle	240	29-Aug-01	0.50	23.1	1200	7.0	8.65	26.3	m
Thompson	Middle	240	29-Aug-01	1.00	23.1	1200	7.3	8.65	24.5	m
Thompson	Middle	240	29-Aug-01	1.50	23.1	1200	7.5	8.65	22.7	m
Thompson	Middle	240	29-Aug-01	2.00	23.1	1200	7.4	8.65	20.7	m
Thompson	Middle	240	29-Aug-01	2.50	23.1	1200	7.4	8.65	21.1	m
Thompson	Middle	240	29-Aug-01	3.00	23.1	1201	7.4	8.65	21.2	m
Thompson	Middle	240	29-Aug-01	3.50	23.1	1200	7.5	8.65	20.5	m
Thompson	Middle	240	29-Aug-01	4.00	23.1	1200	7.5	8.65	19.2	m
Thompson	Middle	240	29-Aug-01	4.50	23.1	1200	7.5	8.65	19.8	m
Thompson	Middle	240	29-Aug-01	5.00	23.1	1200	7.6	8.65	19.1	m
Thompson	Middle	240	29-Aug-01	5.50	23.1	1199	7.6	8.65	19.6	m
Thompson	Middle	240	29-Aug-01	6.00	23.1	1199	7.6	8.64	24.4	m
Thompson	South	240	29-Aug-01	0.25	22.6	1201	8.2	8.56	12.1	m
Thompson	South	240	29-Aug-01	0.50	22.7	1201	8.1	8.61	12.0	m
Thompson	South	240	29-Aug-01	1.00	22.7	1202	8.3	8.62	12.1	m
Thompson	South	240	29-Aug-01	1.50	22.8	1150	8.2	8.63	11.6	m
Thompson	South	240	29-Aug-01	2.00	22.8	1150	8.2	8.64	15.5	m
Thompson	South	240	29-Aug-01	2.50	22.8	1202	8.3	8.64	14.8	m
Thompson	South	240	29-Aug-01	3.00	22.8	1202	8.3	8.64	13.5	m
Thompson	South	240	29-Aug-01	3.50	22.8	1202	8.3	8.64	14.7	m
Whitewood	West	240	29-Aug-01	0.25	23.9	1222	8.2	9.03	30.4	m
Whitewood	West	240	29-Aug-01	0.50	23.8	1225	8.4	9.07	30.2	m
Whitewood	West	240	29-Aug-01	0.75	23.8	1225	8.4	9.08	28.5	m
Whitewood	West	240	29-Aug-01	1.00	23.7	1225	8.5	9.08	27.3	m
Whitewood	West	240	29-Aug-01	1.25	23.7	1226	8.5	9.08	27.9	m
Whitewood	West	240	29-Aug-01	1.50	23.7	1226	8.6	9.08	27.2	m
Whitewood	West	240	29-Aug-01	1.75	23.7	1227	8.6	9.08	25.5	m
Whitewood	West	240	29-Aug-01	2.00	23.7	1227	8.5	9.08	26.4	m
Whitewood	West	240	29-Aug-01	2.25	23.7	1228	8.6	9.08	27.7	m
Whitewood	West	240	29-Aug-01	2.50	23.7	1227	8.5	9.08	26.1	m
Whitewood	Middle	240	29-Aug-01	0.25	23.6	1231	7.5	9.01	44.5	m

Whitewood	Middle	240	29-Aug-01	0.50	23.6	1233	8.1	9.03	47.2	m
Whitewood	Middle	240	29-Aug-01	0.75	23.6	1234	8.3	9.03	51.9	m
Whitewood	Middle	240	29-Aug-01	1.00	23.6	1234	8.3	9.04	51.2	m
Whitewood	Middle	240	29-Aug-01	1.25	23.6	1234	8.3	9.04	52.4	m
Whitewood	Middle	240	29-Aug-01	1.50	23.6	1235	8.4	9.04	53.3	m
Whitewood	Middle	240	29-Aug-01	1.75	23.6	1235	8.4	9.04	50.4	m
Whitewood	Middle	240	29-Aug-01	2.00	23.6	1235	8.4	9.04	50.5	m
Whitewood	Middle	240	29-Aug-01	2.25	23.6	1235	8.5	9.04	50.0	m
Whitewood	Middle	240	29-Aug-01	2.50	23.6	1235	8.5	9.04	51.2	m
Whitewood	East	240	29-Aug-01	0.25	23.4	1246	5.8	8.97	73.0	m
Whitewood	East	240	29-Aug-01	0.50	23.4	1207	6.9	8.96	78.4	m
Whitewood	East	240	29-Aug-01	0.75	23.3	1244	7.8	8.95	71.1	m
Whitewood	East	240	29-Aug-01	1.00	23.3	1247	7.4	8.96	77.6	m
Whitewood	East	240	29-Aug-01	1.25	23.3	1244	7.9	8.96	73.9	m
Whitewood	East	240	29-Aug-01	1.50	23.3	1246	7.6	8.96	76.5	m
Whitewood	East	240	29-Aug-01	1.75	23.3	1245	7.9	8.96	77.3	m
Whitewood	East	240	29-Aug-01	2.00	23.3	1246	7.7	8.96	75.4	m
Whitewood	East	240	29-Aug-01	2.25	23.3	1245	7.9	8.96	74.8	m
Whitewood	East	240	29-Aug-01	2.50	23.3	1245	7.7	8.96	79.7	m
Thompson	North	259	17-Sep-01	0.25	16.6	1217	9.2	8.87	18.7	m
Thompson	North	259	17-Sep-01	0.50	16.7	1217	9.0	8.88	27.2	m
Thompson	North	259	17-Sep-01	1.00	16.7	1219	8.9	8.88	21.6	m
Thompson	North	259	17-Sep-01	1.50	16.7	1220	9.0	8.87	20.3	m
Thompson	North	259	17-Sep-01	2.00	16.7	1219	9.0	8.87	18.7	m
Thompson	North	259	17-Sep-01	2.50	16.7	1220	9.0	8.87	17.1	m
Thompson	North	259	17-Sep-01	3.00	16.7	1219	8.9	8.87	24.7	m
Thompson	North	259	17-Sep-01	3.50	16.7	1220	9.0	8.86	22.0	m
Thompson	North	259	17-Sep-01	4.00	16.7	1219	8.9	8.86	26.4	m
Thompson	North	259	17-Sep-01	4.50	16.7	1219	8.7	8.86	24.5	m
Thompson	North	259	17-Sep-01	5.00	16.7	1219	8.7	8.86	14.4	m
Thompson	North	259	17-Sep-01	5.50	16.7	1219	8.6	8.86	17.1	m
Thompson	North	259	17-Sep-01	6.00	16.7	1219	8.5	8.86	15.9	m
Thompson	North	259	17-Sep-01	6.50	16.7	1220	8.5	8.85	17.8	m
Thompson	North	259	17-Sep-01	7.00	16.6	1220	8.3	8.85	59.6	m
Thompson	Middle	259	17-Sep-01	0.25	16.7	1223	8.3	8.84	39.0	m
Thompson	Middle	259	17-Sep-01	0.50	16.8	1224	8.3	8.84	24.0	m
Thompson	Middle	259	17-Sep-01	1.00	16.8	1224	8.3	8.84	18.7	m

Thompson	Middle	259	17-Sep-01	1.50	16.8	1224	8.3	8.83	20.0	m
Thompson	Middle	259	17-Sep-01	2.00	16.8	1224	8.3	8.83	21.3	m
Thompson	Middle	259	17-Sep-01	2.50	16.8	1224	8.3	8.83	18.9	m
Thompson	Middle	259	17-Sep-01	3.00	16.8	1224	8.3	8.83	15.9	m
Thompson	Middle	259	17-Sep-01	3.50	16.8	1224	8.3	8.83	18.5	m
Thompson	Middle	259	17-Sep-01	4.00	16.8	1223	8.3	8.83	23.7	m
Thompson	Middle	259	17-Sep-01	4.50	16.7	1223	8.2	8.83	19.0	m
Thompson	Middle	259	17-Sep-01	5.00	16.7	1224	8.2	8.83	19.4	m
Thompson	Middle	259	17-Sep-01	5.50	16.7	1223	8.1	8.82	20.1	m
Thompson	Middle	259	17-Sep-01	6.00	16.7	1224	8.0	8.82	22.6	m
Thompson	Middle	259	17-Sep-01	6.50	16.7	1224	8.0	8.82	35.4	m
Thompson	South	259	17-Sep-01	0.25	15.5	1226	8.9	8.48	18.0	m
Thompson	South	259	17-Sep-01	0.50	15.5	1228	9.1	8.72	17.5	m
Thompson	South	259	17-Sep-01	1.00	15.5	1229	9.5	8.80	16.7	m
Thompson	South	259	17-Sep-01	1.50	15.5	1229	9.8	8.82	13.8	m
Thompson	South	259	17-Sep-01	2.00	15.5	1229	9.9	8.85	15.9	m
Thompson	South	259	17-Sep-01	2.50	15.5	1228	10.2	8.87	16.2	m
Thompson	South	259	17-Sep-01	3.00	15.5	1228	10.2	8.88	15.7	m
Thompson	South	259	17-Sep-01	3.50	15.5	1228	10.2	8.88	15.1	m
Thompson	South	259	17-Sep-01	4.00	15.5	1228	10.2	8.89	13.2	m
Whitewood	West	259	17-Sep-01	0.25	15.1	1209	9.9	9.27	31.1	m
Whitewood	West	259	17-Sep-01	0.50	15.1	1209	10.0	9.29	31.3	m
Whitewood	West	259	17-Sep-01	0.75	15.1	1209	10.4	9.30	30.8	m
Whitewood	West	259	17-Sep-01	1.00	15.1	1209	10.6	9.30	34.9	m
Whitewood	West	259	17-Sep-01	1.25	14.9	1210	10.5	9.29	32.0	m
Whitewood	West	259	17-Sep-01	1.50	14.9	1212	9.8	9.29	33.8	m
Whitewood	West	259	17-Sep-01	1.75	14.9	1213	9.5	9.28	35.6	m
Whitewood	West	259	17-Sep-01	2.00	14.9	1213	9.5	9.28	34.3	m
Whitewood	West	259	17-Sep-01	2.25	14.9	1213	9.5	9.28	47.3	m
Whitewood	West	259	17-Sep-01	2.50	14.9	1213	9.4	9.28	48.1	m
Whitewood	Middle	259	17-Sep-01	0.25	15.0	1233	9.2	9.04	31.2	m
Whitewood	Middle	259	17-Sep-01	0.50	15.0	1233	8.6	9.08	31.9	m
Whitewood	Middle	259	17-Sep-01	0.75	15.0	1233	8.6	9.10	30.4	m
Whitewood	Middle	259	17-Sep-01	1.00	15.0	1233	8.7	9.11	30.8	m
Whitewood	Middle	259	17-Sep-01	1.25	15.0	1233	8.8	9.11	29.9	m
Whitewood	Middle	259	17-Sep-01	1.50	15.0	1233	8.8	9.11	30.5	m
Whitewood	Middle	259	17-Sep-01	1.75	15.0	1234	8.8	9.11	30.9	m

Whitewood	Middle	259	17-Sep-01	2.00	15.0	1234	8.6	9.10	34.0	m
Whitewood	Middle	259	17-Sep-01	2.25	15.0	1234	8.4	9.10	34.8	m
Whitewood	Middle	259	17-Sep-01	2.50	15.0	1235	8.2	9.10	37.0	m
Whitewood	East	259	17-Sep-01	0.25	14.9	1214	8.5	8.83	41.4	m
Whitewood	East	259	17-Sep-01	0.50	14.9	1214	8.9	8.88	40.6	m
Whitewood	East	259	17-Sep-01	0.75	14.9	1215	9.4	8.92	39.8	m
Whitewood	East	259	17-Sep-01	1.00	14.9	1215	9.7	8.93	41.2	m
Whitewood	East	259	17-Sep-01	1.25	14.8	1216	9.9	8.95	42.1	m
Whitewood	East	259	17-Sep-01	1.50	14.8	1217	10.0	8.96	41.3	m
Whitewood	East	259	17-Sep-01	1.75	14.8	1217	10.0	8.97	40.5	m
Whitewood	East	259	17-Sep-01	2.00	14.8	1217	9.8	8.96	42.2	m
Whitewood	East	259	17-Sep-01	2.25	14.8	1219	9.5	8.95	44.2	m
Whitewood	East	259	17-Sep-01	2.50	14.8	1219	9.4	8.94	m	m
Preston	West	261	19-Sep-01	0.25	17.3	1366	13.4	8.67	55.7	m
Preston	West	261	19-Sep-01	0.50	15.8	1359	13.2	8.67	56.0	m
Preston	West	261	19-Sep-01	0.75	15.4	1363	13.1	8.59	56.5	m
Preston	West	261	19-Sep-01	1.00	15.2	1362	12.2	8.54	56.7	m
Preston	West	261	19-Sep-01	1.25	15.2	1362	12.0	8.54	58.3	m
Preston	West	261	19-Sep-01	1.50	15.1	1361	11.7	8.53	57.7	m
Preston	West	261	19-Sep-01	1.75	14.8	1361	11.1	8.51	57.4	m
Preston	West	261	19-Sep-01	2.00	14.7	1361	10.1	8.40	121.9	m
Preston	Middle	261	19-Sep-01	0.25	16.3	1358	11.5	8.58	56.7	m
Preston	Middle	261	19-Sep-01	0.50	16.3	1357	11.4	8.54	56.5	m
Preston	Middle	261	19-Sep-01	0.75	16.0	1357	11.2	8.52	56.5	m
Preston	Middle	261	19-Sep-01	1.00	15.4	1354	11.2	8.50	55.8	m
Preston	Middle	261	19-Sep-01	1.25	14.9	1350	10.9	8.49	53.1	m
Preston	Middle	261	19-Sep-01	1.50	14.6	1349	9.5	8.45	54.1	m
Preston	Middle	261	19-Sep-01	1.75	14.5	1349	8.5	8.41	55.7	m
Preston	Middle	261	19-Sep-01	2.00	14.5	1349	8.1	8.39	55.6	m
Preston	East	261	19-Sep-01	0.25	18.7	1367	9.5	8.50	42.1	m
Preston	East	261	19-Sep-01	0.50	15.1	1364	10.4	8.50	45.9	m
Preston	East	261	19-Sep-01	0.75	14.7	1356	10.5	8.47	46.3	m
Preston	East	261	19-Sep-01	1.00	14.6	1351	9.8	8.44	45.6	m
Preston	East	261	19-Sep-01	1.25	14.6	1351	9.4	8.42	45.6	m
Preston	East	261	19-Sep-01	1.50	14.6	1351	9.0	8.41	45.4	m
Preston	East	261	19-Sep-01	1.75	14.6	1351	8.4	8.40	46.8	m
Preston	East	261	19-Sep-01	2.00	14.6	1350	8.4	8.40	47.9	m

Preston	East	261	19-Sep-01	2.25	14.6	1351	8.3	8.40	50.2	m
Henry	Middle	261	19-Sep-01	0.25	16.5	1136	11.0	8.67	7.3	m
Henry	Middle	261	19-Sep-01	0.50	16.4	1139	10.5	8.70	7.4	m
Henry	Middle	261	19-Sep-01	1.00	15.8	1135	9.9	8.71	7.2	m
Henry	Middle	261	19-Sep-01	1.50	15.4	1134	9.8	8.71	8.9	m
Henry	Middle	261	19-Sep-01	2.00	15.1	1134	9.7	8.71	7.5	m
Henry	Middle	261	19-Sep-01	2.50	15.0	1135	9.4	8.71	7.4	m
Henry	Middle	261	19-Sep-01	3.00	15.0	1135	8.9	8.71	9.9	m
Henry	Middle	261	19-Sep-01	3.50	15.0	1135	8.7	8.70	52.5	m
Thompson	North	111	22-Apr-02	Oa	m	m	m	m	m	100.0
Thompson	North	111	22-Apr-02	Ob	m	m	m	m	m	19.6
Thompson	North	111	22-Apr-02	0.50	7.6	1219	11.9	8.36	12.7	9.3
Thompson	North	111	22-Apr-02	1.00	7.7	1216	11.9	8.39	12.5	11.6
Thompson	North	111	22-Apr-02	1.50	7.8	1216	12.0	8.41	12.8	8.2
Thompson	North	111	22-Apr-02	2.00	7.8	1216	12.2	8.42	15.1	7.0
Thompson	North	111	22-Apr-02	2.50	7.7	1216	12.2	8.42	12.7	5.5
Thompson	North	111	22-Apr-02	3.00	7.7	1216	12.3	8.42	14.9	5.3
Thompson	North	111	22-Apr-02	3.50	7.8	1216	12.3	8.41	12.5	3.6
Thompson	North	111	22-Apr-02	4.00	7.8	1216	12.4	8.41	11.7	1.5
Thompson	North	111	22-Apr-02	4.50	7.8	1216	12.3	8.40	12.9	0.7
Thompson	North	111	22-Apr-02	5.00	7.8	1216	12.3	8.40	11.5	0.5
Thompson	North	111	22-Apr-02	5.50	7.8	1216	12.3	8.40	11.1	0.5
Thompson	North	111	22-Apr-02	6.00	7.8	1216	12.3	8.40	11.4	0.2
Thompson	North	111	22-Apr-02	6.50	7.8	1216	12.3	8.39	12.9	0.2
Thompson	Mid	111	22-Apr-02	Oa	m	m	m	m	m	100.0
Thompson	Mid	111	22-Apr-02	Ob	m	m	m	m	m	67.4
Thompson	Mid	111	22-Apr-02	0.50	7.5	1218	10.6	8.30	14.0	10.8
Thompson	Mid	111	22-Apr-02	1.00	7.5	1216	10.6	8.32	14.2	8.7
Thompson	Mid	111	22-Apr-02	1.50	7.5	1216	10.6	8.33	16.4	4.3
Thompson	Mid	111	22-Apr-02	2.00	7.5	1216	10.7	8.34	15.1	2.6
Thompson	Mid	111	22-Apr-02	2.50	7.6	1216	10.6	8.35	14.5	4.1
Thompson	Mid	111	22-Apr-02	3.00	7.6	1216	10.8	8.36	14.3	2.5
Thompson	Mid	111	22-Apr-02	3.50	7.6	1216	10.8	8.35	14.1	1.6
Thompson	Mid	111	22-Apr-02	4.00	7.6	1216	10.8	8.36	15.2	0.8
Thompson	Mid	111	22-Apr-02	4.50	7.6	1216	10.8	8.36	13.6	0.4
Thompson	Mid	111	22-Apr-02	5.00	7.6	1216	10.8	8.36	13.3	0.2
Thompson	Mid	111	22-Apr-02	5.50	7.6	1216	10.7	8.37	15.6	0.2

Thompson	Mid	111	22-Apr-02	6.00	7.6	1216	10.7	8.37	15.0	0.1
Thompson	South	111	22-Apr-02	Oa	m	m	m	m	m	100.0
Thompson	South	111	22-Apr-02	Ob	m	m	m	m	m	79.5
Thompson	South	111	22-Apr-02	0.50	7.1	1217	11.8	7.44	13.3	21.6
Thompson	South	111	22-Apr-02	1.00	7.1	1216	11.9	7.59	13.8	31.6
Thompson	South	111	22-Apr-02	1.50	7.1	1217	11.9	7.76	14.3	27.4
Thompson	South	111	22-Apr-02	2.00	7.1	1216	12.0	7.94	16.9	12.7
Thompson	South	111	22-Apr-02	2.50	7.2	1213	12.1	8.20	17.6	4.8
Thompson	South	111	22-Apr-02	3.00	7.2	1213	12.2	8.21	14.5	6.4
Thompson	South	111	22-Apr-02	3.50	7.2	1213	12.2	8.23	18.1	6.3
Thompson	South	111	22-Apr-02	4.00	7.2	1214	12.2	8.24	16.5	1.9
Whitewood	West	118	29-Apr-02	Oa	m	m	m	m	m	100.0
Whitewood	West	118	29-Apr-02	Ob	m	m	m	m	m	91.5
Whitewood	West	118	29-Apr-02	0.25	5.3	1474	13.4	7.96	38.8	36.9
Whitewood	West	118	29-Apr-02	0.50	5.5	1310	11.9	7.90	38.7	11.8
Whitewood	West	118	29-Apr-02	0.75	5.5	1304	11.7	7.89	39.8	7.0
Whitewood	West	118	29-Apr-02	1.00	5.5	1304	11.6	7.91	42.2	5.2
Whitewood	West	118	29-Apr-02	1.25	5.5	1299	411.5	7.95	43.5	1.1
Whitewood	West	118	29-Apr-02	1.50	5.5	1296	11.3	7.97	44.9	0.7
Whitewood	West	118	29-Apr-02	1.75	5.5	1295	11.2	8.00	45.7	0.2
Whitewood	West	118	29-Apr-02	2.00	5.5	1292	11.3	8.03	49.2	0.1
Whitewood	West	118	29-Apr-02	2.25	5.5	1291	11.1	8.06	51.1	0.1
Whitewood	West	118	29-Apr-02	2.50	5.2	1289	11.1	8.09	188.4	0.0
Whitewood	Mid	118	29-Apr-02	Oa	m	m	m	m	m	100.0
Whitewood	Mid	118	29-Apr-02	Ob	m	m	m	m	m	67.1
Whitewood	Mid	118	29-Apr-02	0.25	5.4	1261	10.5	8.21	46.8	14.1
Whitewood	Mid	118	29-Apr-02	0.50	5.4	1261	10.4	8.29	49.3	2.5
Whitewood	Mid	118	29-Apr-02	0.75	5.4	1261	10.3	8.30	49.3	1.8
Whitewood	Mid	118	29-Apr-02	1.00	5.4	1261	10.4	8.30	49.2	1.2
Whitewood	Mid	118	29-Apr-02	1.25	5.4	1262	10.3	8.25	48.4	0.8
Whitewood	Mid	118	29-Apr-02	1.50	5.4	1260	10.4	8.30	48.6	0.8
Whitewood	Mid	118	29-Apr-02	1.75	5.4	1261	10.4	8.30	48.4	0.6
Whitewood	Mid	118	29-Apr-02	2.00	5.4	1262	10.4	8.30	51.5	0.3
Whitewood	Mid	118	29-Apr-02	2.25	5.4	1262	10.4	8.30	48.4	0.3
Whitewood	Mid	118	29-Apr-02	2.50	5.4	1263	10.4	8.30	47.9	0.0
Whitewood	East	118	29-Apr-02	Oa	m	m	m	m	m	100.0
Whitewood	East	118	29-Apr-02	Ob	m	m	m	m	m	97.7

Whitewood	East	118	29-Apr-02	0.25	5.5	1274	10.8	8.28	32.6	5.5
Whitewood	East	118	29-Apr-02	0.50	5.5	1274	10.2	8.28	33.4	5.5
Whitewood	East	118	29-Apr-02	0.75	5.5	1275	10.6	8.27	34.1	3.5
Whitewood	East	118	29-Apr-02	1.00	5.5	1274	10.7	8.27	33.7	2.3
Whitewood	East	118	29-Apr-02	1.25	5.5	1275	10.7	8.26	32.4	2.0
Whitewood	East	118	29-Apr-02	1.50	5.5	1275	10.7	8.26	32.2	1.9
Whitewood	East	118	29-Apr-02	1.75	5.6	1274	10.8	8.26	32.1	0.8
Whitewood	East	118	29-Apr-02	2.00	5.6	1275	10.8	8.27	30.8	0.4
Whitewood	East	118	29-Apr-02	2.25	5.6	1275	10.9	8.27	30.7	0.0
Whitewood	East	118	29-Apr-02	2.50	5.6	1276	10.9	8.27	30.2	0.0
Preston	West	113	24-Apr-02	Oa	m	m	m	m	m	100.0
Preston	West	113	24-Apr-02	Ob	m	m	m	m	m	6.8
Preston	West	113	24-Apr-02	0.25	6.0	1310	12.5	8.17	216.7	3.4
Preston	West	113	24-Apr-02	0.50	6.0	1309	12.4	8.12	274.9	1.2
Preston	West	113	24-Apr-02	0.75	6.0	1306	12.6	8.11	279.6	0.7
Preston	West	113	24-Apr-02	1.00	6.0	1309	12.5	8.10	282.6	0.5
Preston	West	113	24-Apr-02	1.25	6.0	1309	12.5	8.10	281.7	0.5
Preston	West	113	24-Apr-02	1.50	5.9	1308	12.4	8.10	286.7	0.5
Preston	Mid	113	24-Apr-02	Oa	m	m	m	m	m	100.0
Preston	Mid	113	24-Apr-02	Ob	m	m	m	m	m	6.8
Preston	Mid	113	24-Apr-02	0.25	5.8	1330	12.3	8.28	312.0	3.6
Preston	Mid	113	24-Apr-02	0.50	5.7	1330	12.0	8.23	310.1	1.3
Preston	Mid	113	24-Apr-02	0.75	5.7	1331	12.1	8.24	309.6	0.6
Preston	Mid	113	24-Apr-02	1.00	5.7	1331	12.0	8.25	309.0	0.6
Preston	Mid	113	24-Apr-02	1.25	5.8	1331	12.0	8.25	312.6	0.5
Preston	Mid	113	24-Apr-02	1.50	5.8	1330	11.9	8.25	312.0	0.4
Preston	Mid	113	24-Apr-02	1.75	5.8	1330	11.9	8.25	316.7	0.2
Preston	East	113	24-Apr-02	Oa	m	m	m	m	m	100.0
Preston	East	113	24-Apr-02	Ob	m	m	m	m	m	7.9
Preston	East	113	24-Apr-02	0.25	6.8	1333	12.2	8.27	502.0	4.6
Preston	East	113	24-Apr-02	0.50	6.2	1331	12.2	8.27	515.0	1.7
Preston	East	113	24-Apr-02	0.75	6.2	1330	12.1	8.26	509.5	1.4
Preston	East	113	24-Apr-02	1.00	6.2	1329	12.1	8.29	521.1	0.8
Preston	East	113	24-Apr-02	1.25	6.2	1329	12.1	8.28	531.5	0.3
Preston	East	113	24-Apr-02	1.50	6.2	1328	12.1	8.27	506.2	0.4
Preston	East	113	24-Apr-02	1.75	6.1	1328	12.0	8.27	505.8	0.3
Henry	Mid	111	22-Apr-02	Oa	m	m	m	m	m	100.0

Henry	Mid	111	22-Apr-02	Ob	m	m	m	m	m	98.2
Henry	Mid	111	22-Apr-02	0.50	7.8	1097	10.7	8.24	13.4	66.6
Henry	Mid	111	22-Apr-02	1.00	7.8	1097	10.9	8.26	16.2	49.3
Henry	Mid	111	22-Apr-02	1.50	7.8	1098	10.9	8.26	14.7	31.7
Henry	Mid	111	22-Apr-02	2.00	7.8	1099	10.9	8.26	16.1	24.8
Henry	Mid	111	22-Apr-02	2.50	7.8	1099	10.8	8.26	13.7	22.3
Henry	Mid	111	22-Apr-02	3.00	7.8	1099	11.0	8.26	21.0	15.9
Thompson	North	139	20-May-02	0a	m	m	m	m	m	100.0
Thompson	North	139	20-May-02	0b	m	m	m	m	m	66.1
Thompson	North	139	20-May-02	0.50	12.0	1481	9.4	8.91	2.1	51.9
Thompson	North	139	20-May-02	1.00	11.9	1481	9.4	8.91	2.2	34.6
Thompson	North	139	20-May-02	1.50	11.8	1481	9.5	8.91	2.3	17.9
Thompson	North	139	20-May-02	2.00	11.8	1489	9.5	8.91	2.3	11.5
Thompson	North	139	20-May-02	2.50	11.8	1489	9.5	8.91	2.3	9.4
Thompson	North	139	20-May-02	3.00	11.8	1489	9.5	8.91	2.4	7.5
Thompson	North	139	20-May-02	3.50	11.8	1489	9.4	8.91	2.4	5.6
Thompson	North	139	20-May-02	4.00	11.8	1489	9.5	8.91	2.4	4.3
Thompson	North	139	20-May-02	4.50	11.8	1489	9.5	8.91	2.4	3.6
Thompson	North	139	20-May-02	5.00	11.7	1489	9.5	8.91	2.4	3.3
Thompson	North	139	20-May-02	5.50	11.7	1489	9.5	8.91	2.5	1.6
Thompson	North	139	20-May-02	6.00	11.7	1489	9.4	8.91	2.5	1.3
Thompson	North	139	20-May-02	6.50	11.7	1489	9.5	8.91	2.5	0.7
Thompson	Mid	139	20-May-02	0a	m	m	m	m	m	100.0
Thompson	Mid	139	20-May-02	0b	m	m	m	m	m	72.5
Thompson	Mid	139	20-May-02	0.50	12.3	1521	9.2	8.92	2.0	8.1
Thompson	Mid	139	20-May-02	1.00	12.3	1521	9.3	8.92	2.0	7.0
Thompson	Mid	139	20-May-02	1.50	12.3	1521	9.3	8.92	2.1	5.2
Thompson	Mid	139	20-May-02	2.00	12.3	1521	9.3	8.92	2.1	4.4
Thompson	Mid	139	20-May-02	2.50	12.2	1521	9.3	8.92	2.1	3.2
Thompson	Mid	139	20-May-02	3.00	12.2	1521	9.3	8.92	2.1	2.9
Thompson	Mid	139	20-May-02	3.50	12.2	1521	9.3	8.92	2.2	2.2
Thompson	Mid	139	20-May-02	4.00	12.1	1489	9.3	8.92	2.2	2.1
Thompson	Mid	139	20-May-02	4.50	12.0	1505	9.4	8.92	2.2	2.0
Thompson	Mid	139	20-May-02	5.00	12.0	1521	9.3	8.92	2.3	1.5
Thompson	Mid	139	20-May-02	5.50	12.0	1521	9.3	8.92	2.3	1.1
Thompson	Mid	139	20-May-02	6.00	12.0	1521	9.3	8.92	2.4	0.8
Thompson	South	139	20-May-02	0a	m	m	m	m	m	100.0

Thompson	South	139	20-May-02	0b	m	m	m	m	m	80.2
Thompson	South	139	20-May-02	0.50	13.0	1561	9.0	8.94	1.9	48.4
Thompson	South	139	20-May-02	1.00	13.0	1561	9.0	8.94	1.9	26.8
Thompson	South	139	20-May-02	1.50	13.0	1561	9.0	8.94	2.2	16.2
Thompson	South	139	20-May-02	2.00	13.0	1561	9.0	8.94	2.2	9.4
Thompson	South	139	20-May-02	2.50	12.8	1561	9.1	8.94	2.4	5.6
Thompson	South	139	20-May-02	3.00	12.8	1537	9.1	8.94	2.6	3.2
Thompson	South	139	20-May-02	3.50	12.0	1521	9.1	8.94	2.6	2.4
Thompson	South	139	20-May-02	4.00	11.7	1521	9.3	8.94	2.8	1.6
Whitewood	West	147	28-May-02	Oa	m	m	m	m	m	100.0
Whitewood	West	147	28-May-02	Ob	m	m	m	m	m	64.2
Whitewood	West	147	28-May-02	0.25	17.1	1196	9.8	8.56	48.8	7.1
Whitewood	West	147	28-May-02	0.50	17.1	1196	9.8	8.56	47.8	6.2
Whitewood	West	147	28-May-02	0.75	17.1	1196	9.7	8.56	48.5	5.2
Whitewood	West	147	28-May-02	1.00	17.1	1196	9.7	8.56	48.7	2.5
Whitewood	West	147	28-May-02	1.25	17.1	1197	9.7	8.56	48.6	1.2
Whitewood	West	147	28-May-02	1.50	17.1	1196	9.7	8.56	48.5	0.8
Whitewood	West	147	28-May-02	1.75	17.1	1196	9.7	8.56	48.8	0.4
Whitewood	West	147	28-May-02	2.00	17.0	1196	9.6	8.56	48.3	0.2
Whitewood	West	147	28-May-02	2.25	16.9	1195	9.7	8.56	48.2	0.1
Whitewood	West	147	28-May-02	2.50	16.7	1195	9.7	8.56	48.6	0.1
Whitewood	Mid	147	28-May-02	Oa	m	m	m	m	m	100.0
Whitewood	Mid	147	28-May-02	Ob	m	m	m	m	m	40.5
Whitewood	Mid	147	28-May-02	0.25	15.9	1202	9.4	8.28	58.0	19.1
Whitewood	Mid	147	28-May-02	0.50	15.9	1205	9.3	8.28	56.6	14.5
Whitewood	Mid	147	28-May-02	0.75	15.9	1205	9.2	8.37	55.5	10.2
Whitewood	Mid	147	28-May-02	1.00	15.9	1205	9.2	8.39	53.3	4.6
Whitewood	Mid	147	28-May-02	1.25	15.8	1205	9.2	8.41	51.7	1.9
Whitewood	Mid	147	28-May-02	1.50	15.8	1205	9.2	8.42	50.4	0.9
Whitewood	Mid	147	28-May-02	1.75	15.8	1206	9.1	8.43	49.2	0.6
Whitewood	Mid	147	28-May-02	2.00	15.7	1206	9.1	8.44	47.8	0.3
Whitewood	Mid	147	28-May-02	2.25	15.6	1205	9.1	8.45	46.1	0.1
Whitewood	Mid	147	28-May-02	2.50	15.4	1205	8.8	8.45	44.0	0.1
Whitewood	East	140	21-May-02	Oa	m	m	m	m	m	100.0
Whitewood	East	140	21-May-02	Ob	m	m	m	m	m	35.5
Whitewood	East	140	21-May-02	0.25	12.7	1183	10.3	8.44	50.2	13.9
Whitewood	East	140	21-May-02	0.50	12.7	1185	10.1	8.44	52.4	5.4

Whitewood	East	140	21-May-02	0.75	12.7	1186	10.0	8.48	53.8	3.0
Whitewood	East	140	21-May-02	1.00	12.7	1187	9.9	8.48	53.9	1.0
Whitewood	East	140	21-May-02	1.25	12.7	1187	9.9	8.47	54.3	0.8
Whitewood	East	140	21-May-02	1.50	12.7	1188	9.9	8.46	54.2	0.6
Whitewood	East	140	21-May-02	1.75	12.7	1188	9.9	8.47	55.5	0.5
Whitewood	East	140	21-May-02	2.00	12.7	1187	9.9	8.47	55.5	0.1
Whitewood	East	140	21-May-02	2.25	12.7	1186	9.9	8.47	55.7	0.1
Whitewood	East	140	21-May-02	2.50	12.7	1185	9.9	8.48	56.0	0.0
Preston	West	147	28-May-02	Oa	m	m	m	m	m	100.0
Preston	West	147	28-May-02	Ob	m	m	m	m	m	7.8
Preston	West	147	28-May-02	0.25	18.0	1440	9.3	8.59	56.9	4.0
Preston	West	147	28-May-02	0.50	17.9	1442	9.2	8.59	57.8	1.9
Preston	West	147	28-May-02	0.75	17.8	1441	9.1	8.57	57.9	1.1
Preston	West	147	28-May-02	1.00	17.5	1441	9.0	8.55	57.5	1.1
Preston	West	147	28-May-02	1.25	17.3	1440	8.9	8.54	57.2	0.7
Preston	West	147	28-May-02	1.50	17.0	1440	8.8	8.52	56.5	0.3
Preston	West	147	28-May-02	1.75	16.8	1440	8.6	8.51	56.5	0.1
Preston	West	147	28-May-02	2.00	16.5	1440	8.4	8.50	56.5	0.1
Preston	Mid	147	28-May-02	Oa	m	m	m	m	m	100.0
Preston	Mid	147	28-May-02	Ob	m	m	m	m	m	64.3
Preston	Mid	147	28-May-02	0.25	18.6	1321	9.9	8.57	68.3	7.0
Preston	Mid	147	28-May-02	0.50	18.6	1320	9.8	8.56	68.5	1.8
Preston	Mid	147	28-May-02	0.75	18.6	1320	9.8	8.56	69.1	0.2
Preston	Mid	147	28-May-02	1.00	18.6	1320	9.8	8.56	68.7	0.1
Preston	Mid	147	28-May-02	1.25	18.5	1320	9.7	8.55	68.5	0.0
Preston	Mid	147	28-May-02	1.50	18.5	1320	9.6	8.54	68.5	0.0
Preston	Mid	147	28-May-02	1.75	18.4	1320	9.6	8.54	69.6	0.0
Preston	East	147	28-May-02	Oa	m	m	m	m	m	100.0
Preston	East	147	28-May-02	Ob	m	m	m	m	m	13.6
Preston	East	147	28-May-02	0.25	16.5	1314	9.3	8.41	68.7	2.6
Preston	East	147	28-May-02	0.50	16.4	1314	9.1	8.42	68.6	0.4
Preston	East	147	28-May-02	0.75	16.4	1314	9.0	8.42	69.2	0.2
Preston	East	147	28-May-02	1.00	16.4	1314	8.9	8.42	69.3	0.0
Preston	East	147	28-May-02	1.25	16.3	1314	8.9	8.43	69.4	0.0
Preston	East	147	28-May-02	1.50	16.3	1314	8.9	8.43	69.5	0.0
Preston	East	147	28-May-02	1.75	16.3	1314	8.8	8.43	69.9	0.0
Preston	East	147	28-May-02	2.00	16.2	1314	8.7	8.43	69.9	0.0

Henry	Mid	139	20-May-02	Oa	m	m	m	m	m	100.0
Henry	Mid	139	20-May-02	Ob	m	m	m	m	m	88.2
Henry	Mid	139	20-May-02	0.50	13.8	1425	8.5	8.70	1.6	50.5
Henry	Mid	139	20-May-02	1.00	13.7	1425	8.4	8.70	1.8	45.7
Henry	Mid	139	20-May-02	1.50	13.7	1425	8.5	8.70	2.0	18.2
Henry	Mid	139	20-May-02	2.00	13.7	1425	8.5	8.70	2.1	2.1
Henry	Mid	139	20-May-02	2.50	13.6	1425	8.5	8.70	2.2	1.6
Thompson	North	170	20-Jun-02	0a	m	m	m	m	m	100.0
Thompson	North	170	20-Jun-02	0b	m	m	m	m	m	74.8
Thompson	North	170	20-Jun-02	0.50	21.6	1263	8.6	8.51	2.6	42.5
Thompson	North	170	20-Jun-02	1.00	21.2	1261	8.5	8.52	3.0	7.0
Thompson	North	170	20-Jun-02	1.50	21.0	1260	8.3	8.52	3.2	7.4
Thompson	North	170	20-Jun-02	2.00	21.0	1260	8.2	8.53	3.9	6.8
Thompson	North	170	20-Jun-02	2.50	20.9	1260	8.2	8.52	4.4	4.5
Thompson	North	170	20-Jun-02	3.00	20.9	1260	8.1	8.52	5.4	3.0
Thompson	North	170	20-Jun-02	3.50	20.8	1260	7.9	8.51	5.7	1.7
Thompson	North	170	20-Jun-02	4.00	20.8	1261	7.8	8.50	5.6	1.5
Thompson	North	170	20-Jun-02	4.50	20.8	1261	7.8	8.50	6.4	0.9
Thompson	North	170	20-Jun-02	5.00	20.8	1261	7.7	8.50	5.6	0.6
Thompson	North	170	20-Jun-02	5.50	20.8	1261	7.7	8.49	6.4	0.3
Thompson	North	170	20-Jun-02	6.00	20.8	1262	7.7	8.49	7.7	0.2
Thompson	North	170	20-Jun-02	6.50	20.7	1262	7.7	8.49	12.6	0.0
Thompson	Mid	170	20-Jun-02	0a	m	m	m	m	m	100.0
Thompson	Mid	170	20-Jun-02	0b	m	m	m	m	m	88.5
Thompson	Mid	170	20-Jun-02	0.50	21.3	1261	8.9	8.40	7.7	40.2
Thompson	Mid	170	20-Jun-02	1.00	20.9	1258	8.6	8.42	7.4	22.1
Thompson	Mid	170	20-Jun-02	1.50	20.7	1259	8.4	8.45	8.2	13.3
Thompson	Mid	170	20-Jun-02	2.00	20.7	1259	8.3	8.46	8.1	5.6
Thompson	Mid	170	20-Jun-02	2.50	20.6	1259	8.2	8.46	7.5	2.5
Thompson	Mid	170	20-Jun-02	3.00	20.6	1259	8.1	8.46	8.0	1.6
Thompson	Mid	170	20-Jun-02	3.50	20.6	1259	8.0	8.46	7.8	0.9
Thompson	Mid	170	20-Jun-02	4.00	20.6	1259	8.0	8.46	7.8	0.5
Thompson	Mid	170	20-Jun-02	4.50	20.6	1260	8.0	8.46	7.8	0.3
Thompson	Mid	170	20-Jun-02	5.00	20.6	1260	7.8	8.46	7.8	0.1
Thompson	Mid	170	20-Jun-02	5.50	20.6	1260	7.9	8.46	7.6	0.1
Thompson	Mid	170	20-Jun-02	6.00	20.6	1259	7.8	8.46	10.2	0.0
Thompson	Mid	170	20-Jun-02	6.50	20.5	1260	7.8	8.46	19.6	0.0

Thompson	South	170	20-Jun-02	0a	m	m	m	m	m	100.0
Thompson	South	170	20-Jun-02	0b	m	m	m	m	m	101.5
Thompson	South	170	20-Jun-02	0.50	21.3	1264	8.2	8.43	14.0	10.9
Thompson	South	170	20-Jun-02	1.00	20.8	1262	7.1	8.41	12.6	4.6
Thompson	South	170	20-Jun-02	1.50	20.7	1262	7.9	8.37	18.1	2.9
Thompson	South	170	20-Jun-02	2.00	20.7	1262	7.7	8.35	18.0	1.5
Thompson	South	170	20-Jun-02	2.50	20.6	1262	7.6	8.34	18.2	0.7
Thompson	South	170	20-Jun-02	3.00	20.6	1263	7.6	8.34	44.9	0.2
Whitewood	West	169	19-Jun-02	Oa	m	m	m	m	m	100.0
Whitewood	West	169	19-Jun-02	Ob	m	m	m	m	m	48.9
Whitewood	West	169	19-Jun-02	0.25	21.5	1236	8.1	8.52	30.0	24.7
Whitewood	West	169	19-Jun-02	0.50	21.5	1236	8.0	8.46	29.8	13.1
Whitewood	West	169	19-Jun-02	0.75	21.5	1236	7.9	8.44	30.4	7.9
Whitewood	West	169	19-Jun-02	1.00	21.5	1236	7.9	8.43	29.9	4.2
Whitewood	West	169	19-Jun-02	1.25	21.5	1236	7.8	8.43	30.1	1.6
Whitewood	West	169	19-Jun-02	1.50	21.5	1236	7.7	8.43	31.2	1.0
Whitewood	West	169	19-Jun-02	1.75	21.5	1236	7.7	8.43	32.3	0.5
Whitewood	West	169	19-Jun-02	2.00	21.5	1236	7.6	8.44	32.2	0.5
Whitewood	West	169	19-Jun-02	2.25	21.5	1236	7.6	8.44	30.7	0.2
Whitewood	West	169	19-Jun-02	2.50	21.5	1236	7.6	8.44	33.4	0.2
Whitewood	Mid	169	19-Jun-02	Oa	m	m	m	m	m	100.0
Whitewood	Mid	169	19-Jun-02	Ob	m	m	m	m	m	70.1
Whitewood	Mid	169	19-Jun-02	0.25	21.5	1248	7.9	8.52	35.0	6.2
Whitewood	Mid	169	19-Jun-02	0.50	21.5	1248	7.8	8.47	34.5	5.0
Whitewood	Mid	169	19-Jun-02	0.75	21.5	1248	7.8	8.44	36.1	3.1
Whitewood	Mid	169	19-Jun-02	1.00	21.5	1249	7.7	8.41	35.1	1.2
Whitewood	Mid	169	19-Jun-02	1.25	21.5	1249	7.6	8.40	35.1	0.4
Whitewood	Mid	169	19-Jun-02	1.50	21.5	1248	7.6	8.40	35.2	0.1
Whitewood	Mid	169	19-Jun-02	1.75	21.4	1248	7.6	8.40	39.4	0.0
Whitewood	Mid	169	19-Jun-02	2.00	21.5	1248	7.6	8.41	35.5	0.0
Whitewood	Mid	169	19-Jun-02	2.25	21.5	1249	7.6	8.41	35.2	0.0
Whitewood	Mid	169	19-Jun-02	2.50	21.5	1249	7.6	8.41	36.8	0.0
Whitewood	East	169	19-Jun-02	Oa	m	m	m	m	m	100.0
Whitewood	East	169	19-Jun-02	Ob	m	m	m	m	m	75.4
Whitewood	East	169	19-Jun-02	0.25	21.4	1253	7.7	8.45	38.0	2.7
Whitewood	East	169	19-Jun-02	0.50	21.5	1253	7.5	8.40	37.7	1.2
Whitewood	East	169	19-Jun-02	0.75	21.5	1253	7.4	8.39	36.9	1.5

Whitewood	East	169	19-Jun-02	1.00	21.5	1253	7.4	8.39	35.6	0.7
Whitewood	East	169	19-Jun-02	1.25	21.5	1253	7.4	8.40	36.3	0.4
Whitewood	East	169	19-Jun-02	1.50	21.5	1253	7.4	8.40	36.7	0.4
Whitewood	East	169	19-Jun-02	1.75	21.5	1253	7.3	8.40	38.8	0.2
Whitewood	East	169	19-Jun-02	2.00	21.4	1253	7.3	8.40	38.6	0.1
Whitewood	East	169	19-Jun-02	2.25	21.4	1253	7.3	8.40	42.0	0.1
Preston	West	174	24-Jun-02	Oa	m	m	m	m	m	100.0
Preston	West	174	24-Jun-02	Ob	m	m	m	m	m	95.3
Preston	West	174	24-Jun-02	0.25	24.0	1476	7.8	8.34	52.9	22.4
Preston	West	174	24-Jun-02	0.50	24.0	1474	7.7	8.36	54.6	4.3
Preston	West	174	24-Jun-02	0.75	24.0	1474	7.6	8.36	51.9	2.5
Preston	West	174	24-Jun-02	1.00	24.0	1474	7.5	8.36	55.3	0.5
Preston	West	174	24-Jun-02	1.25	24.0	1474	7.5	8.36	51.4	0.1
Preston	West	174	24-Jun-02	1.50	24.0	1474	7.5	8.37	70.2	0.0
Preston	West	174	24-Jun-02	1.75	24.0	1475	7.4	8.37	67.1	0.0
Preston	West	174	24-Jun-02	2.00	24.0	1475	7.4	8.37	64.0	0.0
Preston	Mid	174	24-Jun-02	Oa	m	m	m	m	m	100.0
Preston	Mid	174	24-Jun-02	Ob	m	m	m	m	m	52.9
Preston	Mid	174	24-Jun-02	0.25	24.4	1390	7.9	8.39	106.1	5.2
Preston	Mid	174	24-Jun-02	0.50	24.4	1390	7.7	8.36	108.5	0.5
Preston	Mid	174	24-Jun-02	0.75	24.4	1390	7.7	8.35	108.3	0.0
Preston	Mid	174	24-Jun-02	1.00	24.3	1390	7.6	8.34	115.1	0.0
Preston	Mid	174	24-Jun-02	1.25	24.3	1391	7.5	8.33	118.4	0.0
Preston	Mid	174	24-Jun-02	1.50	24.3	1390	7.5	8.33	122.6	0.0
Preston	East	174	24-Jun-02	Oa	m	m	m	m	m	100.0
Preston	East	174	24-Jun-02	Ob	m	m	m	m	m	80.1
Preston	East	174	24-Jun-02	0.25	24.3	1387	8.3	8.45	95.3	9.9
Preston	East	174	24-Jun-02	0.50	24.3	1388	7.9	8.42	95.3	1.9
Preston	East	174	24-Jun-02	0.75	24.3	1389	7.9	8.39	94.8	0.3
Preston	East	174	24-Jun-02	1.00	24.3	1389	7.8	8.36	95.6	0.2
Preston	East	174	24-Jun-02	1.25	24.3	1389	7.7	8.33	97.3	0.0
Preston	East	174	24-Jun-02	1.50	24.2	1389	7.6	8.31	98.1	0.0
Henry	Mid	169	19-Jun-02	Oa	m	m	m	m	m	100.0
Henry	Mid	169	19-Jun-02	Ob	m	m	m	m	m	66.6
Henry	Mid	169	19-Jun-02	0.50	22.1	1169	6.9	8.34	10.1	39.0
Henry	Mid	169	19-Jun-02	1.00	22.1	1169	6.8	8.30	9.7	17.3
Henry	Mid	169	19-Jun-02	1.50	22.1	1169	6.8	8.28	9.1	8.4

Henry	Mid	169	19-Jun-02	2.00	22.0	1169	6.8	8.26	8.6	4.3
Henry	Mid	169	19-Jun-02	2.50	22.0	1169	6.7	8.26	8.2	2.3
Thompson	North	202	22-Jul-02	0a	m	m	m	m	m	100.0
Thompson	North	202	22-Jul-02	0b	m	m	m	m	m	113.5
Thompson	North	202	22-Jul-02	0.50	25.2	1274	6.6	8.55	12.3	24.0
Thompson	North	202	22-Jul-02	1.00	25.9	1274	6.6	8.56	7.8	11.1
Thompson	North	202	22-Jul-02	1.50	25.9	1273	6.6	8.57	7.3	2.5
Thompson	North	202	22-Jul-02	2.00	25.9	1274	6.6	8.58	8.5	0.8
Thompson	North	202	22-Jul-02	2.50	25.9	1274	6.5	8.58	4.1	0.3
Thompson	North	202	22-Jul-02	3.00	25.8	1274	6.5	8.59	5.2	0.1
Thompson	North	202	22-Jul-02	3.50	25.8	1274	6.4	8.60	8.6	0.0
Thompson	North	202	22-Jul-02	4.00	25.8	1274	6.4	8.60	7.6	0.0
Thompson	North	202	22-Jul-02	4.50	25.8	1274	6.4	8.61	2.3	0.0
Thompson	North	202	22-Jul-02	5.00	25.8	1274	6.4	8.61	3.5	0.0
Thompson	North	202	22-Jul-02	5.50	25.8	1274	6.4	8.61	3.5	0.0
Thompson	North	202	22-Jul-02	6.00	25.8	1274	6.4	8.61	15.0	0.0
Thompson	Mid	202	22-Jul-02	0a	m	m	m	m	m	100.0
Thompson	Mid	202	22-Jul-02	0b	m	m	m	m	m	74.5
Thompson	Mid	202	22-Jul-02	0.50	24.7	1282	6.4	8.54	4.2	20.3
Thompson	Mid	202	22-Jul-02	1.00	24.7	1282	6.3	8.50	4.2	6.1
Thompson	Mid	202	22-Jul-02	1.50	24.7	1282	6.2	8.49	3.5	2.1
Thompson	Mid	202	22-Jul-02	2.00	24.8	1283	6.1	8.49	3.3	0.8
Thompson	Mid	202	22-Jul-02	2.50	24.8	1283	6.1	8.50	3.4	0.4
Thompson	Mid	202	22-Jul-02	3.00	24.8	1282	6.1	8.50	0.7	0.2
Thompson	Mid	202	22-Jul-02	3.50	24.7	1282	6.1	8.51	4.2	0.0
Thompson	Mid	202	22-Jul-02	4.00	24.7	1282	6.0	8.52	7.0	0.0
Thompson	Mid	202	22-Jul-02	4.50	24.7	1282	6.0	8.53	5.3	0.0
Thompson	Mid	202	22-Jul-02	5.00	24.7	1282	6.0	8.53	7.3	0.0
Thompson	Mid	202	22-Jul-02	5.50	24.7	1282	6.0	8.53	6.9	0.0
Thompson	Mid	202	22-Jul-02	6.00	24.7	1281	6.0	8.54	11.4	0.0
Thompson	South	202	22-Jul-02	0a	m	m	m	m	m	100.0
Thompson	South	202	22-Jul-02	0b	m	m	m	m	m	74.2
Thompson	South	202	22-Jul-02	0.50	24.4	1278	6.9	8.59	12.3	18.4
Thompson	South	202	22-Jul-02	1.00	24.4	1279	6.9	8.62	10.2	5.4
Thompson	South	202	22-Jul-02	1.50	24.4	1279	6.9	8.64	8.2	1.1
Thompson	South	202	22-Jul-02	2.00	24.3	1279	6.9	8.67	7.5	0.3
Thompson	South	202	22-Jul-02	2.50	24.3	1279	6.9	8.67	7.3	0.0

Thompson	South	202	22-Jul-02	3.00	24.3	1279	6.9	8.68	13.8	0.0
Thompson	South	202	22-Jul-02	3.50	24.3	1278	6.9	8.68	18.9	0.0
Thompson	South	202	22-Jul-02	4.00	24.3	1278	6.9	8.68	m	0.0
Whitewood	West	202	22-Jul-02	Oa	m	m	m	m	m	100.0
Whitewood	West	202	22-Jul-02	Ob	m	m	m	m	m	17.4
Whitewood	West	202	22-Jul-02	0.25	25.3	1215	7.7	8.89	73.0	2.0
Whitewood	West	202	22-Jul-02	0.50	25.4	1214	7.7	8.88	66.1	0.4
Whitewood	West	202	22-Jul-02	0.75	25.4	1214	7.7	8.88	63.0	0.2
Whitewood	West	202	22-Jul-02	1.00	25.4	1214	7.7	8.87	63.2	0.0
Whitewood	West	202	22-Jul-02	1.25	25.4	1214	7.6	8.87	65.1	0.0
Whitewood	West	202	22-Jul-02	1.50	25.4	1214	7.6	8.87	62.3	0.0
Whitewood	West	202	22-Jul-02	1.75	25.4	1214	7.6	8.87	65.8	0.0
Whitewood	West	202	22-Jul-02	2.00	25.3	1215	7.5	8.87	64.1	0.0
Whitewood	Mid	202	22-Jul-02	Oa	m	m	m	m	m	100.0
Whitewood	Mid	202	22-Jul-02	Ob	m	m	m	m	m	79.3
Whitewood	Mid	202	22-Jul-02	0.25	25.2	1228	6.3	8.63	56.2	7.4
Whitewood	Mid	202	22-Jul-02	0.50	25.2	1228	6.2	8.62	54.2	6.4
Whitewood	Mid	202	22-Jul-02	0.75	25.2	1228	6.1	8.62	59.3	1.5
Whitewood	Mid	202	22-Jul-02	1.00	25.2	1228	6.1	8.62	53.8	0.4
Whitewood	Mid	202	22-Jul-02	1.25	25.2	1229	6.0	8.62	54.7	0.1
Whitewood	Mid	202	22-Jul-02	1.50	25.2	1229	6.1	8.63	55.4	0.0
Whitewood	Mid	202	22-Jul-02	1.75	25.1	1229	6.0	8.62	53.1	0.0
Whitewood	Mid	202	22-Jul-02	2.00	25.1	1229	5.9	8.62	54.2	0.0
Whitewood	Mid	202	22-Jul-02	2.25	25.1	1229	6.0	8.62	59.9	0.0
Whitewood	Mid	202	22-Jul-02	2.50	25.1	1229	5.8	8.62	58.3	0.0
Whitewood	East	202	22-Jul-02	Oa	m	m	m	m	m	100.0
Whitewood	East	202	22-Jul-02	Ob	m	m	m	m	m	77.9
Whitewood	East	202	22-Jul-02	0.25	25.1	1225	6.1	8.47	59.7	40.0
Whitewood	East	202	22-Jul-02	0.50	25.1	1236	6.2	8.48	65.4	0.3
Whitewood	East	202	22-Jul-02	0.75	25.1	1236	6.2	8.48	66.5	0.1
Whitewood	East	202	22-Jul-02	1.00	25.1	1236	6.2	8.48	60.1	0.0
Whitewood	East	202	22-Jul-02	1.25	25.1	1236	6.2	8.48	62.5	0.0
Whitewood	East	202	22-Jul-02	1.50	25.1	1236	6.2	8.48	63.7	0.0
Whitewood	East	202	22-Jul-02	1.75	25.1	1236	6.2	8.48	62.2	0.0
Whitewood	East	202	22-Jul-02	2.00	25.1	1236	6.2	8.48	62.8	0.0
Preston	West	203	23-Jul-02	Oa	m	m	m	m	m	100.0
Preston	West	203	23-Jul-02	Ob	m	m	m	m	m	74.0

Preston	West	203	23-Jul-02	0.25	23.8	1541	6.3	8.66	100.3	7.5
Preston	West	203	23-Jul-02	0.50	23.8	1541	6.2	8.65	104.0	1.1
Preston	West	203	23-Jul-02	0.75	23.8	1541	6.1	8.65	105.9	0.3
Preston	West	203	23-Jul-02	1.00	23.7	1542	6.0	8.65	105.9	0.1
Preston	West	203	23-Jul-02	1.25	23.7	1542	5.9	8.65	113.5	0.0
Preston	West	203	23-Jul-02	1.50	23.7	1544	5.5	8.64	112.4	0.0
Preston	West	203	23-Jul-02	1.75	23.7	1545	5.1	8.63	112.4	0.0
Preston	West	203	23-Jul-02	2.00	23.6	1545	4.8	8.63	m	0.0
Preston	Mid	203	23-Jul-02	Oa	m	m	m	m	m	100.0
Preston	Mid	203	23-Jul-02	Ob	m	m	m	m	m	42.7
Preston	Mid	203	23-Jul-02	0.25	23.0	1481	7.9	8.53	92.0	5.9
Preston	Mid	203	23-Jul-02	0.50	23.0	1481	7.9	8.52	94.3	0.6
Preston	Mid	203	23-Jul-02	0.75	23.0	1481	7.8	8.52	93.5	0.3
Preston	Mid	203	23-Jul-02	1.00	23.0	1481	7.8	8.52	90.9	0.0
Preston	Mid	203	23-Jul-02	1.25	23.0	1481	7.7	8.52	94.1	0.0
Preston	Mid	203	23-Jul-02	1.50	22.9	1481	7.7	8.51	108.3	0.0
Preston	Mid	203	23-Jul-02	1.75	22.9	1481	7.6	8.51	120.0	0.0
Preston	East	203	23-Jul-02	Oa	m	m	m	m	m	100.0
Preston	East	203	23-Jul-02	Ob	m	m	m	m	m	84.6
Preston	East	203	23-Jul-02	0.25	23.2	1483	8.0	8.55	75.6	6.9
Preston	East	203	23-Jul-02	0.50	23.1	1483	7.9	8.55	74.0	1.8
Preston	East	203	23-Jul-02	0.75	23.1	1483	7.9	8.55	74.0	1.3
Preston	East	203	23-Jul-02	1.00	23.1	1483	7.9	8.55	76.1	0.0
Preston	East	203	23-Jul-02	1.25	23.1	1483	7.8	8.55	74.6	0.0
Preston	East	203	23-Jul-02	1.50	23.1	1483	7.8	8.56	77.8	0.0
Henry	Mid	203	23-Jul-02	Oa	m	m	m	m	m	100.0
Henry	Mid	203	23-Jul-02	Ob	m	m	m	m	m	72.7
Henry	Mid	203	23-Jul-02	0.50	24.3	1181	8.2	8.57	17.3	6.3
Henry	Mid	203	23-Jul-02	1.00	24.2	1181	8.2	8.56	15.7	0.8
Henry	Mid	203	23-Jul-02	1.50	24.2	1181	8.1	8.56	15.4	0.2
Henry	Mid	203	23-Jul-02	2.00	25.0	1180	7.8	8.59	29.5	0.0
Henry	Mid	203	23-Jul-02	2.50	23.9	1181	7.6	8.60	59.2	0.0
Henry	Mid	203	23-Jul-02	3.00	23.8	1181	7.1	8.60	m	0.0
Thompson	North	238	27-Aug-02	0a	m	m	m	m	m	100.0
Thompson	North	238	27-Aug-02	0b	m	m	m	m	m	80.8
Thompson	North	238	27-Aug-02	0.50	22.5	1302	8.7	8.95	6.2	25.8
Thompson	North	238	27-Aug-02	1.00	22.0	1317	8.4	m	m	22.2

Thompson	North	238	27-Aug-02	1.50	22.0	1317	8.0	m	m	10.5
Thompson	North	238	27-Aug-02	2.00	22.0	1290	7.8	m	m	3.9
Thompson	North	238	27-Aug-02	2.50	22.0	1290	7.7	m	m	2.4
Thompson	North	238	27-Aug-02	3.00	22.0	1290	7.6	m	m	1.6
Thompson	North	238	27-Aug-02	3.50	21.5	1305	7.5	m	m	1.1
Thompson	North	238	27-Aug-02	4.00	21.5	1305	7.4	m	m	0.8
Thompson	North	238	27-Aug-02	4.50	21.5	1305	7.4	m	m	0.7
Thompson	North	238	27-Aug-02	5.00	21.5	1305	7.4	m	m	0.4
Thompson	North	238	27-Aug-02	5.50	21.5	1305	7.4	m	m	0.1
Thompson	North	238	27-Aug-02	6.00	21.5	1305	7.4	8.90	3.4	0.1
Thompson	Mid	238	27-Aug-02	0a	m	m	m	m	m	100.0
Thompson	Mid	238	27-Aug-02	0b	m	m	m	m	m	83.9
Thompson	Mid	238	27-Aug-02	0.50	22.0	1290	6.3	8.85	18.5	31.9
Thompson	Mid	238	27-Aug-02	1.00	22.0	1290	6.2	m	m	17.3
Thompson	Mid	238	27-Aug-02	1.50	21.5	1305	6.2	m	m	13.6
Thompson	Mid	238	27-Aug-02	2.00	21.5	1305	6.1	m	m	2.1
Thompson	Mid	238	27-Aug-02	2.50	21.5	1305	5.8	m	m	1.5
Thompson	Mid	238	27-Aug-02	3.00	21.0	1320	5.5	m	m	1.2
Thompson	Mid	238	27-Aug-02	3.50	21.0	1320	5.4	m	m	1.1
Thompson	Mid	238	27-Aug-02	4.00	21.0	1320	5.4	m	m	1.0
Thompson	Mid	238	27-Aug-02	4.50	21.0	1320	5.4	m	m	0.9
Thompson	Mid	238	27-Aug-02	5.00	21.0	1320	5.3	m	m	0.7
Thompson	Mid	238	27-Aug-02	5.50	21.0	1320	5.3	m	m	0.5
Thompson	Mid	238	27-Aug-02	6.00	21.0	1320	5.2	8.84	3.0	0.4
Thompson	South	238	27-Aug-02	0a	m	m	m	m	m	100.0
Thompson	South	238	27-Aug-02	0b	m	m	m	m	m	84.7
Thompson	South	238	27-Aug-02	0.50	22.0	1290	6.4	8.84	6.9	55.9
Thompson	South	238	27-Aug-02	1.00	21.5	1305	6.3	m	m	21.5
Thompson	South	238	27-Aug-02	1.50	21.5	1305	6.3	m	m	11.0
Thompson	South	238	27-Aug-02	2.00	21.5	1305	6.2	m	m	5.8
Thompson	South	238	27-Aug-02	2.50	21.0	1320	6.1	m	m	2.7
Thompson	South	238	27-Aug-02	3.00	21.0	1320	5.8	m	m	0.8
Thompson	South	238	27-Aug-02	3.50	21.0	1320	4.9	8.85	19.4	0.3
Whitewood	West	239	28-Aug-02	Oa	m	m	m	m	m	100.0
Whitewood	West	239	28-Aug-02	Ob	m	m	m	m	m	48.6
Whitewood	West	239	28-Aug-02	0.25	22.8	1266	7.5	m	m	2.7
Whitewood	West	239	28-Aug-02	0.50	22.8	1277	7.4	8.91	44.8	0.5

Whitewood	West	239	28-Aug-02	0.75	22.7	1280	7.4	m	m	0.2
Whitewood	West	239	28-Aug-02	1.00	22.7	1280	7.3	m	m	0.0
Whitewood	West	239	28-Aug-02	1.25	22.7	1269	7.2	m	m	0.0
Whitewood	West	239	28-Aug-02	1.50	22.7	1269	7.1	m	m	0.0
Whitewood	West	239	28-Aug-02	1.75	22.7	1269	7.2	m	m	0.0
Whitewood	West	239	28-Aug-02	2.00	22.6	1272	7.1	8.89	37.9	0.0
Whitewood	West	239	28-Aug-02	2.25	22.5	1275	6.9	m	m	0.0
Whitewood	West	239	28-Aug-02	2.50	22.3	1281	5.9	m	m	0.0
Whitewood	Mid	239	28-Aug-02	Oa	m	m	m	m	m	100.0
Whitewood	Mid	239	28-Aug-02	Ob	m	m	m	m	m	11.6
Whitewood	Mid	239	28-Aug-02	0.25	23.3	1277	5.4	m	m	7.9
Whitewood	Mid	239	28-Aug-02	0.50	23.3	1277	5.6	8.94	47.9	0.8
Whitewood	Mid	239	28-Aug-02	0.75	23.3	1277	5.5	m	m	0.1
Whitewood	Mid	239	28-Aug-02	1.00	23.3	1277	5.7	m	m	0.0
Whitewood	Mid	239	28-Aug-02	1.25	23.3	1277	5.8	m	m	0.0
Whitewood	Mid	239	28-Aug-02	1.50	23.3	1277	5.8	m	m	0.0
Whitewood	Mid	239	28-Aug-02	1.75	23.3	1277	5.7	m	m	0.0
Whitewood	Mid	239	28-Aug-02	2.00	23.3	1277	5.6	8.87	45.6	0.0
Whitewood	Mid	239	28-Aug-02	2.25	23.3	1261	4.9	m	m	0.0
Whitewood	Mid	239	28-Aug-02	2.50	23.3	1251	3.5	m	m	0.0
Whitewood	East	239	28-Aug-02	Oa	m	m	m	m	m	100.0
Whitewood	East	239	28-Aug-02	Ob	m	m	m	m	m	7.1
Whitewood	East	239	28-Aug-02	0.25	23.0	1286	5.1	m	m	6.4
Whitewood	East	239	28-Aug-02	0.50	23.2	1280	5.1	8.84	41.6	0.6
Whitewood	East	239	28-Aug-02	0.75	23.2	1306	5.0	m	m	0.1
Whitewood	East	239	28-Aug-02	1.00	23.2	1306	5.0	m	m	0.0
Whitewood	East	239	28-Aug-02	1.25	23.2	1306	5.0	m	m	0.0
Whitewood	East	239	28-Aug-02	1.50	23.2	1306	4.9	m	m	0.0
Whitewood	East	239	28-Aug-02	1.75	23.2	1317	4.7	m	m	0.0
Whitewood	East	239	28-Aug-02	2.00	23.2	1317	4.7	8.77	47.9	0.0
Whitewood	East	239	28-Aug-02	2.25	23.2	1254	3.9	m	m	0.0
Whitewood	East	239	28-Aug-02	2.50	23.2	1254	2.3	m	m	0.0
Whitewood	East	239	28-Aug-02	2.75	23.2	1233	1.0	m	m	0.0
Preston	West	239	28-Aug-02	Oa	m	m	m	m	m	100.0
Preston	West	239	28-Aug-02	Ob	m	m	m	m	m	61.4
Preston	West	239	28-Aug-02	0.25	25.0	1510	7.2	m	m	11.6
Preston	West	239	28-Aug-02	0.50	25.0	1510	6.9	8.92	53.5	1.6

Preston	West	239	28-Aug-02	0.75	24.8	1533	6.8	m	m	0.6
Preston	West	239	28-Aug-02	1.00	24.8	1533	6.7	m	m	0.1
Preston	West	239	28-Aug-02	1.25	24.8	1533	6.7	m	m	0.0
Preston	West	239	28-Aug-02	1.50	24.7	1536	6.1	8.94	69.2	0.0
Preston	West	239	28-Aug-02	1.75	24.5	1544	5.1	m	m	0.0
Preston	Mid	239	28-Aug-02	Oa	m	m	m	m	m	100.0
Preston	Mid	239	28-Aug-02	Ob	m	m	m	m	m	11.0
Preston	Mid	239	28-Aug-02	0.25	24.1	1508	7.6	m	m	1.6
Preston	Mid	239	28-Aug-02	0.50	24.1	1503	7.7	8.96	65.0	0.2
Preston	Mid	239	28-Aug-02	0.75	24.1	1508	7.7	m	m	0.0
Preston	Mid	239	28-Aug-02	1.00	24.1	1508	7.8	8.93	79.5	0.0
Preston	Mid	239	28-Aug-02	1.25	24.1	1508	7.6	m	m	0.0
Preston	Mid	239	28-Aug-02	1.50	24.0	1517	7.6	m	m	0.0
Preston	East	239	28-Aug-02	Oa	m	m	m	m	m	100.0
Preston	East	239	28-Aug-02	Ob	m	m	m	m	m	59.5
Preston	East	239	28-Aug-02	0.25	24.5	1493	7.4	m	m	1.6
Preston	East	239	28-Aug-02	0.50	24.0	1512	7.3	8.94	64.7	0.2
Preston	East	239	28-Aug-02	0.75	24.0	1512	7.1	m	m	0.1
Preston	East	239	28-Aug-02	1.00	24.0	1512	7.0	m	m	0.0
Preston	East	239	28-Aug-02	1.25	23.8	1519	7.3	m	m	0.0
Preston	East	239	28-Aug-02	1.50	23.7	1523	7.1	8.85	70.8	0.0
Preston	East	239	28-Aug-02	1.75	23.6	1527	6.5	m	m	0.0
Henry	Mid	237	26-Aug-02	Oa	m	m	m	m	m	100.0
Henry	Mid	237	26-Aug-02	Ob	m	m	m	m	m	82.5
Henry	Mid	237	26-Aug-02	0.50	23.2	1150	6.8	8.60	9.1	3.8
Henry	Mid	237	26-Aug-02	1.00	23.2	1160	6.4	m	m	1.4
Henry	Mid	237	26-Aug-02	1.50	23.1	1163	6.4	m	m	1.1
Henry	Mid	237	26-Aug-02	2.00	23.1	1163	6.3	m	m	0.8
Henry	Mid	237	26-Aug-02	2.50	22.3	1174	2.3	8.54	9.1	0.5
Henry	Mid	237	26-Aug-02	3.00	21.8	1188	0.1	m	m	0.0
Thompson	North	272	30-Sep-02	0a	m	m	m	m	m	100.0
Thompson	North	272	30-Sep-02	0b	m	m	m	m	m	78.7
Thompson	North	272	30-Sep-02	0.50	14.3	1331	8.8	9.22	10.3	18.2
Thompson	North	272	30-Sep-02	1.00	14.2	1334	8.9	m	m	7.9
Thompson	North	272	30-Sep-02	1.50	14.2	1334	8.9	m	m	2.8
Thompson	North	272	30-Sep-02	2.00	14.0	1339	8.8	m	m	1.1
Thompson	North	272	30-Sep-02	2.50	14.0	1339	8.8	m	m	0.6

Thompson	North	272	30-Sep-02	3.00	14.0	1339	8.6	m	m	0.3
Thompson	North	272	30-Sep-02	3.50	13.8	1344	8.2	m	m	0.2
Thompson	North	272	30-Sep-02	4.00	13.7	1347	8.4	m	m	0.1
Thompson	North	272	30-Sep-02	4.50	13.5	1352	8.3	m	m	0.1
Thompson	North	272	30-Sep-02	5.00	13.5	1352	8.1	m	m	0.0
Thompson	North	272	30-Sep-02	5.50	13.5	1352	8.1	m	m	0.0
Thompson	North	272	30-Sep-02	6.00	13.5	1352	8.1	9.13	18.3	0.0
Thompson	North	272	30-Sep-02	6.50	13.5	1352	8.0	m	m	0.0
Thompson	Mid	272	30-Sep-02	0a	m	m	m	m	m	100.0
Thompson	Mid	272	30-Sep-02	0b	m	m	m	m	m	80.1
Thompson	Mid	272	30-Sep-02	0.50	13.5	1320	8.4	9.23	22.7	4.8
Thompson	Mid	272	30-Sep-02	1.00	13.9	1309	8.5	m	m	3.1
Thompson	Mid	272	30-Sep-02	1.50	13.9	1309	8.5	m	m	2.2
Thompson	Mid	272	30-Sep-02	2.00	13.9	1309	8.4	m	m	1.0
Thompson	Mid	272	30-Sep-02	2.50	14.0	1275	8.4	m	m	0.4
Thompson	Mid	272	30-Sep-02	3.00	14.0	956	8.4	m	m	0.1
Thompson	Mid	272	30-Sep-02	3.50	14.0	1211	8.4	m	m	0.1
Thompson	Mid	272	30-Sep-02	4.00	14.0	1211	8.3	m	m	0.0
Thompson	Mid	272	30-Sep-02	4.50	14.0	1243	8.3	m	m	0.0
Thompson	Mid	272	30-Sep-02	5.00	14.0	1275	8.3	m	m	0.0
Thompson	Mid	272	30-Sep-02	5.50	14.0	1339	8.3	m	m	0.0
Thompson	Mid	272	30-Sep-02	6.00	14.0	1307	8.3	9.14	13.3	0.0
Thompson	North	272	30-Sep-02	6.50	14.0	1339	8.3	m	m	0.0
Thompson	South	272	30-Sep-02	0a	m	m	m	m	m	100.0
Thompson	South	272	30-Sep-02	0b	m	m	m	m	m	16.4
Thompson	South	272	30-Sep-02	0.50	14.1	1273	10.2	9.23	10.0	13.8
Thompson	South	272	30-Sep-02	1.00	14.0	1275	10.0	m	m	3.0
Thompson	South	272	30-Sep-02	1.50	13.6	1285	10.1	m	m	0.9
Thompson	South	272	30-Sep-02	2.00	13.5	1159	10.3	9.19	14.6	0.3
Thompson	South	272	30-Sep-02	2.50	13.4	1161	10.6	m	m	0.1
Whitewood	West	272	30-Sep-02	Oa	m	m	m	m	m	100.0
Whitewood	West	272	30-Sep-02	Ob	m	m	m	m	m	24.9
Whitewood	West	272	30-Sep-02	0.25	13.5	1416	9.7	m	m	11.2
Whitewood	West	272	30-Sep-02	0.50	13.4	1419	9.8	8.99	43.3	2.8
Whitewood	West	272	30-Sep-02	0.75	13.4	1419	9.8	m	m	0.3
Whitewood	West	272	30-Sep-02	1.00	13.4	1419	9.8	m	m	0.1
Whitewood	West	272	30-Sep-02	1.25	13.4	1419	9.7	m	m	0.1

Whitewood	West	272	30-Sep-02	1.50	13.4	1419	9.7	m	m	0.0
Whitewood	West	272	30-Sep-02	1.75	13.4	1419	9.8	m	m	0.0
Whitewood	West	272	30-Sep-02	2.00	13.4	1419	9.7	8.91	49.2	0.0
Whitewood	West	272	30-Sep-02	2.25	13.3	1422	9.7	m	m	0.0
Whitewood	Mid	272	30-Sep-02	Oa	m	m	m	m	m	100.0
Whitewood	Mid	272	30-Sep-02	Ob	m	m	m	m	m	44.6
Whitewood	Mid	272	30-Sep-02	0.25	13.5	1416	8.6	m	m	3.8
Whitewood	Mid	272	30-Sep-02	0.50	13.5	1416	8.6	8.86	52.1	1.4
Whitewood	Mid	272	30-Sep-02	0.75	13.5	1416	8.4	m	m	0.4
Whitewood	Mid	272	30-Sep-02	1.00	13.4	1419	8.4	m	m	0.1
Whitewood	Mid	272	30-Sep-02	1.25	13.4	1419	8.3	m	m	0.0
Whitewood	Mid	272	30-Sep-02	1.50	13.3	1422	8.3	m	m	0.0
Whitewood	Mid	272	30-Sep-02	1.75	13.2	1425	8.2	m	m	0.0
Whitewood	Mid	272	30-Sep-02	2.00	13.2	1425	7.9	8.75	63.6	0.0
Whitewood	Mid	272	30-Sep-02	2.25	13.0	1430	6.6	m	m	0.0
Whitewood	Mid	272	30-Sep-02	2.50	12.7	1438	6.6	m	m	0.0
Whitewood	East	272	30-Sep-02	Oa	m	m	m	m	m	100.0
Whitewood	East	272	30-Sep-02	Ob	m	m	m	m	m	73.3
Whitewood	East	272	30-Sep-02	0.25	13.8	1280	9.3	m	m	5.3
Whitewood	East	272	30-Sep-02	0.50	13.5	1288	9.3	8.84	50.1	1.0
Whitewood	East	272	30-Sep-02	0.75	13.5	1288	9.3	m	m	0.2
Whitewood	East	272	30-Sep-02	1.00	13.5	1352	9.3	m	m	0.0
Whitewood	East	272	30-Sep-02	1.25	13.5	1352	9.3	m	m	0.0
Whitewood	East	272	30-Sep-02	1.50	13.5	1352	9.3	m	m	0.0
Whitewood	East	272	30-Sep-02	1.75	13.5	1352	9.3	8.95	50.4	0.0
Whitewood	East	272	30-Sep-02	2.00	13.5	1352	9.6	m	m	0.0
Preston	West	273	1-Oct-02	Oa	m	m	m	m	m	100.0
Preston	West	273	1-Oct-02	Ob	m	m	m	m	m	33.8
Preston	West	273	1-Oct-02	0.25	14.0	1721	7.7	m	m	3.8
Preston	West	273	1-Oct-02	0.50	13.8	1728	7.7	8.98	69.1	0.7
Preston	West	273	1-Oct-02	0.75	13.8	1728	7.6	m	m	0.1
Preston	West	273	1-Oct-02	1.00	13.8	1728	7.6	m	m	0.0
Preston	West	273	1-Oct-02	1.25	13.8	1728	7.6	8.93	69.4	0.0
Preston	West	273	1-Oct-02	1.50	13.8	1728	7.6	m	m	0.0
Preston	Mid	273	1-Oct-02	Oa	m	m	m	m	m	100.0
Preston	Mid	273	1-Oct-02	Ob	m	m	m	m	m	43.3
Preston	Mid	273	1-Oct-02	0.25	14.0	1658	8.8	m	m	3.0

Preston	Mid	273	1-Oct-02	0.50	13.9	1661	8.8	9.03	96.1	0.4
Preston	Mid	273	1-Oct-02	0.75	13.9	1661	8.8	m	m	0.0
Preston	Mid	273	1-Oct-02	1.00	13.9	1661	8.8	m	m	0.0
Preston	Mid	273	1-Oct-02	1.25	13.9	1661	8.8	8.95	94.4	0.0
Preston	Mid	273	1-Oct-02	1.50	13.9	1661	8.9	m	m	0.0
Preston	East	273	1-Oct-02	Oa	m	m	m	m	m	100.0
Preston	East	273	1-Oct-02	Ob	m	m	m	m	m	31.6
Preston	East	273	1-Oct-02	0.25	14.2	1651	9.4	m	m	5.7
Preston	East	273	1-Oct-02	0.50	14.1	1654	9.2	8.94	83.5	0.7
Preston	East	273	1-Oct-02	0.75	14.1	1654	9.1	m	m	0.2
Preston	East	273	1-Oct-02	1.00	14.1	1654	9.1	m	m	0.0
Preston	East	273	1-Oct-02	1.25	14.0	1658	9.0	m	m	0.0
Preston	East	273	1-Oct-02	1.50	14.0	1658	9.0	8.98	77.6	0.0
Preston	East	273	1-Oct-02	1.75	14.0	1658	9.0	m	m	0.0
Henry	Mid	273	1-Oct-02	Oa	m	m	m	m	m	100.0
Henry	Mid	273	1-Oct-02	Ob	m	m	m	m	m	46.2
Henry	Mid	273	1-Oct-02	0.50	13.9	1278	9.4	8.75	10.3	17.9
Henry	Mid	273	1-Oct-02	1.00	13.9	1278	9.5	m	m	7.2
Henry	Mid	273	1-Oct-02	1.50	13.8	1280	9.4	m	m	2.3
Henry	Mid	273	1-Oct-02	2.00	13.8	1280	9.4	m	m	1.1
Henry	Mid	273	1-Oct-02	2.50	13.8	1280	8.5	8.70	11.8	0.4
Henry	Mid	273	1-Oct-02	3.00	13.8	1280	6.1	m	m	0.0
Thompson	North	110	21-Apr-03	0a	m	m	m	m	m	100.0
Thompson	North	110	21-Apr-03	0b	m	m	m	m	m	85.1
Thompson	North	110	21-Apr-03	0.50	8.3	1217	10.9	7.99	1.2	76.3
Thompson	North	110	21-Apr-03	1.00	8.3	1217	10.8	7.99	1.0	34.5
Thompson	North	110	21-Apr-03	1.50	8.2	1218	10.7	8.00	1.2	26.4
Thompson	North	110	21-Apr-03	2.00	8.2	1217	10.7	8.00	1.3	12.7
Thompson	North	110	21-Apr-03	2.50	8.1	1218	10.6	8.01	1.4	7.8
Thompson	North	110	21-Apr-03	3.00	8.2	1218	10.6	8.01	1.1	4.7
Thompson	North	110	21-Apr-03	3.50	8.1	1218	10.6	8.01	1.5	3.0
Thompson	North	110	21-Apr-03	4.00	8.0	1218	10.6	8.01	1.4	1.6
Thompson	North	110	21-Apr-03	4.50	7.9	1218	10.5	8.01	1.5	1.0
Thompson	North	110	21-Apr-03	5.00	7.8	1218	10.5	8.02	1.5	0.6
Thompson	North	110	21-Apr-03	5.50	7.7	1218	10.4	8.01	1.9	0.4
Thompson	North	110	21-Apr-03	6.00	7.7	1218	10.2	8.02	51.0	0.3
Thompson	North	110	21-Apr-03	6.50	7.6	1218	10.2	8.02	80.4	0.0

Thompson	Mid	110	21-Apr-03	0a	m	m	m	m	m	100.0
Thompson	Mid	110	21-Apr-03	0b	m	m	m	m	m	98.4
Thompson	Mid	110	21-Apr-03	0.50	8.2	1218	11.4	7.91	4.4	67.6
Thompson	Mid	110	21-Apr-03	1.00	8.2	1219	11.3	7.95	4.8	29.5
Thompson	Mid	110	21-Apr-03	1.50	8.1	1219	11.3	7.96	4.8	13.1
Thompson	Mid	110	21-Apr-03	2.00	8.1	1219	11.3	7.96	4.4	6.5
Thompson	Mid	110	21-Apr-03	2.50	8.1	1219	11.2	7.96	4.6	3.0
Thompson	Mid	110	21-Apr-03	3.00	8.0	1219	11.2	7.96	4.3	1.6
Thompson	Mid	110	21-Apr-03	3.50	7.9	1219	11.2	7.97	4.7	0.7
Thompson	Mid	110	21-Apr-03	4.00	7.9	1219	11.1	7.97	5.1	0.5
Thompson	Mid	110	21-Apr-03	4.50	7.8	1219	11.1	7.97	5.0	0.1
Thompson	Mid	110	21-Apr-03	5.00	7.7	1219	11.0	7.97	5.3	0.0
Thompson	Mid	110	21-Apr-03	5.50	7.7	1220	10.9	7.97	9.6	0.0
Thompson	Mid	110	21-Apr-03	6.00	7.7	1218	10.7	7.91	121.4	0.0
Thompson	South	110	21-Apr-03	0a	m	m	m	m	m	100.0
Thompson	South	110	21-Apr-03	0b	m	m	m	m	m	44.7
Thompson	South	110	21-Apr-03	0.50	7.7	1213	11.2	7.90	9.7	14.4
Thompson	South	110	21-Apr-03	1.00	7.6	1213	11.2	7.83	10.4	3.8
Thompson	South	110	21-Apr-03	1.50	7.5	1214	11.2	7.88	10.4	1.4
Thompson	South	110	21-Apr-03	2.00	7.4	1214	11.2	7.88	10.9	0.5
Thompson	South	110	21-Apr-03	2.50	7.3	1214	11.2	7.89	11.6	0.2
Thompson	South	110	21-Apr-03	3.00	7.2	1214	11.1	7.89	20.9	0.1
Thompson	South	110	21-Apr-03	3.40	7.2	1214	11.1	7.89	65.9	0.0
Whitewood	West	111	22-Apr-03	0a	m	m	m	m	m	100.0
Whitewood	West	111	22-Apr-03	0b	m	m	m	m	m	73.0
Whitewood	West	111	22-Apr-03	0.25	8.9	1282	12.1	7.73	34.4	26.1
Whitewood	West	111	22-Apr-03	0.50	8.9	1282	11.8	7.72	34.8	6.1
Whitewood	West	111	22-Apr-03	0.75	8.8	1282	11.4	7.72	32.8	3.3
Whitewood	West	111	22-Apr-03	1.00	8.8	1282	11.3	7.72	34.9	1.5
Whitewood	West	111	22-Apr-03	1.25	8.8	1282	11.2	7.72	34.6	1.1
Whitewood	West	111	22-Apr-03	1.50	8.8	1282	11.1	7.72	34.7	0.3
Whitewood	West	111	22-Apr-03	1.75	8.8	1283	11.1	7.72	38.1	0.0
Whitewood	West	111	22-Apr-03	2.00	8.8	1282	11.0	7.71	m	0.0
Whitewood	West	111	22-Apr-03	2.25	8.8	1282	11.0	7.71	m	0.0
Whitewood	West	111	22-Apr-03	2.50	8.8	1282	10.9	7.71	m	0.0
Whitewood	Mid	111	22-Apr-03	0a	m	m	m	m	m	100.0
Whitewood	Mid	111	22-Apr-03	0b	m	m	m	m	m	78.4

Whitewood	Mid	111	22-Apr-03	0.25	8.8	1277	12.5	7.72	33.3	23.3
Whitewood	Mid	111	22-Apr-03	0.50	8.8	1277	12.1	7.73	34.6	2.9
Whitewood	Mid	111	22-Apr-03	0.75	8.8	1276	12.0	7.72	34.7	1.5
Whitewood	Mid	111	22-Apr-03	1.00	8.8	1276	11.9	7.73	33.6	0.4
Whitewood	Mid	111	22-Apr-03	1.25	8.8	1277	11.8	7.73	36.5	0.1
Whitewood	Mid	111	22-Apr-03	1.50	8.7	1277	11.7	7.73	41.2	0.0
Whitewood	Mid	111	22-Apr-03	1.75	8.7	1277	11.7	7.73	45.4	0.0
Whitewood	Mid	111	22-Apr-03	2.00	8.7	1277	11.6	7.73	52.0	0.0
Whitewood	Mid	111	22-Apr-03	2.25	8.7	1277	11.6	7.73	75.5	0.0
Whitewood	Mid	111	22-Apr-03	2.50	8.6	1271	11.5	7.72	97.8	0.0
Whitewood	East	111	22-Apr-03	0a	m	m	m	m	m	100.0
Whitewood	East	111	22-Apr-03	0b	m	m	m	m	m	67.2
Whitewood	East	111	22-Apr-03	0.25	8.7	1278	11.5	7.52	52.7	6.6
Whitewood	East	111	22-Apr-03	0.50	8.7	1278	11.4	7.54	54.2	3.6
Whitewood	East	111	22-Apr-03	0.75	8.7	1278	11.4	7.58	51.5	1.3
Whitewood	East	111	22-Apr-03	1.00	8.7	1277	11.4	7.61	53.0	0.3
Whitewood	East	111	22-Apr-03	1.25	8.7	1278	11.3	7.62	40.3	0.1
Whitewood	East	111	22-Apr-03	1.50	8.7	1277	11.3	7.62	48.2	0.0
Whitewood	East	111	22-Apr-03	1.75	8.7	1277	11.3	7.64	43.0	0.0
Whitewood	East	111	22-Apr-03	2.00	8.7	1277	11.2	7.64	134.0	0.0
Whitewood	East	111	22-Apr-03	2.25	8.7	1277	11.2	7.64	139.0	0.0
Preston	West	111	22-Apr-03	0a	m	m	m	m	m	100.0
Preston	West	111	22-Apr-03	0b	m	m	m	m	m	82.8
Preston	West	111	22-Apr-03	0.25	10.1	1567	14.1	7.96	25.5	34.3
Preston	West	111	22-Apr-03	0.50	10.0	1567	13.8	7.96	26.4	14.1
Preston	West	111	22-Apr-03	0.75	9.8	1568	13.6	7.96	27.8	5.9
Preston	West	111	22-Apr-03	1.00	9.5	1567	13.5	7.96	27.0	2.3
Preston	West	111	22-Apr-03	1.25	8.9	1572	13.3	7.93	33.5	0.9
Preston	West	111	22-Apr-03	1.50	8.9	1571	12.3	7.91	72.8	0.5
Preston	West	111	22-Apr-03	1.75	8.9	1571	11.4	7.91	65.5	0.2
Preston	West	111	22-Apr-03	2.00	8.9	1568	11.2	7.91	60.9	0.0
Preston	Mid	111	22-Apr-03	0a	m	m	m	m	m	100.0
Preston	Mid	111	22-Apr-03	0b	m	m	m	m	m	57.3
Preston	Mid	111	22-Apr-03	0.25	10.9	1496	14.1	7.95	69.8	6.1
Preston	Mid	111	22-Apr-03	0.50	9.8	1500	13.7	7.95	71.2	1.3
Preston	Mid	111	22-Apr-03	0.75	9.5	1498	13.3	7.95	72.6	0.3
Preston	Mid	111	22-Apr-03	1.00	9.2	1498	12.9	7.95	74.8	0.0

Preston	Mid	111	22-Apr-03	1.25	9.1	1498	12.8	7.96	105.3	0.0
Preston	Mid	111	22-Apr-03	1.50	9.0	1498	12.7	7.96	106.8	0.0
Preston	East	111	22-Apr-03	0a	m	m	m	m	m	100.0
Preston	East	111	22-Apr-03	0b	m	m	m	m	m	63.5
Preston	East	111	22-Apr-03	0.25	10.3	1496	13.0	7.94	107.2	6.3
Preston	East	111	22-Apr-03	0.50	10.2	1496	12.9	7.96	119.6	0.4
Preston	East	111	22-Apr-03	0.75	10.0	1496	12.7	7.96	118.9	0.0
Preston	East	111	22-Apr-03	1.00	9.2	1499	12.3	7.94	78.6	0.0
Preston	East	111	22-Apr-03	1.25	9.1	1499	12.1	7.93	82.7	0.0
Preston	East	111	22-Apr-03	1.50	8.8	1494	8.1	7.93	134.5	0.0
Preston	East	111	22-Apr-03	1.75	8.6	1494	8.0	7.93	138.2	0.0
Henry	Mid	110	21-Apr-03	0a	m	m	m	m	m	100.0
Henry	Mid	110	21-Apr-03	0b	m	m	m	m	m	91.4
Henry	Mid	110	21-Apr-03	0.50	8.2	1126	13.1	7.92	14.9	38.0
Henry	Mid	110	21-Apr-03	1.00	8.2	1126	11.8	7.93	16.7	14.4
Henry	Mid	110	21-Apr-03	1.50	8.2	1126	11.5	7.93	15.7	5.6
Henry	Mid	110	21-Apr-03	2.00	8.2	1126	11.4	7.94	15.5	2.0
Henry	Mid	110	21-Apr-03	2.50	8.1	1126	11.3	7.94	16.0	0.8
Henry	Mid	110	21-Apr-03	3.00	8.0	1126	11.2	7.94	80.0	0.0
Thompson	North	110	20-May-03	0a	m	m	m	m	m	100.0
Thompson	North	110	20-May-03	0b	m	m	m	m	m	97.6
Thompson	North	110	20-May-03	0.50	13.7	1343	10.6	7.79	7.3	55.2
Thompson	North	110	20-May-03	1.00	13.7	1344	10.6	7.85	10.0	11.4
Thompson	North	110	20-May-03	1.50	13.7	1343	10.6	7.88	21.0	7.2
Thompson	North	110	20-May-03	2.00	13.6	1343	10.5	7.89	22.3	4.8
Thompson	North	110	20-May-03	2.50	13.6	1343	10.4	7.89	21.6	2.5
Thompson	North	110	20-May-03	3.00	13.5	1342	10.4	7.91	22.0	1.7
Thompson	North	110	20-May-03	3.50	13.5	1343	10.4	7.91	22.3	1.1
Thompson	North	110	20-May-03	4.00	13.5	1343	10.3	7.91	22.4	0.6
Thompson	North	110	20-May-03	4.50	13.5	1342	10.3	7.91	25.3	0.3
Thompson	North	110	20-May-03	5.00	13.4	1342	10.2	7.91	20.9	0.1
Thompson	North	110	20-May-03	5.50	13.4	1342	10.2	7.92	28.3	0.0
Thompson	North	110	20-May-03	6.00	13.4	1342	10.1	7.92	30.3	0.0
Thompson	North	110	20-May-03	6.50	13.4	1342	10.1	7.92	1514.0	0.0
Thompson	Mid	110	20-May-03	0a	m	m	m	m	m	100.0
Thompson	Mid	110	20-May-03	0b	m	m	m	m	m	85.7
Thompson	Mid	110	20-May-03	0.50	13.3	1344	10.1	7.94	18.2	34.2

Thompson	Mid	110	20-May-03	1.00	13.2	1344	10.0	7.94	13.6	8.3
Thompson	Mid	110	20-May-03	1.50	13.2	1344	9.9	7.93	14.3	2.6
Thompson	Mid	110	20-May-03	2.00	13.1	1343	9.9	7.92	15.6	0.3
Thompson	Mid	110	20-May-03	2.50	13.1	1343	9.8	7.91	16.5	0.1
Thompson	Mid	110	20-May-03	3.00	13.1	1344	9.8	7.91	11.3	0.0
Thompson	Mid	110	20-May-03	3.50	13.0	1344	9.8	7.90	13.0	0.0
Thompson	Mid	110	20-May-03	4.00	13.0	1343	9.7	7.90	13.3	0.0
Thompson	Mid	110	20-May-03	4.50	13.0	1343	9.7	7.90	15.8	0.0
Thompson	Mid	110	20-May-03	5.00	13.0	1343	9.7	7.90	21.5	0.0
Thompson	Mid	110	20-May-03	5.50	13.0	1343	9.7	7.80	39.6	0.0
Thompson	Mid	110	20-May-03	6.00	13.0	1343	9.6	7.80	80.5	0.0
Thompson	South	110	20-May-03	0a	m	m	m	m	m	100.0
Thompson	South	110	20-May-03	0b	m	m	m	m	m	67.7
Thompson	South	110	20-May-03	0.50	13.2	1337	10.1	8.04	2.2	9.6
Thompson	South	110	20-May-03	1.00	13.2	1338	10.0	8.04	65.7	1.1
Thompson	South	110	20-May-03	1.50	13.1	1339	10.0	8.03	79.9	0.2
Thompson	South	110	20-May-03	2.00	12.4	1340	10.3	7.97	68.6	0.0
Thompson	South	110	20-May-03	2.50	12.3	1340	10.4	7.95	69.6	0.0
Thompson	South	110	20-May-03	3.00	12.2	1341	10.4	7.95	62.5	0.0
Thompson	South	110	20-May-03	3.50	12.1	1340	10.5	7.96	68.9	0.0
Whitewood	West	111	22-May-03	0a	m	m	m	m	m	100.0
Whitewood	West	111	22-May-03	0b	m	m	m	m	m	66.3
Whitewood	West	111	22-May-03	0.25	15.5	1430	10.0	7.93	51.6	33.0
Whitewood	West	111	22-May-03	0.50	15.5	1430	10.1	7.93	46.6	8.0
Whitewood	West	111	22-May-03	0.75	15.3	1430	10.1	7.92	48.3	3.7
Whitewood	West	111	22-May-03	1.00	15.0	1430	10.1	7.91	51.5	1.1
Whitewood	West	111	22-May-03	1.25	14.8	1431	9.8	7.88	53.5	0.4
Whitewood	West	111	22-May-03	1.50	14.6	1432	9.4	7.86	62.1	0.0
Whitewood	West	111	22-May-03	1.75	14.5	1431	8.6	7.80	63.5	0.0
Whitewood	West	111	22-May-03	2.00	14.4	1430	7.5	7.75	71.1	0.0
Whitewood	West	111	22-May-03	2.25	14.4	1430	7.4	7.75	72.8	0.0
Whitewood	West	111	22-May-03	2.50	14.3	1430	7.3	7.74	73.5	0.0
Whitewood	Mid	111	22-May-03	0a	m	m	m	m	m	100.0
Whitewood	Mid	111	22-May-03	0b	m	m	m	m	m	94.4
Whitewood	Mid	111	22-May-03	0.25	15.8	1436	9.8	7.89	45.2	30.3
Whitewood	Mid	111	22-May-03	0.50	15.0	1429	10.2	7.89	45.7	12.9
Whitewood	Mid	111	22-May-03	0.75	14.8	1429	9.6	7.86	44.5	5.0

Whitewood	Mid	111	22-May-03	1.00	14.7	1429	9.5	7.86	51.4	2.2
Whitewood	Mid	111	22-May-03	1.25	14.7	1430	9.1	7.85	53.3	0.5
Whitewood	Mid	111	22-May-03	1.50	14.7	1430	8.8	7.83	54.8	0.0
Whitewood	Mid	111	22-May-03	1.75	14.6	1431	8.5	7.82	59.2	0.0
Whitewood	Mid	111	22-May-03	2.00	14.6	1431	8.4	7.80	62.6	0.0
Whitewood	Mid	111	22-May-03	2.25	14.6	1431	8.4	7.80	63.8	0.0
Whitewood	East	111	22-May-03	0a	m	m	m	m	m	100.0
Whitewood	East	111	22-May-03	0b	m	m	m	m	m	82.5
Whitewood	East	111	22-May-03	0.25	15.2	1429	10.3	7.88	52.4	28.2
Whitewood	East	111	22-May-03	0.50	15.0	1429	10.2	7.81	50.1	5.9
Whitewood	East	111	22-May-03	0.75	14.8	1430	9.8	7.77	50.3	1.4
Whitewood	East	111	22-May-03	1.00	14.7	1430	9.6	7.75	50.6	0.5
Whitewood	East	111	22-May-03	1.25	14.7	1431	9.4	7.75	54.2	0.1
Whitewood	East	111	22-May-03	1.50	14.7	1431	9.0	7.74	55.8	0.0
Whitewood	East	111	22-May-03	1.75	14.7	1431	8.9	7.74	60.3	0.0
Whitewood	East	111	22-May-03	2.00	14.7	1431	8.8	7.74	62.1	0.0
Whitewood	East	111	22-May-03	2.25	14.7	1431	8.8	7.74	68.5	0.0
Preston	West	111	22-May-03	0a	m	m	m	m	m	100.0
Preston	West	111	22-May-03	0b	m	m	m	m	m	58.3
Preston	West	111	22-May-03	0.25	16.3	1758	9.7	8.05	64.1	1.7
Preston	West	111	22-May-03	0.50	16.3	1754	9.7	8.06	68.2	0.9
Preston	West	111	22-May-03	0.75	16.3	1754	9.7	8.02	68.6	0.4
Preston	West	111	22-May-03	1.00	16.3	1754	9.7	8.02	69.4	0.1
Preston	West	111	22-May-03	1.25	16.3	1754	9.7	8.01	78.3	0.0
Preston	West	111	22-May-03	1.50	16.3	1754	9.7	8.00	78.0	0.0
Preston	West	111	22-May-03	1.75	16.2	1755	9.6	7.99	78.0	0.0
Preston	Mid	111	22-May-03	0a	m	m	m	m	m	100.0
Preston	Mid	111	22-May-03	0b	m	m	m	m	m	36.9
Preston	Mid	111	22-May-03	0.25	15.8	1689	10.4	8.16	181.0	2.8
Preston	Mid	111	22-May-03	0.50	15.8	1687	10.7	8.16	186.1	0.2
Preston	Mid	111	22-May-03	0.75	15.8	1687	10.7	8.14	193.8	0.0
Preston	Mid	111	22-May-03	1.00	15.8	1687	10.8	8.13	252.0	0.0
Preston	Mid	111	22-May-03	1.25	15.8	1686	10.8	8.12	253.8	0.0
Preston	Mid	111	22-May-03	1.50	15.8	1686	10.7	8.10	248.5	0.0
Preston	East	111	22-May-03	0a	m	m	m	m	m	100.0
Preston	East	111	22-May-03	0b	m	m	m	m	m	17.4
Preston	East	111	22-May-03	0.25	15.5	1690	10.7	7.94	184.3	5.9

Preston	East	111	22-May-03	0.50	15.5	1690	10.7	7.94	186.9	0.0
Preston	East	111	22-May-03	0.75	15.5	1690	10.6	7.94	187.9	0.0
Preston	East	111	22-May-03	1.00	15.4	1690	10.5	7.96	196.8	0.0
Preston	East	111	22-May-03	1.25	15.3	1690	10.4	7.96	199.2	0.0
Preston	East	111	22-May-03	1.50	15.2	1690	10.3	7.96	201.3	0.0
Henry	Mid	110	20-May-03	0a	m	m	m	m	m	100.0
Henry	Mid	110	20-May-03	0b	m	m	m	m	m	84.7
Henry	Mid	110	20-May-03	0.50	14.7	1267	9.4	7.74	13.3	21.2
Henry	Mid	110	20-May-03	1.00	14.6	1267	9.3	7.75	17.5	4.3
Henry	Mid	110	20-May-03	1.50	14.2	1267	9.3	7.75	18.1	1.9
Henry	Mid	110	20-May-03	2.00	13.8	1266	9.1	7.73	21.9	1.2
Henry	Mid	110	20-May-03	2.50	13.8	1265	9.0	7.73	195.2	0.4
Thompson	North	173	23-Jun-03	0a	m	m	m	m	m	100.0
Thompson	North	173	23-Jun-03	0b	m	m	m	m	m	84.4
Thompson	North	173	23-Jun-03	0.50	22.4	1279	8.8	8.84	2.6	53.5
Thompson	North	173	23-Jun-03	1.00	22.3	1279	8.7	8.84	m	34.3
Thompson	North	173	23-Jun-03	1.50	22.1	1278	8.7	8.83	m	23.9
Thompson	North	173	23-Jun-03	2.00	22.1	1278	8.6	8.82	m	7.9
Thompson	North	173	23-Jun-03	2.50	22.0	1278	8.5	8.82	m	5.6
Thompson	North	173	23-Jun-03	3.00	22.0	1277	8.4	8.82	m	3.2
Thompson	North	173	23-Jun-03	3.50	21.9	1277	8.4	8.81	m	1.8
Thompson	North	173	23-Jun-03	4.00	21.8	1277	8.2	8.80	m	1.3
Thompson	North	173	23-Jun-03	4.50	21.6	1276	8.2	8.78	m	1.1
Thompson	North	173	23-Jun-03	5.00	21.4	1277	8.0	8.77	m	0.9
Thompson	North	173	23-Jun-03	5.50	21.4	1278	7.9	8.77	m	0.6
Thompson	North	173	23-Jun-03	6.00	21.4	1278	7.6	8.76	5.0	0.4
Thompson	North	173	23-Jun-03	6.50	21.4	1278	7.5	8.75	m	0.0
Thompson	Mid	173	23-Jun-03	0a	m	m	m	m	m	100.0
Thompson	Mid	173	23-Jun-03	0b	m	m	m	m	m	67.1
Thompson	Mid	173	23-Jun-03	0.50	22.0	1278	8.0	8.79	4.5	52.4
Thompson	Mid	173	23-Jun-03	1.00	21.9	1278	7.9	8.79	m	28.8
Thompson	Mid	173	23-Jun-03	1.50	21.9	1277	7.9	8.79	m	23.1
Thompson	Mid	173	23-Jun-03	2.00	21.9	1277	7.9	8.78	m	9.7
Thompson	Mid	173	23-Jun-03	2.50	21.8	1277	7.8	8.78	m	6.2
Thompson	Mid	173	23-Jun-03	3.00	21.8	1277	7.8	8.78	m	3.4
Thompson	Mid	173	23-Jun-03	3.50	21.7	1276	7.8	8.78	m	1.6
Thompson	Mid	173	23-Jun-03	4.00	21.7	1277	7.7	8.77	m	1.1

Thompson	Mid	173	23-Jun-03	4.50	21.7	1277	7.6	8.77	m	0.6
Thompson	Mid	173	23-Jun-03	5.00	21.6	1278	7.6	8.76	m	0.3
Thompson	Mid	173	23-Jun-03	5.50	21.5	1279	7.2	8.75	8.0	0.3
Thompson	Mid	173	23-Jun-03	6.00	21.4	1279	6.9	8.74	m	0.0
Thompson	South	173	23-Jun-03	0a	m	m	m	m	m	100.0
Thompson	South	173	23-Jun-03	0b	m	m	m	m	m	94.4
Thompson	South	173	23-Jun-03	0.50	22.2	1275	8.9	8.78	4.0	62.3
Thompson	South	173	23-Jun-03	1.00	22.2	1274	8.5	8.76	m	35.9
Thompson	South	173	23-Jun-03	1.50	22.1	1274	8.3	8.75	m	21.9
Thompson	South	173	23-Jun-03	2.00	22.0	1274	8.2	8.75	m	13.3
Thompson	South	173	23-Jun-03	2.50	21.9	1273	8.0	8.74	m	5.9
Thompson	South	173	23-Jun-03	3.00	21.8	1273	7.7	8.75	6.4	2.8
Thompson	South	173	23-Jun-03	3.50	21.8	1272	7.5	8.75	m	1.7
Whitewood	West	169	19-Jun-03	0a	m	m	m	m	m	100.0
Whitewood	West	169	19-Jun-03	0b	m	m	m	m	m	57.0
Whitewood	West	169	19-Jun-03	0.25	22.7	1375	9.1	8.81	m	17.9
Whitewood	West	169	19-Jun-03	0.50	22.7	1375	8.9	8.79	45.1	4.7
Whitewood	West	169	19-Jun-03	0.75	22.7	1375	8.8	8.78	m	0.2
Whitewood	West	169	19-Jun-03	1.00	22.7	1375	8.8	8.77	m	0.0
Whitewood	West	169	19-Jun-03	1.25	22.6	1375	8.7	8.76	m	0.0
Whitewood	West	169	19-Jun-03	1.50	22.6	1375	8.6	8.75	m	0.0
Whitewood	West	169	19-Jun-03	1.75	22.6	1375	8.6	8.74	45.5	0.0
Whitewood	West	169	19-Jun-03	2.00	22.6	1375	8.5	8.72	m	0.0
Whitewood	West	169	19-Jun-03	2.25	22.6	1375	8.5	8.71	m	0.0
Whitewood	Mid	169	19-Jun-03	0a	m	m	m	m	m	100.0
Whitewood	Mid	169	19-Jun-03	0b	m	m	m	m	m	61.8
Whitewood	Mid	169	19-Jun-03	0.25	22.7	1372	9.4	8.79	m	12.8
Whitewood	Mid	169	19-Jun-03	0.50	22.7	1372	9.3	8.77	39.3	4.2
Whitewood	Mid	169	19-Jun-03	0.75	22.7	1372	9.3	8.77	m	0.8
Whitewood	Mid	169	19-Jun-03	1.00	22.7	1373	9.2	8.76	m	0.1
Whitewood	Mid	169	19-Jun-03	1.25	22.6	1372	9.2	8.75	m	0.0
Whitewood	Mid	169	19-Jun-03	1.50	22.6	1372	9.1	8.74	m	0.0
Whitewood	Mid	169	19-Jun-03	1.75	22.3	1373	8.8	8.72	37.2	0.0
Whitewood	Mid	169	19-Jun-03	2.00	22.3	1373	8.4	8.70	m	0.0
Whitewood	Mid	169	19-Jun-03	2.25	22.3	1373	8.3	8.69	m	0.0
Whitewood	East	169	19-Jun-03	0a	m	m	m	m	m	100.0
Whitewood	East	169	19-Jun-03	0b	m	m	m	m	m	33.4

Whitewood	East	169	19-Jun-03	0.25	23.0	1369	8.8	8.88	m	11.0
Whitewood	East	169	19-Jun-03	0.50	22.9	1369	8.6	8.80	45.6	2.8
Whitewood	East	169	19-Jun-03	0.75	22.9	1369	8.5	8.78	m	0.7
Whitewood	East	169	19-Jun-03	1.00	22.9	1369	8.4	8.76	m	0.2
Whitewood	East	169	19-Jun-03	1.25	22.9	1370	8.3	8.74	m	0.1
Whitewood	East	169	19-Jun-03	1.50	22.9	1369	8.3	8.74	48.6	0.0
Whitewood	East	169	19-Jun-03	1.75	22.8	1369	8.2	8.74	m	0.0
Whitewood	East	169	19-Jun-03	2.00	22.8	1369	8.1	8.74	m	0.0
Preston	West	180	30-Jun-03	0a	m	m	m	m	m	100.0
Preston	West	180	30-Jun-03	0b	m	m	m	m	m	101.1
Preston	West	180	30-Jun-03	0.25	22.5	1618	13.3	9.04	m	30.3
Preston	West	180	30-Jun-03	0.50	22.4	1617	13.6	9.05	60.9	3.3
Preston	West	180	30-Jun-03	0.75	22.2	1617	13.4	9.04	m	0.6
Preston	West	180	30-Jun-03	1.00	21.2	1624	9.0	8.90	m	0.2
Preston	West	180	30-Jun-03	1.25	21.2	1624	8.8	8.90	78.0	0.0
Preston	West	180	30-Jun-03	1.50	21.1	1624	8.6	8.91	m	0.0
Preston	West	180	30-Jun-03	1.75	21.1	1624	8.5	8.91	m	0.0
Preston	Mid	180	30-Jun-03	0a	m	m	m	m	m	100.0
Preston	Mid	180	30-Jun-03	0b	m	m	m	m	m	55.2
Preston	Mid	180	30-Jun-03	0.25	21.6	1597	11.2	9.04	m	13.1
Preston	Mid	180	30-Jun-03	0.50	21.6	1597	11.2	9.01	81.3	0.9
Preston	Mid	180	30-Jun-03	0.75	21.5	1597	11.1	9.00	m	0.1
Preston	Mid	180	30-Jun-03	1.00	21.3	1598	10.9	8.98	87.2	0.0
Preston	Mid	180	30-Jun-03	1.25	21.0	1599	10.5	8.95	m	0.0
Preston	East	180	30-Jun-03	0a	m	m	m	m	m	100.0
Preston	East	180	30-Jun-03	0b	m	m	m	m	m	59.4
Preston	East	180	30-Jun-03	0.25	21.2	1606	10.4	9.01	m	2.9
Preston	East	180	30-Jun-03	0.50	21.2	1601	10.8	9.05	83.3	0.7
Preston	East	180	30-Jun-03	0.75	20.9	1601	10.6	9.04	m	0.0
Preston	East	180	30-Jun-03	1.00	20.7	1600	10.5	9.03	88.4	0.0
Preston	East	180	30-Jun-03	1.25	20.7	1600	10.1	9.03	m	0.0
Preston	East	180	30-Jun-03	1.50	20.7	1600	9.8	9.03	m	0.0
Henry	Mid	173	23-Jun-03	0a	m	m	m	m	m	100.0
Henry	Mid	173	23-Jun-03	0b	m	m	m	m	m	83.0
Henry	Mid	173	23-Jun-03	0.50	22.5	1222	7.9	8.75	20.5	8.8
Henry	Mid	173	23-Jun-03	1.00	22.5	1222	7.8	8.78	m	2.9
Henry	Mid	173	23-Jun-03	1.50	22.4	1222	7.8	8.78	m	1.2

Henry	Mid	173	23-Jun-03	2.00	22.3	1222	7.6	8.78	m		0.5
Henry	Mid	173	23-Jun-03	2.50	22.2	1222	7.4	8.77	m		0.1
Alice	North	235	24-Aug-01	Oa	m	m	m	m	m	m	
Alice	North	235	24-Aug-01	Ob	m	m	m	m	m	m	
Alice	North	235	24-Aug-01	0.25	23.6	1217	6.7	8.66	12.9	m	
Alice	North	235	24-Aug-01	0.50	23.6	1217	6.6	8.71	13.2	m	
Alice	North	235	24-Aug-01	0.75	23.5	1218	6.7	8.72	12.7	m	
Alice	North	235	24-Aug-01	1.00	23.5	1219	6.7	8.73	13.9	m	
Alice	North	235	24-Aug-01	1.25	23.6	1219	6.7	8.74	13.8	m	
Alice	North	235	24-Aug-01	1.50	23.6	1219	6.7	8.74	13.1	m	
Alice	North	235	24-Aug-01	1.75	23.5	1219	6.7	8.74	12.5	m	
Alice	North	235	24-Aug-01	2.00	23.5	1219	6.8	8.74	16.3	m	
Alice	North	235	24-Aug-01	2.25	23.6	1219	6.8	8.75	13.6	m	
Alice	North	235	24-Aug-01	2.50	23.6	1219	6.6	8.75	13.9	m	
Alice	North	235	24-Aug-01	2.75	23.6	1219	6.9	8.75	15.1	m	
Alice	North	235	24-Aug-01	3.00	23.5	1219	6.8	8.75	14.8	m	
Alice	North	235	24-Aug-01	3.25	23.5	1220	6.6	8.74	15.0	m	
Alice	Mid	235	22-Aug-01	Oa	m	m	m	m	m	m	
Alice	Mid	235	23-Aug-01	Ob	m	m	m	m	m	m	
Alice	Mid	235	24-Aug-01	0.25	23.3	1218	6.1	8.74	8.2	m	
Alice	Mid	235	24-Aug-01	0.50	23.3	1219	6.3	8.74	7.6	m	
Alice	Mid	235	24-Aug-01	0.75	23.3	1219	6.4	8.74	7.4	m	
Alice	Mid	235	24-Aug-01	1.00	23.2	1220	6.5	8.75	8.6	m	
Alice	Mid	235	24-Aug-01	1.25	23.2	1219	6.5	8.75	8.6	m	
Alice	Mid	235	24-Aug-01	1.50	23.2	1220	6.6	8.74	10.1	m	
Alice	Mid	235	24-Aug-01	1.75	23.2	1220	6.5	8.74	8.7	m	
Alice	Mid	235	24-Aug-01	2.00	23.2	1220	6.5	8.74	7.6	m	
Alice	Mid	235	24-Aug-01	2.25	23.2	1220	6.5	8.74	7.3	m	
Alice	Mid	235	24-Aug-01	2.50	23.2	1220	6.5	8.74	7.6	m	
Alice	Mid	235	24-Aug-01	2.75	23.2	1220	6.4	8.73	7.9	m	
Alice	Mid	235	24-Aug-01	3.00	23.1	1220	6.4	8.73	9.7	m	
Alice	Mid	235	24-Aug-01	3.25	23.1	1220	6.4	8.73	8.5	m	
Alice	Mid	235	24-Aug-01	3.50	23.1	1221	6.4	8.73	7.2	m	
Alice	South	235	22-Aug-01	Oa	m	m	m	m	m	m	
Alice	South	235	23-Aug-01	Ob	m	m	m	m	m	m	
Alice	South	235	24-Aug-01	0.25	23.3	1211	5.3	8.79	10.2	m	
Alice	South	235	24-Aug-01	0.50	23.3	1217	5.9	8.78	9.8	m	

Alice	South	235	24-Aug-01	0.75	23.3	1219	6.1	8.77	9.8	m
Alice	South	235	24-Aug-01	1.00	23.3	1219	6.2	8.77	9.2	m
Alice	South	235	24-Aug-01	1.25	23.3	1220	6.3	8.77	10.4	m
Alice	South	235	24-Aug-01	1.50	23.3	1220	6.5	8.76	10.0	m
Alice	South	235	24-Aug-01	1.75	23.3	1220	6.5	8.76	10.3	m
Alice	South	235	24-Aug-01	2.00	23.3	1220	6.5	8.76	11.3	m
Alice	South	235	24-Aug-01	2.25	23.2	1220	6.4	8.75	11.3	m
Alice	South	235	24-Aug-01	2.50	23.1	1220	6.4	8.74	8.6	m
Alice	South	235	24-Aug-01	2.75	23.1	1220	6.4	8.74	7.6	m
Alice	South	235	24-Aug-01	3.00	23.1	1221	6.4	8.73	8.0	m
Alice	South	235	24-Aug-01	3.25	23.1	1221	6.3	8.72	105.8	m
Brant	West	236	23-Aug-01	Oa	m	m	m	m	m	m
Brant	West	236	24-Aug-01	Ob	m	m	m	m	m	m
Brant	West	236	25-Aug-01	0.25	23.5	1603	8.6	8.60	6.8	m
Brant	West	236	25-Aug-01	0.50	23.6	1602	7.9	8.58	5.1	m
Brant	West	236	25-Aug-01	1.00	23.6	1602	7.9	8.58	12.9	m
Brant	West	236	25-Aug-01	1.50	23.6	1601	7.6	8.58	8.9	m
Brant	West	236	25-Aug-01	2.00	23.6	1602	8.0	8.57	10.2	m
Brant	West	236	25-Aug-01	2.50	23.6	1602	8.2	8.57	12.4	m
Brant	West	236	25-Aug-01	3.00	23.6	1603	8.1	8.57	9.4	m
Brant	West	236	25-Aug-01	3.50	23.6	1603	8.0	8.56	6.5	m
Brant	West	236	25-Aug-01	4.00	23.5	1603	8.0	8.56	6.3	m
Brant	Mid	236	25-Aug-01	Oa	m	m	m	m	m	m
Brant	Mid	236	25-Aug-01	Ob	m	m	m	m	m	m
Brant	Mid	236	25-Aug-01	0.25	23.5	1599	8.7	8.58	15.9	m
Brant	Mid	236	25-Aug-01	0.50	23.5	1601	8.5	8.59	13.3	m
Brant	Mid	236	25-Aug-01	1.00	23.5	1601	8.5	8.59	10.2	m
Brant	Mid	236	25-Aug-01	1.50	23.5	1602	8.4	8.59	7.4	m
Brant	Mid	236	25-Aug-01	2.00	23.5	1603	8.5	8.58	5.4	m
Brant	Mid	236	25-Aug-01	2.50	23.5	1602	8.4	8.58	5.3	m
Brant	Mid	236	25-Aug-01	3.00	23.5	1602	8.4	8.58	5.4	m
Brant	Mid	236	25-Aug-01	3.50	23.5	1602	8.4	8.58	5.7	m
Brant	Mid	236	25-Aug-01	4.00	23.5	1602	8.4	8.57	10.3	m
Brant	Mid	236	25-Aug-01	4.50	23.5	1603	8.3	8.57	12.3	m
Brant	East	236	25-Aug-01	Oa	m	m	m	m	m	m
Brant	East	236	25-Aug-01	Ob	m	m	m	m	m	m
Brant	East	236	25-Aug-01	0.25	23.7	1612	9.9	8.60	13.5	m

Brant	East	236	25-Aug-01	0.50	23.7	1602	9.0	8.60	5.3	m
Brant	East	236	25-Aug-01	1.00	23.6	1601	9.0	8.59	2.5	m
Brant	East	236	25-Aug-01	1.50	23.5	1602	8.8	8.58	1.8	m
Brant	East	236	25-Aug-01	2.00	23.5	1603	8.5	8.57	1.4	m
Brant	East	236	25-Aug-01	2.50	23.4	1603	8.3	8.56	2.2	m
Brant	East	236	25-Aug-01	3.00	23.4	1603	8.3	8.56	2.6	m
Brant	East	236	25-Aug-01	3.50	23.4	1603	8.3	8.55	4.9	m
Brant	East	236	25-Aug-01	4.00	23.4	1602	8.2	8.55	6.3	m
Cochrane	West	235	24-Aug-01	Oa	m	m	m	m	m	m
Cochrane	West	235	24-Aug-01	Ob	m	m	m	m	m	m
Cochrane	West	235	24-Aug-01	0.25	23.6	1865	7.3	8.24	3.2	m
Cochrane	West	235	24-Aug-01	0.50	23.8	1865	7.4	8.50	3.0	m
Cochrane	West	235	24-Aug-01	1.00	23.8	1865	7.4	8.56	4.6	m
Cochrane	West	235	24-Aug-01	1.50	23.8	1866	7.3	8.60	2.8	m
Cochrane	West	235	24-Aug-01	2.00	23.8	1866	7.2	8.62	5.2	m
Cochrane	West	235	24-Aug-01	2.50	23.7	1867	7.1	8.63	3.9	m
Cochrane	West	235	24-Aug-01	3.00	23.5	1869	6.4	8.59	2.0	m
Cochrane	West	235	24-Aug-01	3.50	23.2	1868	5.8	8.56	1.3	m
Cochrane	West	235	24-Aug-01	4.00	22.9	1866	4.0	8.49	m	m
Cochrane	Mid	235	24-Aug-01	Oa	m	m	m	m	m	m
Cochrane	Mid	235	24-Aug-01	Ob	m	m	m	m	m	m
Cochrane	Mid	235	24-Aug-01	0.25	23.4	1862	6.2	8.64	1.7	m
Cochrane	Mid	235	24-Aug-01	0.50	23.5	1862	6.3	8.65	1.7	m
Cochrane	Mid	235	24-Aug-01	1.00	23.5	1862	6.4	8.66	2.0	m
Cochrane	Mid	235	24-Aug-01	1.50	23.4	1863	6.5	8.66	0.7	m
Cochrane	Mid	235	24-Aug-01	2.00	23.4	1864	6.5	8.66	1.5	m
Cochrane	Mid	235	24-Aug-01	2.50	23.4	1864	6.5	8.66	1.6	m
Cochrane	Mid	235	24-Aug-01	3.00	23.4	1864	6.5	8.66	1.5	m
Cochrane	Mid	235	24-Aug-01	3.50	23.3	1865	6.4	8.65	1.3	m
Cochrane	Mid	235	24-Aug-01	4.00	23.1	1863	6.1	8.62	0.5	m
Cochrane	Mid	235	24-Aug-01	4.50	23.0	1865	5.6	8.60	0.0	m
Cochrane	Mid	235	24-Aug-01	5.00	22.9	1865	5.2	8.57	0.0	m
Cochrane	Mid	235	24-Aug-01	5.50	22.5	1867	2.4	8.48	1.0	m
Cochrane	East	235	24-Aug-01	Oa	m	m	m	m	m	m
Cochrane	East	235	24-Aug-01	Ob	m	m	m	m	m	m
Cochrane	East	235	24-Aug-01	0.25	23.4	1870	5.9	0.64	2.7	m
Cochrane	East	235	24-Aug-01	0.50	23.4	1869	6.1	8.66	1.4	m

Cochrane	East	235	24-Aug-01	1.00	23.3	1870	6.2	8.66	4.0	m	
Cochrane	East	235	24-Aug-01	1.50	23.3	1872	6.2	8.66	2.4	m	
Cochrane	East	235	24-Aug-01	2.00	23.3	1873	6.3	8.65	1.8	m	
Cochrane	East	235	24-Aug-01	2.50	23.2	1873	6.2	8.65	2.2	m	
Cochrane	East	235	24-Aug-01	3.00	23.2	1874	6.2	8.65	3.1	m	
Cochrane	East	235	24-Aug-01	3.50	23.2	1874	6.1	8.64	2.4	m	
Cochrane	East	235	24-Aug-01	4.00	23.1	1874	6.3	8.63	1.8	m	
Cochrane	East	235	24-Aug-01	4.50	23.1	1876	5.9	8.61	0.7	m	
Cochrane	East	235	24-Aug-01	5.00	22.1	1876	5.5	8.55	1.2	m	
Cochrane	East	235	24-Aug-01	5.50	22.6	1880	4.0	8.48	1.1	m	
Cochrane	East	235	24-Aug-01	6.00	22.5	1882	3.0	8.43	0.0	m	
Cochrane	East	235	24-Aug-01	6.50	22.3	1885	2.0	8.33	0.6	m	
Cochrane	East	235	24-Aug-01	7.00	22.2	1887	0.7	8.17	m	m	
Alice	North	176	26-Jun-02	Oa	m	m	m	m	m		100.0
Alice	North	176	26-Jun-02	Ob	m	m	m	m	m		91.7
Alice	North	176	26-Jun-02	0.50	25.1	1236	9.6	8.30	23.2		7.8
Alice	North	176	26-Jun-02	1.00	25.1	1236	9.6	8.31	21.4		4.9
Alice	North	176	26-Jun-02	1.50	25.1	1236	9.6	8.32	21.5		4.2
Alice	North	176	26-Jun-02	2.00	25.0	1236	9.6	8.32	21.2		1.5
Alice	North	176	26-Jun-02	2.50	24.9	1236	9.5	8.32	21.0		1.0
Alice	North	176	26-Jun-02	3.00	24.7	1236	9.3	8.32	22.2		0.2
Alice	Mid	176	26-Jun-02	3.50	24.7	1236	9.1	8.32	22.5		0.0
Alice	Mid	176	26-Jun-02	Oa	m	m	m	m	m		100.0
Alice	Mid	176	26-Jun-02	Ob	m	m	m	m	m		93.0
Alice	Mid	176	26-Jun-02	0.50	24.9	1237	9.3	8.45	20.1		35.0
Alice	Mid	176	26-Jun-02	1.00	25.0	1236	9.6	8.44	22.2		10.7
Alice	Mid	176	26-Jun-02	1.50	24.9	1235	9.6	8.44	22.1		3.1
Alice	Mid	176	26-Jun-02	2.00	24.9	1236	9.5	8.44	21.7		1.1
Alice	Mid	176	26-Jun-02	2.50	25.8	1236	9.5	8.44	22.6		0.6
Alice	Mid	176	26-Jun-02	3.00	24.1	1236	9.4	8.46	22.3		0.2
Alice	Mid	176	26-Jun-02	3.50	24.7	1236	9.2	8.42	22.6		0.0
Alice	South	176	26-Jun-02	Oa	m	m	m	m	m		100.0
Alice	South	176	26-Jun-02	Ob	m	m	m	m	m		79.3
Alice	South	176	26-Jun-02	0.50	25.4	1237	9.5	8.39	21.3		11.0
Alice	South	176	26-Jun-02	1.00	25.4	1235	9.5	8.40	23.7		3.7
Alice	South	176	26-Jun-02	1.50	25.4	1235	9.6	8.42	22.7		3.1
Alice	South	176	26-Jun-02	2.00	25.4	1235	9.6	8.44	21.6		1.4

Alice	South	176	26-Jun-02	2.50	25.3	1235	9.5	8.45	21.3	0.8
Alice	South	176	26-Jun-02	3.00	25.1	1235	9.5	8.46	22.5	0.4
Alice	South	176	26-Jun-02	3.50	24.9	1236	9.2	8.46	23.3	0.2
Brant	West	175	25-Jun-02	Oa	m	m	m	m	m	100.0
Brant	West	175	25-Jun-02	Ob	m	m	m	m	m	91.6
Brant	West	175	25-Jun-02	0.50	24.7	1665	7.9	7.98	13.4	5.9
Brant	West	175	25-Jun-02	1.00	24.6	1665	7.9	7.93	11.3	5.0
Brant	West	175	25-Jun-02	1.50	24.6	1665	7.9	7.90	10.8	4.4
Brant	West	175	25-Jun-02	2.00	24.5	1665	7.9	7.88	10.1	3.6
Brant	West	175	25-Jun-02	2.50	24.5	1665	7.8	7.88	16.5	2.7
Brant	West	175	25-Jun-02	3.00	24.4	1663	7.8	7.88	11.1	2.0
Brant	West	175	25-Jun-02	3.50	24.4	1662	7.7	7.88	10.1	1.6
Brant	West	175	25-Jun-02	4.00	24.3	1663	7.7	7.87	8.3	0.7
Brant	West	175	25-Jun-02	4.50	24.3	1664	7.5	7.85	15.9	0.1
Brant	Mid	175	25-Jun-02	Oa	m	m	m	m	m	100.0
Brant	Mid	175	25-Jun-02	Ob	m	m	m	m	m	91.5
Brant	Mid	175	25-Jun-02	0.50	25.1	1669	8.4	8.10	6.1	45.3
Brant	Mid	175	25-Jun-02	1.00	25.0	1666	8.3	8.05	6.6	21.5
Brant	Mid	175	25-Jun-02	1.50	24.8	1666	8.2	8.02	7.4	16.8
Brant	Mid	175	25-Jun-02	2.00	24.6	1666	8.0	7.99	7.6	9.2
Brant	Mid	175	25-Jun-02	2.50	24.5	1666	7.7	7.95	8.8	4.2
Brant	Mid	175	25-Jun-02	3.00	24.3	1666	7.6	7.93	10.0	2.1
Brant	Mid	175	25-Jun-02	3.50	24.3	1666	7.4	7.90	10.7	0.8
Brant	Mid	175	25-Jun-02	4.00	24.2	1665	7.2	7.87	16.7	0.4
Brant	Mid	175	25-Jun-02	4.50	24.0	1666	6.9	7.83	18.7	0.0
Brant	East	175	25-Jun-02	Oa	m	m	m	m	m	100.0
Brant	East	175	25-Jun-02	Ob	m	m	m	m	m	81.9
Brant	East	175	25-Jun-02	0.50	25.3	1666	8.1	8.08	9.4	9.3
Brant	East	175	25-Jun-02	1.00	24.6	1667	7.7	8.02	9.1	6.4
Brant	East	175	25-Jun-02	1.50	24.3	1664	7.7	7.98	8.2	4.4
Brant	East	175	25-Jun-02	2.00	24.0	1662	7.5	7.94	8.3	2.8
Brant	East	175	25-Jun-02	2.50	24.0	1662	7.3	7.89	9.2	2.1
Brant	East	175	25-Jun-02	3.00	23.9	1662	7.3	7.83	10.5	1.3
Brant	East	175	25-Jun-02	3.50	23.8	1664	6.9	7.80	11.9	0.8
Brant	East	175	25-Jun-02	4.00	23.7	1664	6.9	7.78	15.0	0.3
Brant	East	175	25-Jun-02	4.50	23.6	1664	6.8	7.76	19.6	0.0
Cochrane	West	176	26-Jun-02	Oa	m	m	m	m	m	100.0

Cochrane	West	176	26-Jun-02	Ob	m	m	m	m	m	83.2
Cochrane	West	176	26-Jun-02	0.50	24.4	1900	9.3	8.01	5.1	57.9
Cochrane	West	176	26-Jun-02	1.00	24.4	1901	9.0	8.08	5.3	30.9
Cochrane	West	176	26-Jun-02	1.50	24.4	1901	8.9	8.13	4.8	16.9
Cochrane	West	176	26-Jun-02	2.00	24.4	1901	8.8	8.14	6.6	8.6
Cochrane	West	176	26-Jun-02	2.50	24.4	1901	8.8	8.15	6.5	4.5
Cochrane	West	176	26-Jun-02	3.00	24.3	1901	8.7	8.14	6.3	2.7
Cochrane	West	176	26-Jun-02	3.50	23.9	1903	7.0	8.12	4.4	1.8
Cochrane	West	176	26-Jun-02	4.00	23.3	1909	3.4	7.91	26.3	0.0
Cochrane	Mid	176	26-Jun-02	Oa	m	m	m	m	m	100.0
Cochrane	Mid	176	26-Jun-02	Ob	m	m	m	m	m	100.2
Cochrane	Mid	176	26-Jun-02	0.50	24.5	1901	9.0	8.18	2.6	51.8
Cochrane	Mid	176	26-Jun-02	1.00	24.5	1900	9.0	8.20	2.9	32.2
Cochrane	Mid	176	26-Jun-02	1.50	24.5	1900	9.0	8.22	2.7	19.1
Cochrane	Mid	176	26-Jun-02	2.00	24.5	1900	9.0	8.24	2.8	10.1
Cochrane	Mid	176	26-Jun-02	2.50	24.3	1900	9.0	8.27	2.2	7.0
Cochrane	Mid	176	26-Jun-02	3.00	24.2	1900	8.9	8.28	3.2	5.0
Cochrane	Mid	176	26-Jun-02	3.50	24.1	1900	8.8	8.28	2.2	3.5
Cochrane	Mid	176	26-Jun-02	4.00	23.9	1901	8.2	8.26	1.8	1.6
Cochrane	Mid	176	26-Jun-02	4.50	23.3	1907	4.3	8.03	2.6	1.4
Cochrane	Mid	176	26-Jun-02	5.00	23.1	1907	3.6	7.99	2.9	0.9
Cochrane	Mid	176	26-Jun-02	5.50	22.9	1906	3.0	7.95	2.7	0.6
Cochrane	Mid	176	26-Jun-02	6.00	22.3	1866	1.1	7.84	348.1	0.3
Cochrane	East	176	26-Jun-02	Oa	m	m	m	m	m	100.0
Cochrane	East	176	26-Jun-02	Ob	m	m	m	m	m	99.5
Cochrane	East	176	26-Jun-02	0.50	24.9	1901	9.0	8.24	2.5	47.0
Cochrane	East	176	26-Jun-02	1.00	24.9	1901	9.1	8.25	5.4	37.3
Cochrane	East	176	26-Jun-02	1.50	24.9	1901	9.1	8.27	5.4	23.2
Cochrane	East	176	26-Jun-02	2.00	24.9	1901	9.1	8.29	4.4	13.4
Cochrane	East	176	26-Jun-02	2.50	24.9	1901	9.1	8.30	4.0	9.1
Cochrane	East	176	26-Jun-02	3.00	24.8	1902	9.0	8.32	3.1	5.6
Cochrane	East	176	26-Jun-02	3.50	24.6	1903	8.4	8.31	2.4	4.0
Cochrane	East	176	26-Jun-02	4.00	23.6	1901	7.1	8.21	2.4	2.5
Cochrane	East	176	26-Jun-02	4.50	24.3	1902	6.5	8.16	2.8	0.9
Cochrane	East	176	26-Jun-02	5.00	23.1	1902	5.7	8.12	2.6	0.9
Cochrane	East	176	26-Jun-02	5.50	23.0	1907	4.6	7.97	3.1	0.8
Cochrane	East	176	26-Jun-02	6.00	23.0	1906	4.2	7.96	3.2	0.5

Cochrane	East	176	26-Jun-02	6.50	22.8	1907	3.1	7.88	2.0	0.3
Cochrane	East	176	26-Jun-02	7.00	22.7	1909	1.8	7.84	2.1	0.2
Cochrane	East	176	26-Jun-02	7.50	22.6	1910	1.2	7.81	1.2	0.2
Cochrane	East	176	26-Jun-02	8.00	22.1	1912	0.6	7.74	3.0	0.0
Alice	North	198	18-Jul-02	Oa	m	m	m	m	m	100.0
Alice	North	198	18-Jul-02	Ob	m	m	m	m	m	66.5
Alice	North	198	18-Jul-02	0.50	25.7	1228	10.0	8.60	15.6	25.8
Alice	North	198	18-Jul-02	1.00	25.8	1228	10.5	8.60	12.9	5.4
Alice	North	198	18-Jul-02	1.50	25.8	1228	10.6	8.60	14.6	2.0
Alice	North	198	18-Jul-02	2.00	25.8	1228	10.4	8.60	13.0	1.0
Alice	North	198	18-Jul-02	2.50	25.8	1228	10.4	8.61	12.1	0.0
Alice	North	198	18-Jul-02	3.00	25.8	1228	9.9	8.61	12.4	0.0
Alice	Mid	198	18-Jul-02	Oa	m	m	m	m	m	100.0
Alice	Mid	198	18-Jul-02	Ob	m	m	m	m	m	97.9
Alice	Mid	198	18-Jul-02	0.50	25.3	1237	10.1	8.60	13.0	29.4
Alice	Mid	198	18-Jul-02	1.00	25.3	1236	10.1	8.60	12.6	9.6
Alice	Mid	198	18-Jul-02	1.50	25.3	1235	9.8	8.60	12.2	2.4
Alice	Mid	198	18-Jul-02	2.00	25.2	1236	9.5	8.60	12.5	0.8
Alice	Mid	198	18-Jul-02	2.50	25.2	1235	9.3	8.61	12.5	0.4
Alice	Mid	198	18-Jul-02	3.00	25.2	1235	9.2	8.61	12.7	0.0
Alice	Mid	198	18-Jul-02	3.50	25.2	1235	9.4	8.61	11.9	0.0
Alice	South	198	18-Jul-02	Oa	m	m	m	m	m	100.0
Alice	South	198	18-Jul-02	Ob	m	m	m	m	m	78.6
Alice	South	198	18-Jul-02	0.50	24.5	1238	10.2	8.64	11.8	24.1
Alice	South	198	18-Jul-02	1.00	24.5	1236	10.1	8.61	12.2	6.0
Alice	South	198	18-Jul-02	1.50	24.5	1236	9.7	8.61	14.3	1.6
Alice	South	198	18-Jul-02	2.00	24.4	1236	9.9	8.61	14.3	0.6
Alice	South	198	18-Jul-02	2.50	24.4	1237	10.4	8.60	12.0	0.2
Alice	South	198	18-Jul-02	3.00	24.4	1236	9.9	8.60	11.8	0.0
Brant	West	199	19-Jul-02	Oa	m	m	m	m	m	100.0
Brant	West	199	19-Jul-02	Ob	m	m	m	m	m	51.0
Brant	West	199	19-Jul-02	0.50	26.9	1693	7.9	8.49	3.6	15.9
Brant	West	199	19-Jul-02	1.00	26.9	1692	7.8	8.49	12.1	5.5
Brant	West	199	19-Jul-02	1.50	26.8	1693	7.7	8.49	11.4	4.0
Brant	West	199	19-Jul-02	2.00	26.8	1693	7.6	8.49	11.8	2.0
Brant	West	199	19-Jul-02	2.50	26.8	1693	7.4	8.48	11.5	1.3
Brant	West	199	19-Jul-02	3.00	26.8	1693	7.3	8.48	11.6	0.9

Brant	West	199	19-Jul-02	3.50	26.8	1693	7.1	8.47	10.5	0.7
Brant	West	199	19-Jul-02	4.00	26.6	1695	6.4	8.41	4.8	0.5
Brant	Mid	199	19-Jul-02	Oa	m	m	m	m	m	100.0
Brant	Mid	199	19-Jul-02	Ob	m	m	m	m	m	58.5
Brant	Mid	199	19-Jul-02	0.50	26.3	1694	7.2	8.41	6.6	28.7
Brant	Mid	199	19-Jul-02	1.00	26.4	1694	7.2	8.41	13.8	32.1
Brant	Mid	199	19-Jul-02	1.50	26.4	1694	7.1	8.41	13.6	7.8
Brant	Mid	199	19-Jul-02	2.00	26.4	1694	7.1	8.42	14.2	4.2
Brant	Mid	199	19-Jul-02	2.50	26.4	1694	6.9	8.41	13.4	3.2
Brant	Mid	199	19-Jul-02	3.00	26.3	1696	6.5	8.35	6.0	1.5
Brant	Mid	199	19-Jul-02	3.50	26.0	1697	5.3	8.26	4.4	0.7
Brant	Mid	199	19-Jul-02	4.00	25.8	1698	4.5	8.19	2.0	0.4
Brant	Mid	199	19-Jul-02	4.50	25.7	1699	4.1	8.15	500.0	0.0
Brant	East	199	19-Jul-02	Oa	m	m	m	m	m	100.0
Brant	East	199	19-Jul-02	Ob	m	m	m	m	m	63.3
Brant	East	199	19-Jul-02	0.50	26.2	1696	6.3	8.30	12.2	22.9
Brant	East	199	19-Jul-02	1.00	26.2	1696	6.1	8.28	11.8	11.3
Brant	East	199	19-Jul-02	1.50	26.1	1696	6.0	8.28	12.3	6.9
Brant	East	199	19-Jul-02	2.00	26.0	1697	5.9	8.28	12.1	5.1
Brant	East	199	19-Jul-02	2.50	25.9	1696	5.7	8.27	11.2	3.1
Brant	East	199	19-Jul-02	3.00	25.8	1696	5.5	8.25	6.5	2.6
Brant	East	199	19-Jul-02	3.50	25.8	1696	5.4	8.25	3.5	1.9
Brant	East	199	19-Jul-02	4.00	25.7	1697	5.1	8.22	13.4	0.9
Cochrane	West	198	18-Jul-02	Oa	m	m	m	m	m	100.0
Cochrane	West	198	18-Jul-02	Ob	m	m	m	m	m	92.9
Cochrane	West	198	18-Jul-02	0.50	26.5	1934	9.0	8.44	12.7	46.5
Cochrane	West	198	18-Jul-02	1.00	26.6	1932	9.0	8.42	12.4	23.3
Cochrane	West	198	18-Jul-02	1.50	26.5	1932	9.0	8.40	12.8	14.7
Cochrane	West	198	18-Jul-02	2.00	26.5	1933	8.8	8.39	13.2	8.6
Cochrane	West	198	18-Jul-02	2.50	26.4	1933	8.5	8.39	9.8	5.1
Cochrane	West	198	18-Jul-02	3.00	26.3	1933	8.3	8.37	12.9	3.0
Cochrane	West	198	18-Jul-02	3.50	26.2	1933	8.1	8.37	13.1	1.9
Cochrane	West	198	18-Jul-02	4.00	26.2	1933	8.1	8.37	14.2	1.1
Cochrane	Mid	198	18-Jul-02	Oa	m	m	m	m	m	100.0
Cochrane	Mid	198	18-Jul-02	Ob	m	m	m	m	m	77.3
Cochrane	Mid	198	18-Jul-02	0.50	26.2	1928	9.1	8.42	3.3	39.0
Cochrane	Mid	198	18-Jul-02	1.00	26.2	1927	9.1	8.41	4.6	30.9

Cochrane	Mid	198	18-Jul-02	1.50	26.2	1927	9.1	8.41	12.4	21.0
Cochrane	Mid	198	18-Jul-02	2.00	26.1	1927	9.1	8.41	12.3	17.5
Cochrane	Mid	198	18-Jul-02	2.50	26.0	1927	9.0	8.40	12.0	13.3
Cochrane	Mid	198	18-Jul-02	3.00	25.9	1929	8.7	8.39	12.6	8.5
Cochrane	Mid	198	18-Jul-02	3.50	25.8	1928	8.4	8.38	12.7	5.8
Cochrane	Mid	198	18-Jul-02	4.00	25.7	1927	8.3	8.38	11.8	4.7
Cochrane	Mid	198	18-Jul-02	4.50	25.7	1927	8.3	8.38	13.5	3.6
Cochrane	Mid	198	18-Jul-02	5.00	25.5	1928	7.5	8.36	13.7	2.6
Cochrane	Mid	198	18-Jul-02	5.50	25.3	1930	6.9	8.38	12.8	1.7
Cochrane	East	198	18-Jul-02	Oa	m	m	m	m	m	100.0
Cochrane	East	198	18-Jul-02	Ob	m	m	m	m	m	103.7
Cochrane	East	198	18-Jul-02	0.50	25.9	1922	9.3	8.40	11.1	66.6
Cochrane	East	198	18-Jul-02	1.00	26.0	1923	9.1	8.40	11.4	34.0
Cochrane	East	198	18-Jul-02	1.50	26.0	1923	9.1	8.40	12.2	21.3
Cochrane	East	198	18-Jul-02	2.00	26.0	1922	9.0	8.40	11.4	13.8
Cochrane	East	198	18-Jul-02	2.50	26.0	1922	9.1	8.41	11.0	9.5
Cochrane	East	198	18-Jul-02	3.00	25.8	1923	9.1	8.41	11.0	6.0
Cochrane	East	198	18-Jul-02	3.50	25.7	1924	8.9	8.40	11.8	4.6
Cochrane	East	198	18-Jul-02	4.00	25.5	1925	8.3	8.37	13.8	3.0
Cochrane	East	198	18-Jul-02	4.50	25.5	1925	8.0	8.35	13.8	1.7
Cochrane	East	198	18-Jul-02	5.00	25.4	1926	7.4	8.32	13.4	1.1
Cochrane	East	198	18-Jul-02	5.50	25.4	1927	6.9	8.30	13.2	0.7
Cochrane	East	198	18-Jul-02	6.00	25.1	1930	5.2	8.22	12.6	0.4
Cochrane	East	198	18-Jul-02	6.50	24.9	1929	4.2	8.15	13.2	0.0
Cochrane	East	198	18-Jul-02	7.00	24.5	1876	1.7	7.97	13.9	0.0
Alice	North	233	22-Aug-02	Oa	m	m	m	m	m	100.0
Alice	North	233	22-Aug-02	Ob	m	m	m	m	m	77.1
Alice	North	233	22-Aug-02	0.50	20.2	1100	8.2	9.08	12.5	26.2
Alice	North	233	22-Aug-02	1.00	20.2	1100	8.0	m	m	11.5
Alice	North	233	22-Aug-02	1.50	20.1	1100	8.0	m	m	5.0
Alice	North	233	22-Aug-02	2.00	20.1	1110	8.2	m	m	1.9
Alice	North	233	22-Aug-02	2.50	20.1	1110	8.1	m	m	0.9
Alice	North	233	22-Aug-02	3.00	20.1	1110	8.2	9.00	10.8	0.0
Alice	North	233	22-Aug-02	3.50	20.1	1110	6.9	m	m	0.0
Alice	Mid	233	22-Aug-02	Oa	m	m	m	m	m	100.0
Alice	Mid	233	22-Aug-02	Ob	m	m	m	m	m	78.5
Alice	Mid	233	22-Aug-02	0.50	19.8	1100	7.8	9.09	11.9	28.9

Alice	Mid	233	22-Aug-02	1.00	19.8	1100	7.7	m	m	10.4
Alice	Mid	233	22-Aug-02	1.50	19.8	1100	7.9	m	m	4.1
Alice	Mid	233	22-Aug-02	2.00	19.8	1100	7.7	m	m	1.6
Alice	Mid	233	22-Aug-02	2.50	19.8	1100	7.6	m	m	0.7
Alice	Mid	233	22-Aug-02	3.00	19.8	1105	7.6	m	m	0.0
Alice	Mid	233	22-Aug-02	3.50	19.8	1050	5.6	9.02	13.2	0.0
Alice	South	233	22-Aug-02	Oa	m	m	m	m	m	100.0
Alice	South	233	22-Aug-02	Ob	m	m	m	m	m	73.1
Alice	South	233	22-Aug-02	0.50	19.5	625	8.2	9.10	13.0	26.8
Alice	South	233	22-Aug-02	1.00	19.4	1100	8.2	m	m	9.4
Alice	South	233	22-Aug-02	1.50	19.4	1100	8.2	m	m	3.7
Alice	South	233	22-Aug-02	2.00	19.4	1110	8.2	m	m	1.4
Alice	South	233	22-Aug-02	2.50	19.4	1110	8.1	m	m	0.6
Alice	South	233	22-Aug-02	3.00	19.3	1110	8.0	m	m	0.0
Alice	South	233	22-Aug-02	3.50	19.3	1110	8.0	9.02	12.7	0.0
Brant	West	232	21-Aug-02	Oa	m	m	m	m	m	100.0
Brant	West	232	21-Aug-02	Ob	m	m	m	m	m	81.1
Brant	West	232	21-Aug-02	0.50	20.7	1525	7.5	8.95	30.2	9.4
Brant	West	232	21-Aug-02	1.00	20.8	1525	7.4	m	m	2.8
Brant	West	232	21-Aug-02	1.50	20.8	1525	7.2	m	m	0.6
Brant	West	232	21-Aug-02	2.00	20.8	1525	7.2	m	m	0.2
Brant	West	232	21-Aug-02	2.50	20.7	1550	6.9	m	m	0.0
Brant	West	232	21-Aug-02	3.00	20.7	1550	6.9	m	m	0.0
Brant	West	232	21-Aug-02	3.50	20.7	1550	6.6	m	m	0.0
Brant	West	232	21-Aug-02	4.00	20.7	1550	6.6	8.92	11.9	0.0
Brant	Mid	232	21-Aug-02	Oa	m	m	m	m	m	100.0
Brant	Mid	232	21-Aug-02	Ob	m	m	m	m	m	49.5
Brant	Mid	232	21-Aug-02	0.50	20.7	1525	7.8	9.00	59.0	31.8
Brant	Mid	232	21-Aug-02	1.00	20.7	1525	7.7	m	m	1.3
Brant	Mid	232	21-Aug-02	1.50	20.7	1525	7.6	m	m	0.2
Brant	Mid	232	21-Aug-02	2.00	20.7	1525	7.5	m	m	0.0
Brant	Mid	232	21-Aug-02	2.50	20.6	1525	7.5	m	m	0.0
Brant	Mid	232	21-Aug-02	3.00	20.6	1525	7.4	m	m	0.0
Brant	Mid	232	21-Aug-02	3.50	20.6	1525	7.3	m	m	0.0
Brant	Mid	232	21-Aug-02	4.00	20.6	1525	7.3	8.94	7.6	0.0
Brant	Mid	232	21-Aug-02	4.50	20.5	1525	7.1	m	m	0.0
Brant	East	232	21-Aug-02	Oa	m	m	m	m	m	100.0

Brant	East	232	21-Aug-02	Ob	m	m	m	m	m	87.7
Brant	East	232	21-Aug-02	0.50	20.8	1500	7.4	9.05	5.0	42.4
Brant	East	232	21-Aug-02	1.00	20.8	1500	7.4	m	m	22.9
Brant	East	232	21-Aug-02	1.50	20.7	1525	7.4	m	m	10.1
Brant	East	232	21-Aug-02	2.00	20.7	1525	7.4	m	m	5.4
Brant	East	232	21-Aug-02	2.50	20.7	1525	7.4	m	m	3.2
Brant	East	232	21-Aug-02	3.00	20.7	1525	7.3	m	m	1.8
Brant	East	232	21-Aug-02	3.50	20.7	1525	7.4	m	m	1.1
Brant	East	232	21-Aug-02	4.00	20.7	1525	7.3	8.96	11.1	0.7
Cochrane	West	233	22-Aug-02	Oa	m	m	m	m	m	100.0
Cochrane	West	233	22-Aug-02	Ob	m	m	m	m	m	112.5
Cochrane	West	233	22-Aug-02	0.50	21.0	1750	8.2	8.86	6.9	56.7
Cochrane	West	233	22-Aug-02	1.00	21.0	1750	8.0	m	m	23.7
Cochrane	West	233	22-Aug-02	1.50	21.0	1750	7.9	m	m	11.2
Cochrane	West	233	22-Aug-02	2.00	21.0	1750	7.8	m	m	8.9
Cochrane	West	233	22-Aug-02	2.50	21.0	1775	7.8	m	m	4.5
Cochrane	West	233	22-Aug-02	3.00	21.0	1775	7.7	m	m	2.8
Cochrane	West	233	22-Aug-02	3.50	20.9	1775	7.6	m	m	1.5
Cochrane	West	233	22-Aug-02	4.00	20.9	1775	0.2	8.84	6.0	0.0
Cochrane	Mid	233	22-Aug-02	Oa	m	m	m	m	m	100.0
Cochrane	Mid	233	22-Aug-02	Ob	m	m	m	m	m	87.3
Cochrane	Mid	233	22-Aug-02	0.50	20.7	1750	7.8	8.60	4.6	48.6
Cochrane	Mid	233	22-Aug-02	1.00	20.7	1750	8.1	m	m	30.5
Cochrane	Mid	233	22-Aug-02	1.50	20.7	1750	7.8	m	m	17.0
Cochrane	Mid	233	22-Aug-02	2.00	20.7	1750	7.9	m	m	10.8
Cochrane	Mid	233	22-Aug-02	2.50	20.6	1750	7.5	m	m	8.0
Cochrane	Mid	233	22-Aug-02	3.00	20.7	1750	7.3	m	m	5.0
Cochrane	Mid	233	22-Aug-02	3.50	20.6	1750	7.5	m	m	3.3
Cochrane	Mid	233	22-Aug-02	4.00	20.6	1750	7.7	m	m	2.2
Cochrane	Mid	233	22-Aug-02	4.50	20.6	1750	7.5	m	m	1.2
Cochrane	Mid	233	22-Aug-02	5.00	20.6	1750	7.7	m	m	0.8
Cochrane	Mid	233	22-Aug-02	5.50	20.5	1750	7.3	m	m	0.5
Cochrane	Mid	233	22-Aug-02	6.00	20.4	1675	5.9	m	m	0.0
Cochrane	Mid	233	22-Aug-02	6.50	20.2	1675	0.1	8.80	6.7	0.0
Cochrane	East	233	22-Aug-02	Oa	m	m	m	m	m	100.0
Cochrane	East	233	22-Aug-02	Ob	m	m	m	m	m	119.1
Cochrane	East	233	22-Aug-02	0.50	20.0	1750	7.9	8.79	3.4	77.9

Cochrane	East	233	22-Aug-02	1.00	20.0	1750	7.4	m	m	45.3
Cochrane	East	233	22-Aug-02	1.50	20.0	1750	7.6	m	m	28.4
Cochrane	East	233	22-Aug-02	2.00	20.0	1750	7.6	m	m	17.9
Cochrane	East	233	22-Aug-02	2.50	20.3	1750	7.2	m	m	12.1
Cochrane	East	233	22-Aug-02	3.00	20.2	1730	7.0	m	m	7.5
Cochrane	East	233	22-Aug-02	3.50	20.1	1725	6.4	m	m	4.5
Cochrane	East	233	22-Aug-02	4.00	20.1	1725	6.2	m	m	3.4
Cochrane	East	233	22-Aug-02	4.50	20.1	1725	6.3	m	m	2.3
Cochrane	East	233	22-Aug-02	5.00	20.0	1725	5.9	m	m	1.6
Cochrane	East	233	22-Aug-02	5.50	20.0	1720	6.0	m	m	1.1
Cochrane	East	233	22-Aug-02	6.00	19.9	1720	5.8	m	m	0.8
Cochrane	East	233	22-Aug-02	6.50	19.9	1720	5.7	m	m	0.5
Cochrane	East	233	22-Aug-02	7.00	19.9	1720	5.2	m	m	0.0
Cochrane	East	233	22-Aug-02	7.50	19.9	1700	4.8	m	m	0.0
Cochrane	East	233	22-Aug-02	8.00	19.7	1675	3.1	8.76	6.5	0.0
Alice	North	174	24-Jun-03	Oa	m	m	m	m	m	100.0
Alice	North	174	24-Jun-03	Ob	m	m	m	m	m	88.1
Alice	North	174	24-Jun-03	0.50	22.5	1227	9.0	8.92	2.1	49.5
Alice	North	174	24-Jun-03	1.00	22.5	1227	8.9	8.92	m	33.2
Alice	North	174	24-Jun-03	1.50	22.5	1227	8.9	8.92	m	26.1
Alice	North	174	24-Jun-03	2.00	22.5	1227	8.9	8.93	m	20.8
Alice	North	174	24-Jun-03	2.50	22.5	1227	8.8	8.92	2.3	16.2
Alice	North	174	24-Jun-03	3.00	22.5	1226	8.8	8.92	m	12.1
Alice	Mid	174	24-Jun-03	Oa	m	m	m	m	m	100.0
Alice	Mid	174	24-Jun-03	Ob	m	m	m	m	m	76.9
Alice	Mid	174	24-Jun-03	0.50	22.4	1228	8.5	8.83	1.9	44.0
Alice	Mid	174	24-Jun-03	1.00	22.4	1228	8.4	8.82	m	27.1
Alice	Mid	174	24-Jun-03	1.50	22.4	1227	8.4	8.83	m	13.7
Alice	Mid	174	24-Jun-03	2.00	22.3	1227	8.4	8.84	m	11.4
Alice	Mid	174	24-Jun-03	2.50	22.3	1227	8.3	8.84	m	7.6
Alice	Mid	174	24-Jun-03	3.00	22.2	1227	8.4	8.84	1.7	6.0
Alice	Mid	174	24-Jun-03	3.50	22.2	1227	8.4	8.77	m	2.5
Alice	South	174	24-Jun-03	Oa	m	m	m	m	m	100.0
Alice	South	174	24-Jun-03	Ob	m	m	m	m	m	97.9
Alice	South	174	24-Jun-03	0.50	22.4	1227	8.4	8.89	1.8	44.1
Alice	South	174	24-Jun-03	1.00	22.4	1227	8.4	8.89	m	17.9
Alice	South	174	24-Jun-03	1.50	22.4	1227	8.4	8.89	m	11.9

Alice	South	174	24-Jun-03	2.00	22.4	1227	8.4	8.89	m	8.1
Alice	South	174	24-Jun-03	2.50	22.3	1226	8.4	8.89	1.2	5.9
Alice	South	174	24-Jun-03	3.00	22.3	1226	8.4	8.88	m	4.5
Brant	West	177	27-Jun-03	Oa	m	m	m	m	m	100.0
Brant	West	177	27-Jun-03	Ob	m	m	m	m	m	77.6
Brant	West	177	27-Jun-03	0.50	21.1	1663	9.4	8.65	16.9	34.7
Brant	West	177	27-Jun-03	1.00	21.1	1663	9.6	8.64	m	9.2
Brant	West	177	27-Jun-03	1.50	21.1	1663	9.6	8.64	m	3.5
Brant	West	177	27-Jun-03	2.00	21.0	1663	9.6	8.63	m	1.7
Brant	West	177	27-Jun-03	2.50	21.0	1663	9.5	8.62	m	0.5
Brant	West	177	27-Jun-03	3.00	20.9	1661	9.4	8.61	m	0.4
Brant	West	177	27-Jun-03	3.50	20.9	1659	9.3	8.61	m	0.1
Brant	West	177	27-Jun-03	4.00	20.8	1657	9.1	8.60	17.9	0.0
Brant	West	177	27-Jun-03	4.50	20.7	1656	8.8	8.58	m	0.0
Brant	Mid	177	27-Jun-03	Oa	m	m	m	m	m	100.0
Brant	Mid	177	27-Jun-03	Ob	m	m	m	m	m	88.8
Brant	Mid	177	27-Jun-03	0.50	21.2	1657	9.2	8.61	15.4	38.8
Brant	Mid	177	27-Jun-03	1.00	21.2	1658	8.9	8.60	m	18.1
Brant	Mid	177	27-Jun-03	1.50	21.1	1658	8.9	8.60	m	8.8
Brant	Mid	177	27-Jun-03	2.00	21.1	1658	8.8	8.59	m	3.7
Brant	Mid	177	27-Jun-03	2.50	21.0	1659	8.8	8.56	m	1.8
Brant	Mid	177	27-Jun-03	3.00	20.9	1661	8.6	8.54	m	0.9
Brant	Mid	177	27-Jun-03	3.50	20.8	1662	8.6	8.53	m	0.4
Brant	Mid	177	27-Jun-03	4.00	20.7	1663	8.2	8.51	15.3	0.0
Brant	Mid	177	27-Jun-03	4.50	20.7	1662	8.1	8.50	m	0.0
Brant	East	177	27-Jun-03	Oa	m	m	m	m	m	100.0
Brant	East	177	27-Jun-03	Ob	m	m	m	m	m	79.7
Brant	East	177	27-Jun-03	0.50	21.2	1662	9.8	8.53	17.5	47.1
Brant	East	177	27-Jun-03	1.00	21.1	1666	9.6	8.49	m	15.1
Brant	East	177	27-Jun-03	1.50	21.0	1665	9.4	8.49	m	5.8
Brant	East	177	27-Jun-03	2.00	21.0	1664	9.3	8.48	m	2.4
Brant	East	177	27-Jun-03	2.50	20.8	1664	9.0	8.48	19.7	1.2
Brant	East	177	27-Jun-03	3.00	20.8	1665	9.0	8.48	m	0.5
Cochrane	West	177	27-Jun-03	Oa	m	m	m	m	m	100.0
Cochrane	West	177	27-Jun-03	Ob	m	m	m	m	m	109.2
Cochrane	West	177	27-Jun-03	0.50	21.0	1883	9.1	8.75	7.3	39.5
Cochrane	West	177	27-Jun-03	1.00	21.1	1883	9.1	8.75	m	22.1

Cochrane	West	177	27-Jun-03	1.50	21.0	1883	9.1	8.75	m	8.9
Cochrane	West	177	27-Jun-03	2.00	20.8	1883	9.1	8.75	m	5.3
Cochrane	West	177	27-Jun-03	2.50	20.6	1883	9.1	8.73	m	3.5
Cochrane	West	177	27-Jun-03	3.00	20.4	1882	8.7	8.69	6.9	1.8
Cochrane	West	177	27-Jun-03	3.50	20.3	1883	8.0	8.64	m	1.0
Cochrane	Mid	177	27-Jun-03	Oa	m	m	m	m	m	100.0
Cochrane	Mid	177	27-Jun-03	Ob	m	m	m	m	m	96.4
Cochrane	Mid	177	27-Jun-03	0.50	21.1	1885	9.1	8.74	5.7	46.0
Cochrane	Mid	177	27-Jun-03	1.00	21.1	1884	9.2	8.74	m	22.1
Cochrane	Mid	177	27-Jun-03	1.50	20.8	1883	9.3	8.74	m	11.6
Cochrane	Mid	177	27-Jun-03	2.00	20.6	1883	9.2	8.73	m	6.3
Cochrane	Mid	177	27-Jun-03	2.50	20.5	1883	9.2	8.72	m	0.0
Cochrane	Mid	177	27-Jun-03	3.00	20.5	1882	9.4	8.71	m	0.0
Cochrane	Mid	177	27-Jun-03	3.50	20.4	1883	8.8	8.69	m	0.0
Cochrane	Mid	177	27-Jun-03	4.00	20.4	1882	8.6	8.69	m	0.0
Cochrane	Mid	177	27-Jun-03	4.50	20.3	1882	8.5	8.68	m	0.0
Cochrane	Mid	177	27-Jun-03	5.00	20.3	1882	8.3	8.66	m	0.0
Cochrane	Mid	177	27-Jun-03	5.50	20.2	1882	8.1	8.65	5.8	0.0
Cochrane	Mid	177	27-Jun-03	6.00	20.1	1883	7.9	8.63	m	0.0
Cochrane	East	177	27-Jun-03	Oa	m	m	m	m	m	100.0
Cochrane	East	177	27-Jun-03	Ob	m	m	m	m	m	76.7
Cochrane	East	177	27-Jun-03	0.50	21.1	1882	9.4	8.48	3.5	38.1
Cochrane	East	177	27-Jun-03	1.00	20.9	1884	9.4	8.51	m	14.2
Cochrane	East	177	27-Jun-03	1.50	20.7	1885	9.4	8.51	m	5.2
Cochrane	East	177	27-Jun-03	2.00	20.6	1884	9.3	8.52	m	2.6
Cochrane	East	177	27-Jun-03	2.50	20.5	1884	9.1	8.53	m	1.3
Cochrane	East	177	27-Jun-03	3.00	20.4	1883	8.9	8.55	m	0.8
Cochrane	East	177	27-Jun-03	3.50	20.3	1883	8.8	8.55	m	0.0
Cochrane	East	177	27-Jun-03	4.00	20.3	1884	8.7	8.56	m	0.0
Cochrane	East	177	27-Jun-03	4.50	20.2	1882	8.6	8.56	m	0.0
Cochrane	East	177	27-Jun-03	5.00	20.2	1883	8.4	8.57	m	0.0
Cochrane	East	177	27-Jun-03	5.50	20.2	1883	8.3	8.58	m	0.0
Cochrane	East	177	27-Jun-03	6.00	20.2	1883	8.2	8.59	m	0.0
Cochrane	East	177	27-Jun-03	6.50	20.1	1883	8.2	8.58	m	0.0
Cochrane	East	177	27-Jun-03	7.00	20.1	1883	8.0	8.58	2.1	0.0
Cochrane	East	177	27-Jun-03	7.50	20.0	1884	7.8	8.58	m	0.0

APPENDIX XIII – Lake Littoral Zone Data

Lake	Site	Date	Lat (deg-min)	Long (deg-min)	Ta (oC)	Tw (oC)	Cond (uS/cm)	DO (mg/L)	pH	PctSc (%)	PctSG (%)	PctCB (%)	MacV DW(g)	Aspect (deg)	Slope (%)	Can (%)	Den (0-21)	Cov (%)	PctEro (%)
Alice	1	24-Aug-01	44.52.06	96.36.98	31.6	22.5	1220	5.6	8.67	0	100	0	0.0	128	6	0.0	18	0	35
Alice	2	24-Aug-01	44.52.03	96.37.54	29.5	23.3	1216	6.7	8.74	0	20	80	0.0	293	-1	0.0	0	0	5
Alice	3	24-Aug-01	44.52.00	96.37.82	27.1	23.5	1215	6.8	8.77	0	20	80	0.0	175	20	0.0	15	5	10
Alice	4	24-Aug-01	44.51.98	96.37.21	27.4	23.5	1215	6.9	8.77	0	20	80	0.0	215	24	0.0	18	75	10
Alice	5	24-Aug-01	44.53.36	96.38.82	26.9	25.4	1220	6.1	8.19	0	100	0	82.0	325	6	0.0	11	0	25
Alice	6	26-Jun-02	44.52.07	96.37.11	26.4	26.9	1231	11.7	8.51	0	100	0	0.0	345	17	0.0	18	0	20
Alice	7	26-Jun-02	44.52.72	96.39.01	26.7	24.4	1232	10.7	8.57	0	100	0	0.0	45	12	0.0	6	0	5
Alice	8	26-Jun-02	44.52.36	96.38.95	25.9	27.5	1235	9.2	8.39	0	100	0	0.0	130	6	0.0	21	0	10
Alice	9	26-Jun-02	44.52.08	96.38.90	25.7	26.9	1231	11.7	8.51	0	100	0	0.0	245	11	0.0	0	0	0
Alice	10	26-Jun-02	44.53.32	96.38.64	25.7	26.9	1231	11.7	8.51	0	75	25	0.0	235	14	99.8	0	0	0
Alice	11	18-Jul-02	44.53.301	96.38.918	24.1	27.1	1218	12.3	8.69	50	0	50	0.0	75	34	0.0	15	0	20
Alice	12	18-Jul-02	44.52.693	96.38.947	26.8	27.2	1233	12.0	8.69	25	0	75	0.0	200	18	0.0	15	5	5
Alice	13	18-Jul-02	44.51.958	96.37.543	26.3	27.2	1233	12.0	8.69	0	25	75	0.0	218	19	0.0	15	0	5
Alice	14	18-Jul-02	44.52.783	96.37.440	24.6	26.4	1220	9.8	8.59	0	75	25	0.0	245	16	0.0	0	5	5
Alice	15	18-Jul-02	45.53.307	96.38.133	28.3	25.8	1222	9.8	8.53	0	100	0	0.0	248	10	0.0	0	0	10
Alice	16	22-Aug-02	44.53.364	96.38.285	19.1	20.1	1179	8.0	8.94	0	100	0	0.0	8	9	0.0	21	0	0
Alice	17	22-Aug-02	44.53.161	96.37.865	20.9	20.0	731	7.7	9.04	25	75	0	0.0	63	8	0.0	6	0	0
Alice	18	22-Aug-02	44.52.140	96.38.000	18.9	20.1	730	8.3	9.05	0	50	50	0.0	230	28	0.0	11	0	0.5
Alice	19	22-Aug-02	44.52.415	96.38.045	18.7	19.8	678	7.8	9.06	25	75	0	0.0	320	5	0.0	20	0	0
Alice	20	22-Aug-02	44.53.374	96.38.613	19.8	20.3	1201	8.0	9.08	0	100	0	0.0	335	12	0.0	18	0	5
Alice	21	24-Jun-03	44.53.364	96.38.317	23.8	23.6	1223	9.0	8.93	5	95	0	0.0	10	22	87.4	0	0	10
Alice	22	24-Jun-03	44.51.987	96.37.456	23.8	22.7	1221	10.3	8.98	0	75	25	0.0	160	10	0.0	0	0	0
Alice	23	24-Jun-03	44.52.459	96.38.218	24.0	23.0	1221	11.9	9.04	0	90	10	0.0	190	8	0.0	18	25	0
Alice	24	24-Jun-03	44.52.486	96.38.249	25.0	23.3	1221	11.5	9.05	0	5	95	0.0	178	9	0.0	0	0	0
Alice	25	24-Jun-03	44.52.523	96.38.423	25.0	22.9	1225	19.9	8.96	0	5	95	0.0	210	18	0.0	18	25	10
Brant	1	25-Aug-01	43.55.22	96.56.03	22.6	23.1	1603	8.2	8.57	0	5	95	0.0	31	30	91.5	18	0	0
Brant	2	25-Aug-01	43.54.67	96.56.27	22.3	22.9	1600	8.2	8.45	0	5	95	0.0	168	41	38.5	20	0	0
Brant	3	25-Aug-01	43.54.59	96.56.18	22.2	22.8	1601	8.1	8.46	0	5	95	0.0	175	41	0.0	20	0	0
Brant	4	25-Aug-01	43.55.79	96.57.36	22.6	23.4	1597	8.0	8.62	0	100	0	0.0	58	42	0.0	6	0	10
Brant	5	25-Aug-01	43.55.61	96.56.48	23.2	23.6	1597	7.0	8.70	0	75	25	0.0	298	52	70.7	0	0	40
Brant	6	25-Jun-02	43.54.864	96.55.912	32.1	26.7	1666	7.9	7.98	0	100	0	0.0	120	5	0.0	21	0	0
Brant	7	25-Jun-02	43.55.715	96.57.412	27.2	25.7	1652	10.4	8.22	0	75	25	0.0	320	15	0.0	15	0	30
Brant	8	25-Jun-02	43.55.368	96.56.169	31.2	26.4	1662	9.8	7.19	0	100	0	0.0	65	42	0.0	11	0	0
Brant	9	25-Jun-02	43.55.347	96.56.038	31.2	26.4	1662	9.8	8.19	0	100	0	0.0	60	45	99.8	0	0	0
Brant	10	25-Jun-02	43.55.031	96.55.807	32.6	26.2	1664	8.5	8.00	0	100	0	0.0	90	14	0.0	20	0	0
Brant	11	19-Jul-02	43.56.5	96.57.38	226.0	25.9	1695	5.8	8.33	0	25	75	0.0	163	22	0.0	11	0	0.5
Brant	12	19-Jul-02	43.54.9	96.57.02	23.5	26.0	1690	7.2	8.43	0	50	50	0.0	195	31	62.4	15	0	0.25
Brant	13	19-Jul-02	43.55.072	96.57.51	23.6	26.7	1682	7.0	8.45	0	80	20	0.0	230	32	0.0	18	0	0
Brant	14	19-Jul-02	43.55.83	96.56.71	25.6	26.5	1694	6.5	8.39	5	75	20	0.0	33	37	0.0	21	0	0
Brant	15	19-Jul-02	43.55.24	96.56.03	26.1	26.0	1700	5.9	8.28	0	5	95	0.0	80	18	99.8	0	0	0
Brant	16	21-Aug-02	43.55.344	96.58.013	23.7	21.0	1623	8.8	8.91	0	100	0	0.0	218	23	99.8	0	0	0

Brant	17	21-Aug-02	43.55.690	96.57.629	20.9	21.0	1678	7.9	8.99	50	50	0	0.0	0	22	0.0	18	0	10
Brant	18	21-Aug-02	43.55.536	96.56.400	21.1	20.0	1688	7.7	8.88	0	75	25	0.0	38	60	0.0	18	0	0
Brant	19	21-Aug-02	43.55.360	96.56.164	21.0	20.0	1688	6.5	8.86	0	50	50	0.0	28	30	0.0	21	0	0
Brant	20	21-Aug-02	43.35.216	96.56.025	20.9	20.0	1603	7.1	8.71	0	25	75	0.0	43	35	95.7	11	0	0.5
Brant	21	27-Jun-03	43.55.012	96.57.424	23.2	21.0	1656	9.8	8.58	0	0	100	0.0	210	34	88.4	18	0	0
Brant	22	27-Jun-03	43.55.131	96.57.537	23.0	20.9	1660	9.9	8.59	0	0	100	0.0	245	35	99.8	15	0	0
Brant	23	27-Jun-03	43.55.500	96.57.982	23.0	21.2	1663	9.5	8.25	0	100	0	0.0	280	18	0.0	20	0	0
Brant	24	27-Jun-03	43.55.679	96.57.481	23.8	21.2	1647	10.7	8.64	0	100	0	0.0	320	33	99.8	0	0	20
Brant	25	27-Jun-03	43.55.763	96.57.377	24.5	21.6	1651	13.2	8.72	0	75	25	0.0	303	16	99.8	0	0	0
Cochrane	1	24-Aug-01	44.42.82	96.28.11	29.4	23.3	1872	6.6	8.66	0	100	0	0.0	5	40	90.5	20	0	0
Cochrane	2	24-Aug-01	44.42.50	96.27.95	30.3	23.7	1870	7.4	8.68	0	100	0	229.7	118	9	0.0	21	100	100
Cochrane	3	24-Aug-01	44.42.31	96.28.57	30.0	23.8	1868	7.5	8.70	0	100	0	163.8	165	25	99.8	0	100	0
Cochrane	4	24-Aug-01	44.42.30	96.28.72	30.3	24.2	1873	7.3	8.70	0	5	95	0.0	180	64	99.8	0	80	0
Cochrane	5	24-Aug-01	44.42.06	96.29.40	33.7	24.8	1875	7.3	8.67	100	0	0	301.7	188	11	8.3	11	0	100
Cochrane	6	26-Jun-02	44.42.551	96.29.141	27.4	25.2	1899	10.2	8.39	0	0	100	0.0	295	65	49.9	0	0	0
Cochrane	7	26-Jun-02	44.42.576	96.29.119	28.1	25.3	1899	10.2	8.40	0	0	100	30.8	280	68	99.8	0	40	0
Cochrane	8	26-Jun-02	44.42.685	96.28.577	26.8	25.1	1897	10.1	8.32	0	100	0	0.0	10	47	99.8	0	1	0
Cochrane	9	26-Jun-02	44.42.388	96.28.269	24.7	25.3	1902	9.8	8.33	0	75	25	24.6	170	11	99.8	0	33	0
Cochrane	10	26-Jun-02	44.42.033	96.29.358	25.9	25.2	1900	9.8	8.34	50	50	0	53.5	260	35	99.8	0	30	0
Cochrane	11	18-Jul-02	44.42.596	96.29.107	30.2	27.0	1928	10.5	8.50	0	0	100	26.7	300	62	99.8	0	0	0
Cochrane	12	18-Jul-02	44.42.310	96.29.575	30.8	26.8	1924	11.0	8.50	0	50	50	31.5	148	22	99.8	20	5	0
Cochrane	13	18-Jul-02	44.42.312	96.29.950	30.6	26.7	1930	9.7	8.44	0	0	100	0.0	120	55	99.8	0	0	10
Cochrane	14	18-Jul-02	44.42.303	96.29.989	30.5	26.7	1929	9.5	8.45	0	0	100	47.3	123	57	99.8	0	0	20
Cochrane	15	18-Jul-02	44.42.063	96.29.350	27.6	27.5	1921	10.9	8.50	0	100	0	60.1	160	5	0.0	21	0	0
Cochrane	16	22-Aug-02	44.42.538	96.29.162	19.2	20.9	1957	8.5	8.82	0	0	100	0.0	302	49	99.8	0	75	0
Cochrane	17	22-Aug-02	44.42.536	96.29.162	19.2	20.9	1957	8.5	8.82	0	0	100	0.0	303	57	99.8	15	75	0
Cochrane	18	22-Aug-02	44.42.741	96.28.756	22.3	21.0	1953	8.7	8.85	0	100	0	0.0	28	12	25.0	20	0	0
Cochrane	19	22-Aug-02	44.42.436	96.28.087	21.1	20.4	1923	7.8	8.77	0	25	75	0.0	155	30	58.2	0	50	0
Cochrane	20	22-Aug-02	44.42.423	96.29.242	21.1	21.2	1960	9.4	8.85	0	75	25	0.0	333	15	0.0	0	80	0
Cochrane	21	27-Jun-03	44.42.494	96.29.196	20.9	21.2	1881	9.8	8.80	0	75	25	0.0	285	24	0.0	0	0	5
Cochrane	22	27-Jun-03	44.42.376	96.28.448	20.6	21.3	1892	9.1	8.78	0	80	20	0.0	150	44	99.8	0	0	0
Cochrane	23	27-Jun-03	44.42.293	96.29.007	19.7	21.1	1882	9.5	8.78	0	60	40	0.0	130	52	99.8	0	0	10
Cochrane	24	27-Jun-03	44.42.393	96.29.339	19.7	21.4	1878	9.5	8.79	0	75	25	0.0	345	36	99.8	0	0	0
Cochrane	25	27-Jun-03	44.42.430	96.29.231	20.2	21.2	1888	9.5	8.78	0	100	0	0.0	305	25	10.4	18	0	0
Henry	1	11-Jul-01	44.18.95	97.29.49	24.2	23.9	1042	8.2	8.65	0	100	0	0.0	216	9	1.0	0	0	25
Henry	2	11-Jul-01	44.20.30	97.29.69	26.2	24.9	1040	10.9	8.89	100	0	0	0.0	170	8	0.0	20	0	80
Henry	3	11-Jul-01	44.20.26	97.28.31	25.5	24.9	1043	12.3	8.97	5	95	0	0.0	9	10	0.0	11	0	0
Henry	4	11-Jul-01	44.20.04	97.20.04	25.0	24.6	1050	12.2	8.81	5	95	0	0.0	43	8	0.0	0	0	0
Henry	5	11-Jul-01	44.19.64	97.27.64	24.4	23.9	1048	8.3	8.44	0	100	0	0.0	100	16	0.0	18	0	5
Henry	6	27-Aug-01	44.19.13	97.29.77	24.8	23.7	1087	7.4	8.88	0	100	0	0.0	198	16	49.9	0	0	10
Henry	7	27-Aug-01	44.19.18	97.29.88	22.7	23.5	1097	7.4	8.87	0	100	0	0.0	213	12	0.0	11	0	10
Henry	8	27-Aug-01	44.20.46	97.30.56	22.3	23.8	1098	7.5	8.86	0	100	0	0.0	295	38	0.0	15	0	50
Henry	9	27-Aug-01	44.19.52	97.30.41	20.7	23.3	1061	7.6	8.76	0	100	0	0.0	5	37	0.0	11	0	10
Henry	10	27-Aug-01	44.18.91	97.29.28	25.9	23.9	1086	7.7	8.81	0	100	0	0.0	193	100	0.0	0	0	75
Henry	11	19-Jun-02	44.19.10	97.29.68	28.4	22.6	1153	11.2	8.65	75	25	0	0.0	180	7	0.0	21	0	0
Henry	12	19-Jun-02	44.20.35	97.30.62	27.4	23.5	1162	9.6	8.56	50	50	0	0.0	270	8	0.0	21	0	0

Henry	13	19-Jun-02	44.20.54	97.30.44	27.4	24.1	1160	8.9	8.54	50	50	0	0.0	275	5	0.0	21	0	0
Henry	14	19-Jun-02	44.20.10	97.28.03	26.4	24.4	1166	9.6	8.49	0	95	5	0.0	55	10	0.0	21	0	0
Henry	15	19-Jun-02	44.18.94	97.28.65	25.0	22.6	1165	9.3	8.51	0	100	0	0.0	155	4	0.0	21	0	0
Henry	16	23-Jul-02	44.19.08	97.29.63	22.5	24.3	1146	17.0	8.97	50	50	0	0.0	215	65	0.0	21	0	80
Henry	17	23-Jul-02	44.19.76	97.30.12	22.1	24.7	1128	13.1	9.05	0	100	0	0.0	260	8	0.0	21	0	0
Henry	18	23-Jul-02	44.20.05	97.30.88	22.4	24.7	1142	12.6	8.85	0	100	0	0.0	275	10	0.0	18	0	0
Henry	19	23-Jul-02	44.20.29	97.29.95	23.1	25.6	1181	14.1	8.78	0	100	0	0.0	285	8	0.0	21	0	0
Henry	20	23-Jul-02	44.20.11	97.28.40	22.5	26.6	1148	15.2	8.85	0	100	0	0.0	45	4	0.0	6	5	0
Henry	21	26-Aug-02	44.18.976	97.29.470	24.6	21.4	1063	5.9	9.01	0	100	0	0.0	213	6	0.0	18	0	0
Henry	22	26-Aug-02	44.20.096	97.27.993	25.0	23.6	1211	6.6	9.06	75	25	0	0.0	25	7	0.0	18	0	0.25
Henry	23	26-Aug-02	44.20.096	97.27.997	25.0	23.5	1219	6.7	9.05	80	20	0	0.0	45	7	0.0	18	0	0.25
Henry	24	26-Aug-02	44.18.937	97.28.626	25.0	21.3	1202	5.1	9.04	0	100	0	0.0	152	5	0.0	20	0	0
Henry	25	26-Aug-02	44.18.898	97.29.181	24.1	21.3	1202	6.1	9.09	0	100	0	0.0	180	7	0.0	18	0	0
Henry	26	23-Jun-03	44.19.073	97.29.621	26.9	23.8	1220	10.7	8.93	100	0	0	0.0	211	55	0.0	20	0	95
Henry	27	23-Jun-03	44.19.077	97.29.621	26.8	24.8	1220	10.8	8.93	100	0	0	0.0	215	45	0.0	11	0	95
Henry	28	23-Jun-03	44.20.283	97.29.589	25.1	23.5	1220	10.5	8.90	95	5	0	0.0	346	24	0.0	11	0	10
Henry	29	23-Jun-03	44.20.267	97.28.377	25.3	24.2	1208	9.6	9.04	100	0	0	0.0	40	4	0.0	20	0	0
Henry	30	23-Jun-03	44.19.921	97.27.827	25.7	24.5	1219	10.5	8.98	50	50	0	0.0	60	11	0.0	11	0	0
Preston	1	11-Jul-01	44.22.88	97.23.49	29.3	27.2	1398	13.2	8.16	0	100	0	0.0	258	23	0.0	11	0	0
Preston	2	11-Jul-01	44.22.64	97.20.72	28.5	24.9	1351	9.6	8.71	5	95	0	0.0	333	-1	0.0	0	0	0
Preston	3	11-Jul-01	44.22.29	97.17.42	27.0	25.8	1316	19.4	8.28	0	100	0	0.0	158	6	0.0	15	0	0
Preston	4	11-Jul-01	44.22.11	97.20.49	27.8	26.4	1336	12.2	8.49	0	0	100	0.0	168	70	0.0	11	0	15
Preston	5	11-Jul-01	44.22.12	97.20.80	25.9	26.2	1335	12.5	8.42	5	95	0	0.0	165	25	0.0	18	0	75
Preston	6	28-Aug-01	44.22.16	97.21.78	22.1	29.5	1321	9.4	8.89	0	100	0	0.0	125	23	0.0	18	0	10
Preston	7	28-Aug-01	44.22.18	97.21.95	22.1	24.5	1322	9.4	8.90	0	100	0	0.0	133	22	0.0	6	0	8
Preston	8	28-Aug-01	44.23.03	97.19.48	19.6	23.1	1279	7.0	8.65	0	95	5	0.0	330	82	0.0	18	0	95
Preston	9	28-Aug-01	44.22.15	97.19.45	20.1	24.0	1283	8.0	8.62	0	10	90	0.0	185	55	0.0	20	0	95
Preston	10	28-Aug-01	44.22.14	97.20.39	21.8	24.1	1288	5.9	8.64	0	100	0	0.0	145	30	0.0	18	0	75
Preston	11	24-Jun-02	44.22.67	97.20.50	30.6	27.0	1394	9.1	8.42	0	75	25	0.0	330	19	0.0	21	0	80
Preston	12	24-Jun-02	44.23.63	97.17.31	29.3	26.5	1393	8.6	8.43	100	0	0	0.0	295	7	0.0	21	0	20
Preston	13	24-Jun-02	44.22.87	97.15.00	29.0	26.1	1389	9.2	8.43	100	0	0	0.0	140	12	0.0	18	0	0
Preston	14	24-Jun-02	44.23.07	97.21.40	25.4	24.8	1455	8.0	8.50	75	25	0	0.0	352	11	0.0	11	0	20
Preston	15	24-Jun-02	44.23.08	97.21.35	25.8	24.8	1463	9.1	8.50	95	5	0	0.0	18	17	0.0	18	0	60
Preston	16	23-Jul-02	44.23.18	97.19.40	18.6	22.3	1487	8.4	8.56	5	95	0	0.0	150	5	0.0	20	0	0
Preston	17	23-Jul-02	44.23.40	97.18.06	20.2	22.7	1484	8.7	8.57	5	95	0	0.0	90	14	0.0	20	0	20
Preston	18	23-Jul-02	44.23.79	97.16.22	20.3	22.8	1476	8.8	8.57	5	95	0	0.0	65	15	0.0	20	0	0
Preston	19	23-Jul-02	44.22.19	97.18.89	18.4	22.3	1482	8.6	8.50	25	75	0	0.0	120	11	0.0	0	0	0
Preston	20	23-Jul-02	44.22.34	97.20.05	19.2	22.1	1483	8.6	8.49	75	0	25	0.0	185	12	0.0	21	0	0
Preston	21	28-Aug-02	44.23.22	97.19.21	27.9	26.0	1487	7.5	9.00	100	0	0	0.0	190	12	0.0	15	0	0
Preston	22	28-Aug-02	44.22.43	97.16.84	29.2	25.5	1531	8.2	8.97	20	80	0	0.0	160	12	0.0	20	0	0
Preston	23	28-Aug-02	44.22.31	97.20.09	28.8	25.0	1525	8.1	8.98	10	90	0	0.0	130	6	0.0	11	0	0
Preston	24	28-Aug-02	44.22.18	97.21.00	28.6	25.0	1500	7.1	8.99	5	95	0	0.0	214	12	0.0	21	0	0
Preston	25	28-Aug-02	44.22.92	97.23.47	28.8	27.5	1570	7.8	9.15	0	100	0	0.0	275	11	0.0	18	0	0
Preston	26	30-Jun-03	44.22.67	97.20.56	26.0	24.5	1606	12.1	9.18	0	100	0	0.0	343	11	0.0	18	0	0
Preston	27	30-Jun-03	44.23.48	97.17.38	22.6	23.4	1598	12.6	9.11	0	25	75	0.0	312	7	0.0	20	0	0
Preston	28	30-Jun-03	44.22.09	97.19.25	27.5	21.8	1604	11.1	9.13	0	25	75	0.0	178	13	0.0	11	0	0

Preston	29	30-Jun-03	44.22.33	97.21.10	25.1	22.3	1606	10.5	9.06	0	100	0	0.0	250	7	0.0	15	0	0
Preston	30	30-Jun-03	44.23.07	97.21.45	24.7	26.3	1606	16.1	9.29	0	100	0	0.0	170	6	0.0	20	0	0
Thompson	1	12-Jul-01	44.17.87	97.26.01	29.8	24.9	1171	17.2	8.69	0	100	0	0.0	53	85	0.0	15	0	90
Thompson	2	12-Jul-01	44.17.83	97.25.97	33.3	25.1	1178	12.3	8.68	0	100	0	0.0	33	15	41.6	0	0	85
Thompson	3	12-Jul-01	44.17.47	97.29.95	36.3	24.9	1171	19.3	8.63	5	95	0	0.0	88	10	0.0	11	0	2
Thompson	4	12-Jul-01	44.14.6	97.27.72	33.4	25.7	1187	15.4	8.77	25	75	0	0.0	183	9	104.0	0	0	5
Thompson	5	12-Jul-01	44.15.94	97.29.61	33.7	25.1	1189	13.7	8.64	0	100	0	0.0	203	11	0.0	15	0	25
Thompson	6	29-Aug-01	44.13.47	97.27.27	19.5	21.7	1213	8.7	8.18	0	100	0	0.0	310	8	99.8	0	0	15
Thompson	7	29-Aug-01	44.16.04	97.29.49	22.6	22.8	1210	8.5	8.67	0	100	0	0.0	210	10	0.0	21	0	5
Thompson	8	29-Aug-01	44.17.53	97.30.35	25.1	22.7	1198	8.3	8.67	0	100	0	0.0	275	10	0.0	20	0	5
Thompson	9	29-Aug-01	44.19.29	97.26.85	25.1	23.1	1149	8.0	8.71	0	100	0	0.0	350	15	0.0	11	0	5
Thompson	10	29-Aug-01	44.19.35	97.26.80	25.1	23.1	1192	8.4	8.74	0	100	0	0.0	358	13	0.0	11	0	5
Thompson	11	20-Jun-02	44.18.485	97.25.406	23.9	26.6	1258	14.1	8.61	0	50	50	0.0	93	11	0.0	20	0	0
Thompson	12	20-Jun-02	44.17.462	97.30.117	21.0	21.9	1257	9.5	8.28	0	100	0	0.0	317	15	0.0	21	0	0
Thompson	13	20-Jun-02	44.18.078	97.29.458	23.0	22.2	1256	9.4	8.48	0	100	0	0.0	315	8	0.0	21	0	0
Thompson	14	20-Jun-02	44.18.491	97.28.335	24.1	22.7	1256	10.9	8.51	0	100	0	0.0	305	3	99.8	21	0	0
Thompson	15	20-Jun-02	44.19.162	97.27.209	23.4	23.1	1258	9.7	8.56	0	100	0	0.0	355	5	0.0	21	0	0
Thompson	16	22-Jul-02	44.18.307	97.29.495	25.1	25.8	1267	8.6	8.70	0	100	0	0.0	105	8	0.0	20	0	0
Thompson	17	22-Jul-02	44.19.147	97.25.884	25.6	25.4	1257	11.1	8.80	75	25	0	0.0	315	10	0.0	21	0	0
Thompson	18	22-Jul-02	55.19.210	97.27.848	26.1	25.4	1257	11.0	8.76	5	95	0	0.0	320	9	0.0	21	0	0
Thompson	19	22-Jul-02	44.17.453	97.25.920	26.1	25.4	1257	11.0	8.76	5	95	0	0.0	318	9	0.0	21	0	0
Thompson	20	22-Jul-02	44.17.303	97.27.09	24.3	25.7	1255	10.5	8.74	0	100	0	0.0	358	8	0.0	21	0	0
Thompson	21	27-Aug-02	44.18.964	97.25.503	22.9	23.5	1323	9.6	9.03	95	5	0	0.0	93	4	0.0	20	0	0
Thompson	22	27-Aug-02	44.16.743	97.26.079	23.1	22.0	1183	7.2	8.94	0	100	0	0.0	100	3	0.0	21	0	0
Thompson	23	27-Aug-02	44.13.444	97.26.162	23.8	22.0	1290	5.6	8.87	0	0	100	0.0	190	20	0.0	18	0	0
Thompson	24	27-Aug-02	44.13.445	97.26.734	25.0	22.5	1275	6.2	8.93	0	0	100	0.0	170	45	0.0	21	0	0
Thompson	25	27-Aug-02	44.18.850	97.28.561	26.6	25.0	1300	3.9	8.66	25	75	0	0.0	280	7	8.3	21	0	0
Thompson	26	23-Jun-03	44.17.451	97.25.921	26.0	26.4	1245	16.6	9.36	0	75	25	0.0	100	6	0.0	18	0	0
Thompson	27	23-Jun-03	44.18.350	97.29.446	24.1	24.6	1283	8.7	8.59	0	100	0	0.0	325	7	0.0	21	0	0
Thompson	28	23-Jun-03	44.19.143	97.25.806	24.5	25.5	1283	11.1	9.05	0	20	80	0.0	13	10	0.0	21	0	0
Thompson	29	23-Jun-03	44.19.138	97.25.802	24.3	25.1	1282	10.6	9.07	0	20	80	0.0	15	9	0.0	20	0	0
Thompson	30	23-Jun-03	44.19.135	97.25.803	24.1	25.0	1281	11.2	9.06	0	20	80	0.0	20	10	0.0	21	0	0
Whitewood	1	12-Jul-01	44.19.29	97.21.91	27.1	27.9	1189	13.6	9.36	20	80	0	0.0	283	14	0.0	0	10	2
Whitewood	2	12-Jul-01	44.21.39	97.17.38	38.3	26.7	1234	12.4	8.55	0	100	0	0.0	338	11	0.0	0	0	2
Whitewood	3	12-Jul-01	44.20.32	97.16.40	38.4	25.3	1210	16.2	8.45	40	60	0	0.0	145	21	0.0	18	0	0
Whitewood	4	12-Jul-01	44.18.61	97.20.29	31.0	25.4	1177	12.5	8.90	0	100	0	0.0	129	6	0.0	6	0	0
Whitewood	5	12-Jul-01	44.18.75	97.20.32	31.6	25.9	1174	12.7	8.99	5	95	0	0.0	8	19	0.0	15	0	0
Whitewood	6	29-Aug-01	44.19.30	97.21.21	28.6	24.7	1213	8.5	9.13	0	75	25	0.0	355	10	0.0	0	0	30
Whitewood	7	29-Aug-01	44.19.38	97.20.40	29.7	25.2	1212	8.4	9.13	0	75	25	0.0	340	10	0.0	0	0	10
Whitewood	8	29-Aug-01	44.19.29	97.20.30	29.8	25.3	1212	8.1	0.39	0	100	0	0.0	320	22	0.0	11	0	5
Whitewood	9	29-Aug-01	44.18.66	97.20.31	31.3	23.3	1221	9.1	9.02	0	100	0	0.0	135	15	0.0	15	0	15
Whitewood	10	29-Aug-01	44.18.80	97.20.35	30.9	24.7	1271	5.3	9.09	0	100	0	0.0	180	18	0.0	20	0	5
Whitewood	11	19-Jun-02	44.20.49	97.18.85	26.3	22.3	1227	8.7	8.62	0	100	0	0.0	310	19	0.0	20	0	60
Whitewood	12	19-Jun-02	44.21.32	97.17.76	26.4	22.4	1239	9.2	8.62	0	85	15	0.0	225	27	0.0	6	0	40
Whitewood	13	19-Jun-02	44.20.14	97.14.74	26.2	22.5	1239	9.2	8.65	0	100	0	0.0	330	37	0.0	15	0	40
Whitewood	14	19-Jun-02	44.20.14	97.15.50	26.2	23.0	1232	9.6	8.67	0	75	25	0.0	340	43	0.0	15	0	40

Whitewood	15	19-Jun-02	44.19.55	97.18.80	28.1	21.5	1236	8.9	8.63	0	100	0	0.0	185	14	0.0	20	0	0
Whitewood	16	22-Jul-02	44.20.303	97.19.271	25.6	25.7	1218	9.0	8.87	75	25	0	0.0	332	15	0.0	6	0	0
Whitewood	17	22-Jul-02	44.20.463	97.15.205	25.6	25.7	1218	9.0	8.87	75	25	0	0.0	335	13	0.0	0	0	0
Whitewood	18	22-Jul-02	44.19.615	97.15.044	24.9	26.0	1231	6.2	8.69	20	0	80	0.0	280	14	0.0	18	0	0
Whitewood	19	22-Jul-02	44.19.545	97.18.909	23.4	26.3	1213	8.2	8.89	5	95	0	0.0	180	5	0.0	21	0	0
Whitewood	20	22-Jul-02	44.18.424	97.21.076	23.4	26.3	1213	8.2	8.89	5	95	0	0.0	178	3	0.0	21	0	0
Whitewood	21	28-Aug-02	44.19.0	97.21.94	22.4	22.0	1344	7.6	9.10	0	0	100	0.0	260	10	0.0	18	0	0
Whitewood	22	28-Aug-02	44.19.51	97.21.47	23.4	23.0	1313	7.9	8.22	0	100	0	0.0	320	8	0.0	18	0	0
Whitewood	23	28-Aug-02	44.21.1	97.16.24	24.0	23.0	1260	7.9	8.92	0	100	0	0.0	73	7	0.0	18	0	0
Whitewood	24	28-Aug-02	44.19.52	97.19.09	26.9	23.5	1271	6.8	8.83	0	100	0	0.0	115	9	0.0	20	0	0
Whitewood	25	28-Aug-02	44.18.4	97.21.08	28.2	23.0	893	5.5	8.82	0	100	0	0.0	180	5	0.0	21	0	0
Whitewood	26	19-Jun-03	44.20.345	97.17.947	26.9	25.3	1373	9.8	8.93	0	75	25	0.0	60	7	0.0	20	0	0
Whitewood	27	19-Jun-03	44.19.784	97.18.422	26.7	23.3	1371	10.3	8.87	25	75	0	0.0	131	12	12.0	18	0	0
Whitewood	28	19-Jun-03	44.19.788	97.18.422	26.7	23.6	1371	10.2	8.85	25	75	0	0.0	135	13	0.0	21	0	0
Whitewood	29	19-Jun-03	44.19.506	97.19.067	26.7	23.5	1373	9.2	8.86	0	100	0	0.0	140	11	40.0	11	0	0
Whitewood	30	19-Jun-03	44.18.538	97.21.465	26.9	25.1	1386	9.1	8.78	25	75	0	0.0	50	16	0.0	21	0	0

APPENDIX XIV – Lake Macrophyte Survey Data

Lake	Date	Trans	Depth (m)	Pos (m)	Lat	Long	Species	Density Rating (0-4)	WWBio (g)
Alice	20-Aug-01	1	3.2	100	44.52.90N	96.37.68W	0	0	0
Alice	20-Aug-01	1	3.2	75	44.52.90N	96.37.68W	0	0	0
Alice	20-Aug-01	1	3.2	50	44.52.90N	96.37.68W	0	0	0
Alice	20-Aug-01	1	3.2	25	44.52.90N	96.37.68W	P. pect	1	0
Alice	20-Aug-01	2	3.4	100	44.52.52N	96.37.24W	0	0	0
Alice	20-Aug-01	2	3.4	75	44.52.52N	96.37.24W	0	0	0
Alice	20-Aug-01	2	3.4	50	44.52.52N	96.37.24W	0	0	0
Alice	20-Aug-01	2	3.4	25	44.52.52N	96.37.24W	0	0	0
Alice	20-Aug-01	3	3.2	100	44.52.07N	96.37.11W	0	0	0
Alice	20-Aug-01	3	3.2	75	44.52.07N	96.37.11W	0	0	0
Alice	20-Aug-01	3	3.2	50	44.52.07N	96.37.11W	P. rich	1	0
Alice	20-Aug-01	3	3.2	25	44.52.07N	96.37.11W	C. demr	2	100
Alice	20-Aug-01	4	3.4	100	44.52.10N	96.37.87W	0	0	0
Alice	20-Aug-01	4	3.4	75	44.52.10N	96.37.87W	0	0	0
Alice	20-Aug-01	4	3.4	50	44.52.10N	96.37.87W	0	0	0
Alice	20-Aug-01	4	3.4	25	44.52.10N	96.37.87W	0	0	0
Alice	20-Aug-01	5	3.3	100	44.52.51N	96.38.12W	0	0	0
Alice	20-Aug-01	5	3.3	75	44.52.51N	96.38.12W	0	0	0
Alice	20-Aug-01	5	3.3	50	44.52.51N	96.38.12W	0	0	0
Alice	20-Aug-01	5	3.3	25	44.52.51N	96.38.12W	0	0	0
Alice	20-Aug-01	6	3.3	100	44.52.63N	96.38.64W	0	0	0
Alice	20-Aug-01	6	3.3	75	44.52.63N	96.38.64W	0	0	0
Alice	20-Aug-01	6	3.3	50	44.52.63N	96.38.64W	0	0	0
Alice	20-Aug-01	6	3.3	25	44.52.63N	96.38.64W	C. demr	4	810
Alice	20-Aug-01	7	2.4	100	44.52.72N	96.39.01W	P. pect	1	160
Alice	20-Aug-01	7	2.4	100	44.52.72N	96.39.01W	C. demr	3	240
Alice	20-Aug-01	7	2.4	100	44.52.72N	96.39.01W	U. vulg	1	150
Alice	20-Aug-01	7	2.4	75	44.52.72N	96.39.01W	U. vulg	3	770
Alice	20-Aug-01	7	2.4	50	44.52.72N	96.39.01W	C. demr	2	0+
Alice	20-Aug-01	7	2.4	50	44.52.72N	96.39.01W	U. vulg	2	0+
Alice	20-Aug-01	7	2.4	50	44.52.72N	96.39.01W	Lemna	1	0+
Alice	20-Aug-01	7	2.4	25	44.52.72N	96.39.01W	P. rich	1	500
Alice	20-Aug-01	7	2.4	25	44.52.72N	96.39.01W	C. demr	3	390

Alice	20-Aug-01	8	2.2	100	44.52.77N	96.39.19W	C. demr	4	660
Alice	20-Aug-01	8	2.2	75	44.52.77N	96.39.19W	0	0	0
Alice	20-Aug-01	8	2.2	50	44.52.77N	96.39.19W	0	0	0
Alice	20-Aug-01	8	2.2	25	44.52.77N	96.39.19W	P. pect	1	570
Alice	20-Aug-01	8	2.2	25	44.52.77N	96.39.19W	P. rich	1	300
Alice	20-Aug-01	8	2.2	25	44.52.77N	96.39.19W	C. demr	3	830
Alice	20-Aug-01	9	2.8	100	44.52.86N	96.38.95W	P. pect	4	2000
Alice	20-Aug-01	9	2.8	75	44.52.86N	96.38.95W	P. pect	3	1100
Alice	20-Aug-01	9	2.8	75	44.52.86N	96.38.95W	C. demr	2	0+
Alice	20-Aug-01	9	2.8	75	44.52.86N	96.38.95W	U. vulg	1	0+
Alice	20-Aug-01	9	2.8	50	44.52.86N	96.38.95W	P. pect	2	0+
Alice	20-Aug-01	9	2.8	50	44.52.86N	96.38.95W	C. demr	1	1500
Alice	20-Aug-01	9	2.8	25	44.52.86N	96.38.95W	C. demr	1	190
Alice	20-Aug-01	10	3.3	100	44.53.08N	96.38.90W	0	0	0
Alice	20-Aug-01	10	3.3	75	44.53.08N	96.38.90W	0	0	0
Alice	20-Aug-01	10	3.3	50	44.53.08N	96.38.90W	0	0	0
Alice	20-Aug-01	10	3.3	25	44.53.08N	96.38.90W	0	0	0
Alice	20-Aug-01	11	3	100	44.53.26N	96.38.88W	0	0	0
Alice	20-Aug-01	11	3	75	44.53.26N	96.38.88W	0	0	0
Alice	20-Aug-01	11	3	50	44.53.26N	96.38.88W	0	0	0
Alice	20-Aug-01	11	3	25	44.53.26N	96.38.88W	P. pect	2	700
Alice	20-Aug-01	12	3.1	100	44.53.32N	96.38.64W	0	0	0
Alice	20-Aug-01	12	3.1	75	44.53.32N	96.38.64W	0	0	0
Alice	20-Aug-01	12	3.1	50	44.53.32N	96.38.64W	0	0	0
Alice	20-Aug-01	12	3.1	25	44.53.32N	96.38.64W	0	0	0
Alice	29-Jul-02	1	m	25	44.53.301	96.38.918	P. pect	2	0+
Alice	29-Jul-02	1	m	25	44.53.301	96.38.918	P. pect	4	700
Alice	29-Jul-02	1	m	25	44.53.301	96.38.918	P. rich	1	0+
Alice	29-Jul-02	1	m	50	44.53.301	96.38.918	P. pect	1	0+
Alice	29-Jul-02	1	m	75	44.53.301	96.38.918	0	0	0
Alice	29-Jul-02	1	m	100	44.53.301	96.38.918	0	0	0
Alice	29-Jul-02	2	2.5	25	44.52.901	96.39.072	P. rich	1	300
Alice	29-Jul-02	2	2.5	25	44.52.901	96.39.072	U. vulg	1	0+
Alice	29-Jul-02	2	2.5	50	44.52.901	96.39.072	P. pect	4	845
Alice	29-Jul-02	2	2.5	75	44.52.901	96.39.072	P. pect	2	0+
Alice	29-Jul-02	2	2.5	100	44.52.901	96.39.072	P. pect	2	0+
Alice	29-Jul-02	3	2.1	25	45.52.72	96.39.285	P. pect	3	500

Alice	29-Jul-02	3	2.1	25	45.52.72	96.39.285	P. pect	2	750
Alice	29-Jul-02	3	2.1	25	45.52.72	96.39.285	U. vulg	1	0+
Alice	29-Jul-02	3	2.1	25	45.52.72	96.39.285	P. rich	1	0+
Alice	29-Jul-02	3	2.1	50	45.52.72	96.39.285	P. pect	1	0+
Alice	29-Jul-02	3	2.1	75	45.52.72	96.39.285	0	0	0
Alice	29-Jul-02	3	2.1	100	45.52.72	96.39.285	0	0	0
Alice	29-Jul-02	4	2.1	25	44.52.693	96.38.947	P. pect	4	0+
Alice	29-Jul-02	4	2.1	25	44.52.693	96.38.947	C. demr	2	0+
Alice	29-Jul-02	4	2.1	50	44.52.693	96.38.947	C. demr	3	0+
Alice	29-Jul-02	4	2.1	50	44.52.693	96.38.947	P. pect	3	0+
Alice	29-Jul-02	4	2.1	75	44.52.693	96.38.947	0	0	0
Alice	29-Jul-02	4	2.1	100	44.52.693	96.38.947	P. pect	3	370
Alice	29-Jul-02	4	2.1	100	44.52.693	96.38.947	C. demr	2	0+
Alice	29-Jul-02	5	2.9	25	44.52.509	96.38.372	P. pect	2	0+
Alice	29-Jul-02	5	2.9	25	44.52.509	96.38.372	P. pect	2	540
Alice	29-Jul-02	5	2.9	25	44.52.509	96.38.372	P. rich	2	325
Alice	29-Jul-02	5	2.9	50	44.52.509	96.38.372	0	0	0
Alice	29-Jul-02	5	2.9	75	44.52.509	96.38.372	0	0	0
Alice	29-Jul-02	5	2.9	100	44.52.509	96.38.372	0	0	0
Alice	29-Jul-02	6	2.7	25	44.51.958	96.37.543	P. pect	2	820
Alice	29-Jul-02	6	2.7	50	44.51.958	96.37.543	0	0	0
Alice	29-Jul-02	6	2.7	75	44.51.958	96.37.543	0	0	0
Alice	29-Jul-02	6	2.7	100	44.51.958	96.37.543	0	0	0
Alice	29-Jul-02	7	2.8	25	44.52.297	96.36.939	P. rich	0+	0+
Alice	29-Jul-02	7	2.8	50	44.52.297	96.36.939	0	0	0
Alice	29-Jul-02	7	2.8	75	44.52.297	96.36.939	0	0	0
Alice	29-Jul-02	7	2.8	100	44.52.297	96.36.939	0	0	0
Alice	29-Jul-02	8	3	25	44.52.783	96.37.440	0	0	0
Alice	29-Jul-02	8	3	50	44.52.783	96.37.440	0	0	0
Alice	29-Jul-02	8	3	75	44.52.783	96.37.440	0	0	0
Alice	29-Jul-02	8	3	100	44.52.783	96.37.440	0	0	0
Alice	29-Jul-02	9	2.8	25	44.52.705	96.37.695	0	0	0
Alice	29-Jul-02	9	2.8	50	44.52.705	96.37.695	0	0	0
Alice	29-Jul-02	9	2.8	75	44.52.705	96.37.695	0	0	0
Alice	29-Jul-02	9	2.8	100	44.52.705	96.37.695	0	0	0
Alice	29-Jul-02	10	3.1	25	45.53.307	96.38.133	P. pect	3	0+
Alice	29-Jul-02	10	3.1	50	45.53.307	96.38.133	P. pect	2	0+

Alice	29-Jul-02	10	3.1	75	45.53.307	96.38.133	0	0	0
Alice	29-Jul-02	10	3.1	100	45.53.307	96.38.133	0	0	0
Brant	22-Aug-01	1	3.5	100	43.54.71N	96.56.27W	0	0	0
Brant	22-Aug-01	1	3.5	75	43.54.71N	96.56.27W	0	0	0
Brant	22-Aug-01	1	3.5	50	43.54.71N	96.56.27W	0	0	0
Brant	22-Aug-01	1	3.5	25	43.54.71N	96.56.27W	0	0	0
Brant	22-Aug-01	2	4.1	100	42.54.76N	96.56.76W	0	0	0
Brant	22-Aug-01	2	4.1	75	42.54.76N	96.56.76W	0	0	0
Brant	22-Aug-01	2	4.1	50	42.54.76N	96.56.76W	0	0	0
Brant	22-Aug-01	2	4.1	25	42.54.76N	96.56.76W	0	0	0
Brant	22-Aug-01	3	4.3	100	43.55.12N	96.57.38W	0	0	0
Brant	22-Aug-01	3	4.3	75	43.55.12N	96.57.38W	0	0	0
Brant	22-Aug-01	3	4.3	50	43.55.12N	96.57.38W	0	0	0
Brant	22-Aug-01	3	4.3	25	43.55.12N	96.57.38W	0	0	0
Brant	22-Aug-01	4	4.6	100	43.55.26N	96.57.52W	0	0	0
Brant	22-Aug-01	4	4.6	75	43.55.26N	96.57.52W	0	0	0
Brant	22-Aug-01	4	4.6	50	43.55.26N	96.57.52W	0	0	0
Brant	22-Aug-01	4	4.6	25	43.55.26N	96.57.52W	0	0	0
Brant	22-Aug-01	5	2.2	100	43.55.44N	96.57.89W	0	0	0
Brant	22-Aug-01	5	2.2	75	43.55.44N	96.57.89W	0	0	0
Brant	22-Aug-01	5	2.2	50	43.55.44N	96.57.89W	0	0	0
Brant	22-Aug-01	5	2.2	25	43.55.44N	96.57.89W	0	0	0
Brant	22-Aug-01	6	5.3	100	43.55.60N	96.57.60W	0	0	0
Brant	22-Aug-01	6	5.3	75	43.55.60N	96.57.60W	0	0	0
Brant	22-Aug-01	6	5.3	50	43.55.60N	96.57.60W	0	0	0
Brant	22-Aug-01	6	5.3	25	43.55.60N	96.57.60W	0	0	0
Brant	22-Aug-01	7	3.1	100	43.55.75N	96.57.31W	0	0	0
Brant	22-Aug-01	7	3.1	75	43.55.75N	96.57.31W	0	0	0
Brant	22-Aug-01	7	3.1	50	43.55.75N	96.57.31W	0	0	0
Brant	22-Aug-01	7	3.1	25	43.55.75N	96.57.31W	0	0	0
Brant	22-Aug-01	8	3.4	100	43.55.87N	96.56.96W	0	0	0
Brant	22-Aug-01	8	3.4	75	43.55.87N	96.56.96W	0	0	0
Brant	22-Aug-01	8	3.4	50	43.55.87N	96.56.96W	0	0	0
Brant	22-Aug-01	8	3.4	25	43.55.87N	96.56.96W	0	0	0
Brant	22-Aug-01	9	2.3	100	43.55.68N	96.56.68W	0	0	0
Brant	22-Aug-01	9	2.3	75	43.55.68N	96.56.68W	0	0	0
Brant	22-Aug-01	9	2.3	50	43.55.68N	96.56.68W	0	0	0

Brant	22-Aug-01	9	2.3	25	43.55.68N	96.56.68W	0	0	0
Brant	22-Aug-01	10	4.8	100	43.55.48N	96.56.45W	0	0	0
Brant	22-Aug-01	10	4.8	75	43.55.48N	96.56.45W	0	0	0
Brant	22-Aug-01	10	4.8	50	43.55.48N	96.56.45W	0	0	0
Brant	22-Aug-01	10	4.8	25	43.55.48N	96.56.45W	0	0	0
Brant	22-Aug-01	11	4.7	100	43.55.32N	96.56.25W	0	0	0
Brant	22-Aug-01	11	4.7	75	43.55.32N	96.56.25W	0	0	0
Brant	22-Aug-01	11	4.7	50	43.55.32N	96.56.25W	0	0	0
Brant	22-Aug-01	11	4.7	25	43.55.32N	96.56.25W	0	0	0
Brant	22-Aug-01	12	2.9	100	43.55.12N	96.56.01W	0	0	0
Brant	22-Aug-01	12	2.9	75	43.55.12N	96.56.01W	0	0	0
Brant	22-Aug-01	12	2.9	50	43.55.12N	96.56.01W	0	0	0
Brant	22-Aug-01	12	2.9	25	43.55.12N	96.56.01W	0	0	0
Brant	25-Jul-02	1	4.1	25	43.55.202	96.56.042	0	0	0
Brant	25-Jul-02	1	4.1	50	43.55.202	96.56.042	0	0	0
Brant	25-Jul-02	1	4.1	75	43.55.202	96.56.042	0	0	0
Brant	25-Jul-02	1	4.1	100	43.55.202	96.56.042	0	0	0
Brant	25-Jul-02	2	4.3	25	43.55.488	96.56.345	0	0	0
Brant	25-Jul-02	2	4.3	50	43.55.488	96.56.345	0	0	0
Brant	25-Jul-02	2	4.3	75	43.55.488	96.56.345	0	0	0
Brant	25-Jul-02	2	4.3	100	43.55.488	96.56.345	0	0	0
Brant	25-Jul-02	3	2.3	25	43.55.771	96.56.696	P. pect	2	575
Brant	25-Jul-02	3	2.3	50	43.55.771	96.56.696	0	0	0
Brant	25-Jul-02	3	2.3	75	43.55.771	96.56.696	0	0	0
Brant	25-Jul-02	3	2.3	100	43.55.771	96.56.696	0	0	0
Brant	25-Jul-02	4	3.2	25	43.55.762	96.57.274	0	0	0
Brant	25-Jul-02	4	3.2	50	43.55.762	96.57.274	0	0	0
Brant	25-Jul-02	4	3.2	75	43.55.762	96.57.274	0	0	0
Brant	25-Jul-02	4	3.2	100	43.55.762	96.57.274	0	0	0
Brant	25-Jul-02	5	2.2	25	43.55.636	96.57.830	0	0	0
Brant	25-Jul-02	5	2.2	50	43.55.636	96.57.830	0	0	0
Brant	25-Jul-02	5	2.2	75	43.55.636	96.57.830	0	0	0
Brant	25-Jul-02	5	2.2	100	43.55.636	96.57.830	0	0	0
Brant	25-Jul-02	6	3.8	25	43.55.210	96.57.713	0	0	0
Brant	25-Jul-02	6	3.8	50	43.55.210	96.57.713	0	0	0
Brant	25-Jul-02	6	3.8	75	43.55.210	96.57.713	0	0	0
Brant	25-Jul-02	6	3.8	100	43.55.210	96.57.713	0	0	0

Brant	25-Jul-02	7	4.2	25	43.54.914	96.57.001	0	0	0
Brant	25-Jul-02	7	4.2	50	43.54.914	96.57.001	0	0	0
Brant	25-Jul-02	7	4.2	75	43.54.914	96.57.001	0	0	0
Brant	25-Jul-02	7	4.2	100	43.54.914	96.57.001	0	0	0
Brant	25-Jul-02	8	2.6	25	43.54.824	96.56.849	0	0	0
Brant	25-Jul-02	8	2.6	50	43.54.824	96.56.849	0	0	0
Brant	25-Jul-02	8	2.6	75	43.54.824	96.56.849	0	0	0
Brant	25-Jul-02	8	2.6	100	43.54.824	96.56.849	0	0	0
Brant	25-Jul-02	9	4	25	43.54.685	96.56.453	0	0	0
Brant	25-Jul-02	9	4	50	43.54.685	96.56.453	0	0	0
Brant	25-Jul-02	9	4	75	43.54.685	96.56.453	0	0	0
Brant	25-Jul-02	9	4	100	43.54.685	96.56.453	0	0	0
Brant	25-Jul-02	10	3.1	25	43.54.857	96.55.945	0	0	0
Brant	25-Jul-02	10	3.1	50	43.54.857	96.55.945	0	0	0
Brant	25-Jul-02	10	3.1	75	43.54.857	96.55.945	0	0	0
Brant	25-Jul-02	10	3.1	100	43.54.857	96.55.945	0	0	0
Cochrane	21-Aug-01	1	5.3	100	44.42.61N	96.29.07W	0	0	0
Cochrane	21-Aug-01	1	5.3	75	44.42.61N	96.29.07W	0	0	0
Cochrane	21-Aug-01	1	5.3	50	44.42.61N	96.29.07W	7	4	3600
Cochrane	21-Aug-01	1	5.3	25	44.42.61N	96.29.07W	7	4	3200
Cochrane	21-Aug-01	2	4.1	100	44.42.61N	96.29.07W	0	0	0
Cochrane	21-Aug-01	2	4.1	75	44.42.61N	96.29.07W	P. pect	3	0+
Cochrane	21-Aug-01	2	4.1	50	44.42.61N	96.29.07W	Chara	5	4700
Cochrane	21-Aug-01	2	4.1	25	44.42.61N	96.29.07W	U. vulg	2	150
Cochrane	21-Aug-01	2	4.1	25	44.42.61N	96.29.07W	Chara	5	2900
Cochrane	21-Aug-01	3	4.1	100	44.42.70N	96.28.75W	P. pect	1	0+
Cochrane	21-Aug-01	3	4.1	100	44.42.70N	96.28.75W	U. vulg	1	0+
Cochrane	21-Aug-01	3	4.1	75	44.42.70N	96.28.75W	Chara	5	8500
Cochrane	21-Aug-01	3	4.1	50	44.42.70N	96.28.75W	Chara	5	5600
Cochrane	21-Aug-01	3	4.1	50	44.42.70N	96.28.75W	U. vulg	2	0+
Cochrane	21-Aug-01	3	4.1	25	44.42.70N	96.28.75W	Chara	5	12300
Cochrane	21-Aug-01	4	5.1	100	44.42.75N	96.28.21W	P. pect	1	0+
Cochrane	21-Aug-01	4	5.1	75	44.42.75N	96.28.21W	P. pect	1	0+
Cochrane	21-Aug-01	4	5.1	75	44.42.75N	96.28.21W	U. vulg	1	0+
Cochrane	21-Aug-01	4	5.1	75	44.42.75N	96.28.21W	Chara	3	0+
Cochrane	21-Aug-01	4	5.1	50	44.42.75N	96.28.21W	Chara	5	8500
Cochrane	21-Aug-01	4	5.1	25	44.42.75N	96.28.21W	U. vulg	1	0+

Cochrane	21-Aug-01	4	5.1	25	44.42.75N	96.28.21W	Chara	5	4900
Cochrane	21-Aug-01	5	3.8	100	44.42.57N	96.27.99W	0	0	
Cochrane	21-Aug-01	5	3.8	75	44.42.57N	96.27.99W	P. pect	3	780
Cochrane	21-Aug-01	5	3.8	50	44.42.57N	96.27.99W	0	0	
Cochrane	21-Aug-01	5	3.8	25	44.42.57N	96.27.99W	P. pect	2	0+
Cochrane	21-Aug-01	6	5.1	100	44.42.46N	96.28.29W	0	0	
Cochrane	21-Aug-01	6	5.1	75	44.42.46N	96.28.29W	0	0	
Cochrane	21-Aug-01	6	5.1	50	44.42.46N	96.28.29W	0	0	
Cochrane	21-Aug-01	6	5.1	25	44.42.46N	96.28.29W	Chara	4	1030
Cochrane	21-Aug-01	6	5.1	25	44.42.46N	96.28.29W	U. vulg	1	0+
Cochrane	21-Aug-01	7	4.9	100	44.42.37N	96.28.79W	0	0	
Cochrane	21-Aug-01	7	4.9	75	44.42.37N	96.28.79W	0	0	
Cochrane	21-Aug-01	7	4.9	50	44.42.37N	96.28.79W	0	0	
Cochrane	21-Aug-01	7	4.9	25	44.42.37N	96.28.79W	Chara	3	7600
Cochrane	21-Aug-01	8	4.4	100	44.42.35N	96.29.05W	0	0	
Cochrane	21-Aug-01	8	4.4	75	44.42.35N	96.29.05W	0	0	
Cochrane	21-Aug-01	8	4.4	50	44.42.35N	96.29.05W	0	0	
Cochrane	21-Aug-01	8	4.4	25	44.42.35N	96.29.05W	Chara	5	8300
Cochrane	21-Aug-01	8	4.4	25	44.42.35N	96.29.05W	U. vulg	1	0+
Cochrane	21-Aug-01	9	3.1	100	44.42.17N	96.29.18W	0	0	
Cochrane	21-Aug-01	9	3.1	75	44.42.17N	96.29.18W	0	0	
Cochrane	21-Aug-01	9	3.1	50	44.42.17N	96.29.18W	Chara	3	1100
Cochrane	21-Aug-01	9	3.1	50	44.42.17N	96.29.18W	U. vulg	1	0+
Cochrane	21-Aug-01	9	3.1	25	44.42.17N	96.29.18W	Chara	4	3800
Cochrane	21-Aug-01	10	1.7	100	44.42.09N	96.29.37W	Chara	4	2700
Cochrane	21-Aug-01	10	1.7	75	44.42.09N	96.29.37W	Chara	5	3600
Cochrane	21-Aug-01	10	1.7	50	44.42.09N	96.29.37W	Chara	4	2400
Cochrane	21-Aug-01	10	1.7	50	44.42.09N	96.29.37W	U. vulg	2	0+
Cochrane	21-Aug-01	10	1.7	25	44.42.09N	96.29.37W	Chara	4	2200
Cochrane	21-Aug-01	10	1.7	25	44.42.09N	96.29.37W	U. vulg	2	
Cochrane	21-Aug-01	11	3.5	100	44.42.29N	96.29.38W	0	0	0
Cochrane	21-Aug-01	11	3.5	75	44.42.29N	96.29.38W	0	0	0
Cochrane	21-Aug-01	11	3.5	50	44.42.29N	96.29.38W	Chara	4	5000
Cochrane	21-Aug-01	11	3.5	50	44.42.29N	96.29.38W	U. vulg	2	0+
Cochrane	21-Aug-01	11	3.5	50	44.42.29N	96.29.38W	P. pect	1	0+
Cochrane	21-Aug-01	11	3.5	25	44.42.29N	96.29.38W	Chara	4	2100
Cochrane	21-Aug-01	11	3.5	25	44.42.29N	96.29.38W	U. vulg	1	0+

Cochrane	21-Aug-01	12	4	100	44.42.35N	96.29.29W	0	0	0
Cochrane	21-Aug-01	12	4	75	44.42.35N	96.29.29W	0	0	0
Cochrane	21-Aug-01	12	4	50	44.42.35N	96.29.29W	0	0	0
Cochrane	21-Aug-01	12	4	25	44.42.35N	96.29.29W	Chara	5	4000
Cochrane	21-Aug-01	12	4	25	44.42.35N	96.29.29W	U. vulg	1	0+
Cochrane	26-Jul-02	1	3	25	44.42.165	96.29.402	Chara	5	1930
Cochrane	26-Jul-02	1	3	25	44.42.165	96.29.402	U. vulg	2	40
Cochrane	26-Jul-02	1	3	50	44.42.165	96.29.402	Chara	5	3100
Cochrane	26-Jul-02	1	3	50	44.42.165	96.29.402	U. vulg	1	0+
Cochrane	26-Jul-02	1	3	75	44.42.165	96.29.402	Chara	5	5520
Cochrane	26-Jul-02	1	3	75	44.42.165	96.29.402	U. vulg	2	0+
Cochrane	26-Jul-02	1	3	100	44.42.165	96.29.402	U. vulg	2	250
Cochrane	26-Jul-02	1	3	100	44.42.165	96.29.402	P. pect	2	1100
Cochrane	26-Jul-02	2	4	25	44.42.271	96.29.035	Chara	5	6050
Cochrane	26-Jul-02	2	4	25	44.42.271	96.29.035	U. vulg	1	0+
Cochrane	26-Jul-02	2	4	50	44.42.271	96.29.035	P. pect	1	0+
Cochrane	26-Jul-02	2	4	50	44.42.271	96.29.035	Chara	1	0+
Cochrane	26-Jul-02	2	4	75	44.42.271	96.29.035	P. pect	5	1330
Cochrane	26-Jul-02	2	4	100	44.42.271	96.29.035	0	0	0
Cochrane	26-Jul-02	3	4.4	25	44.42.304	96.28.710	Chara	5	5445
Cochrane	26-Jul-02	3	4.4	50	44.42.304	96.28.710	P. pect	3	345
Cochrane	26-Jul-02	3	4.4	75	44.42.304	96.28.710	0	0	0
Cochrane	26-Jul-02	3	4.4	100	44.42.304	96.28.710	0	0	0
Cochrane	26-Jul-02	4	3.5	25	44.42.396	96.28.235	Chara	1	0+
Cochrane	26-Jul-02	4	3.5	25	44.42.396	96.28.235	U. vulg	1	0+
Cochrane	26-Jul-02	4	3.5	50	44.42.396	96.28.235	P. pect	3	330
Cochrane	26-Jul-02	4	3.5	75	44.42.396	96.28.235	0	0	0
Cochrane	26-Jul-02	4	3.5	100	44.42.396	96.28.235	0	0	0
Cochrane	26-Jul-02	5	3.7	25	44.42.538	96.27.963	P. pect	4	2740
Cochrane	26-Jul-02	5	3.7	50	44.42.538	96.27.963	0	0	0
Cochrane	26-Jul-02	5	3.7	75	44.42.538	96.27.963	P. pect	1	0+
Cochrane	26-Jul-02	5	3.7	100	44.42.538	96.27.963	0	0	0
Cochrane	26-Jul-02	6	3.5	25	44.42.798	96.28.178	Chara	3	2525
Cochrane	26-Jul-02	6	3.5	25	44.42.798	96.28.178	U. vulg	1	0+
Cochrane	26-Jul-02	6	3.5	25	44.42.798	96.28.178	P. pect	1	700
Cochrane	26-Jul-02	6	3.5	50	44.42.798	96.28.178	Chara	5	4300
Cochrane	26-Jul-02	6	3.5	75	44.42.798	96.28.178	P. pect	3	840

Cochrane	26-Jul-02	6	3.5	100	44.42.798	96.28.178	P. pect	3	4485
Cochrane	26-Jul-02	7	4.8	25	44.42.684	96.28.537	P. pect	1	810
Cochrane	26-Jul-02	7	4.8	25	44.42.684	96.28.537	Chara	3	2000
Cochrane	26-Jul-02	7	4.8	25	44.42.684	96.28.537	U. vulg	2	0+
Cochrane	26-Jul-02	7	4.8	50	44.42.684	96.28.537	P. pect	1	0+
Cochrane	26-Jul-02	7	4.8	75	44.42.684	96.28.537	0	0	0
Cochrane	26-Jul-02	7	4.8	100	44.42.684	96.28.537	0	0	0
Cochrane	26-Jul-02	8	3.7	25	44.42.712	96.28.739	Chara	5	4790
Cochrane	26-Jul-02	8	3.7	25	44.42.712	96.28.739	U. vulg	3	340
Cochrane	26-Jul-02	8	3.7	50	44.42.712	96.28.739	Chara	5	4270
Cochrane	26-Jul-02	8	3.7	50	44.42.712	96.28.739	U. vulg	2	0+
Cochrane	26-Jul-02	8	3.7	75	44.42.712	96.28.739	P. pect	1	0+
Cochrane	26-Jul-02	8	3.7	100	44.42.712	96.28.739	0	0	0
Cochrane	26-Jul-02	9	5.9	25	44.42.615	96.29.075	Chara	5	3460
Cochrane	26-Jul-02	9	5.9	25	44.42.615	96.29.075	U. vulg	2	0+
Cochrane	26-Jul-02	9	5.9	50	44.42.615	96.29.075	0	0	0
Cochrane	26-Jul-02	9	5.9	75	44.42.615	96.29.075	0	0	0
Cochrane	26-Jul-02	9	5.9	100	44.42.615	96.29.075	0	0	0
Cochrane	26-Jul-02	10	4.1	25	44.42.400	96.29.257	Chara	5	?
Cochrane	26-Jul-02	10	4.1	50	44.42.400	96.29.257	0	0	0
Cochrane	26-Jul-02	10	4.1	75	44.42.400	96.29.257	0	0	0
Cochrane	26-Jul-02	10	4.1	100	44.42.400	96.29.257	0	0	0
Henry	16-Jul-01	1	2.6	100	44.19.05N	97.29.55W	P. pect	2	110
Henry	16-Jul-01	1	2.6	100	44.19.05N	97.29.55W	P. rich	1	0+
Henry	16-Jul-01	1	2.6	75	44.19.05N	97.29.55W	P. pect	4	275
Henry	16-Jul-01	1	2.6	50	44.19.05N	97.29.55W	P. pect	2	35
Henry	16-Jul-01	1	2.6	25	44.19.05N	97.29.55W	P. pect	1	0+
Henry	16-Jul-01	2	2.9	100	44.19.89N	97.30.45W	P. pect	2	0+
Henry	16-Jul-01	2	2.9	75	44.19.89N	97.30.45W	0	0	0
Henry	16-Jul-01	2	2.9	50	44.19.89N	97.30.45W	0	0	0
Henry	16-Jul-01	2	2.9	25	44.19.89N	97.30.45W	0	0	0
Henry	16-Jul-01	3	2.4	100	44.19.41N	97.30.18W	P. pect	1	0+
Henry	16-Jul-01	3	2.4	75	44.19.41N	97.30.18W	0	0	0
Henry	16-Jul-01	3	2.4	50	44.19.41N	97.30.18W	0	0	0
Henry	16-Jul-01	3	2.4	25	44.19.41N	97.30.18W	P. pect	1	25
Henry	16-Jul-01	4	2.5	100	44.19.49N	97.30.22W	0	0	0
Henry	16-Jul-01	4	2.5	75	44.19.49N	97.30.22W	0	0	0

Henry	16-Jul-01	4	2.5	50	44.19.49N	97.30.22W	0	0	0
Henry	16-Jul-01	4	2.5	25	44.19.49N	97.30.22W	P. pect	1	0+
Henry	16-Jul-01	5	2.3	100	44.19.52N	97.30.41W	P. pect	1	0+
Henry	16-Jul-01	5	2.3	75	44.19.52N	97.30.41W	0	0	0
Henry	16-Jul-01	5	2.3	50	44.19.52N	97.30.41W	0	0	0
Henry	16-Jul-01	5	2.3	25	44.19.52N	97.30.41W	0	0	0
Henry	16-Jul-01	6	2.5	100	44.20.14N	97.30.42W	0	0	0
Henry	16-Jul-01	6	2.5	75	44.20.14N	97.30.42W	0	0	0
Henry	16-Jul-01	6	2.5	50	44.20.14N	97.30.42W	P. pect	2	0+
Henry	16-Jul-01	6	2.5	25	44.20.14N	97.30.42W	P. pect	1	0+
Henry	16-Jul-01	7	2.2	100	44.20.32N	97.30.28W	0	0	0
Henry	16-Jul-01	7	2.2	75	44.20.32N	97.30.28W	0	0	0
Henry	16-Jul-01	7	2.2	50	44.20.32N	97.30.28W	0	0	0
Henry	16-Jul-01	7	2.2	25	44.20.32N	97.30.28W	0	0	0
Henry	16-Jul-01	8	1.7	100	44.20.38N	97.30.02W	U. vulg	1	0
Henry	16-Jul-01	8	1.7	100	44.20.38N	97.30.02W	P. pect	1	0
Henry	16-Jul-01	8	1.7	75	44.20.38N	97.30.02W	0	0	0
Henry	16-Jul-01	8	1.7	50	44.20.38N	97.30.02W	U. vulg	1	0
Henry	16-Jul-01	8	1.7	25	44.20.38N	97.30.02W	0	0	0
Henry	16-Jul-01	9	2.5	100	44.20.26N	97.36.10W	0	0	0
Henry	16-Jul-01	9	2.5	75	44.20.26N	97.36.10W	0	0	0
Henry	16-Jul-01	9	2.5	50	44.20.26N	97.36.10W	P. pect	1	0
Henry	16-Jul-01	9	2.5	25	44.20.26N	97.36.10W	0	0	0
Henry	16-Jul-01	10	1.7	100	44.20.27N	97.29.17W	P. pect	1	0
Henry	16-Jul-01	10	1.7	75	44.20.27N	97.29.17W	0	0	0
Henry	16-Jul-01	10	1.7	50	44.20.27N	97.29.17W	0	0	0
Henry	16-Jul-01	10	1.7	25	44.20.27N	97.29.17W	P. pect	1	0
Henry	16-Jul-01	11	2.1	100	44.20.16N	97.29.34W	P. pect	5	300
Henry	16-Jul-01	11	2.1	75	44.20.16N	97.29.34W	P. pect	4	0
Henry	16-Jul-01	11	2.1	50	44.20.16N	97.29.34W	P. pect	3	0
Henry	16-Jul-01	11	2.1	25	44.20.16N	97.29.34W	P. pect	1	0
Henry	16-Jul-01	12	1.9	100	44.20.25N	97.29.14W	P. pect	2	0
Henry	16-Jul-01	12	1.9	75	44.20.25N	97.29.14W	0	0	0
Henry	16-Jul-01	12	1.9	50	44.20.25N	97.29.14W	P. pect	1	0
Henry	16-Jul-01	12	1.9	25	44.20.25N	97.29.14W	P. pect	1	0
Henry	16-Jul-01	13	1.8	100	44.20.27N	97.28.50W	P. pect	4	95
Henry	16-Jul-01	13	1.8		44.20.27N	97.28.50W	P. rich	1	0

Henry	16-Jul-01	13	1.8	75	44.20.27N	97.28.50W	P. pect	2	0
Henry	16-Jul-01	13	1.8	50	44.20.27N	97.28.50W	P. pect	1	0
Henry	16-Jul-01	13	1.8	25	44.20.27N	97.28.50W	0	0	0
Henry	16-Jul-01	14	2.2	100	44.20.20N	97.28.32W	0	0	0
Henry	16-Jul-01	14	2.2	75	44.20.20N	97.28.32W	0	0	0
Henry	16-Jul-01	14	2.2	50	44.20.20N	97.28.32W	P. pect	5	275
Henry	16-Jul-01	14	2.2	25	44.20.20N	97.28.32W	0	0	0
Henry	16-Jul-01	15	2.1	100	44.20.11 N	97.28.08 W	0	0	0
Henry	16-Jul-01	15	2.1	75	44.20.11 N	97.28.08 W	0	0	0
Henry	16-Jul-01	15	2.1	50	44.20.11 N	97.28.08 W	P. pect	1	0
Henry	16-Jul-01	15	2.1	25	44.20.11 N	97.28.08 W	0	0	0
Henry	16-Jul-01	16	1.8	100	44.19.39 N	97.27.37 W	P. pect	3	40
Henry	16-Jul-01	16	1.8	75	44.19.39 N	97.27.37 W	P. pect	5	670
Henry	16-Jul-01	16	1.8	50	44.19.39 N	97.27.37 W	P. pect	5	1770
Henry	16-Jul-01	16	1.8	25	44.19.39 N	97.27.37 W	0	0	0
Henry	16-Jul-01	17	1.9	100	44.19.41 N	97.27.40 W	0	0	0
Henry	16-Jul-01	17	1.9	75	44.19.41 N	97.27.40 W	P. rich	2	0
Henry	16-Jul-01	17	1.9	75	44.19.41 N	97.27.40 W	P. pect	2	0
Henry	16-Jul-01	17	1.9	50	44.19.41 N	97.27.40 W	P. pect	1	0
Henry	16-Jul-01	17	1.9	25	44.19.41 N	97.27.40 W	0	0	0
Henry	16-Jul-01	18	2.1	100	44.19.26 N	97.27.48 W	0	0	0
Henry	16-Jul-01	18	2.1	75	44.19.26 N	97.27.48 W	0	0	0
Henry	16-Jul-01	18	2.1	50	44.19.26 N	97.27.48 W	0	0	0
Henry	16-Jul-01	18	2.1	25	44.19.26 N	97.27.48 W	0	0	0
Henry	16-Jul-01	19	2.5	100	44.19.26 N	97.27.48 W	P. pect	1	0
Henry	16-Jul-01	19	2.5	75	44.19.26 N	97.27.48 W	P. pect	1	0
Henry	16-Jul-01	19	2.5	50	44.19.26 N	97.27.48 W	0	0	0
Henry	16-Jul-01	19	2.5	25	44.19.26 N	97.27.48 W	0	0	0
Henry	16-Jul-01	20	2.8	100	44.19.03 N	97.28.20 W	P. pect	2	140
Henry	16-Jul-01	20	2.8	75	44.19.03 N	97.28.20 W	P. pect	1	0
Henry	16-Jul-01	20	2.8	50	44.19.03 N	97.28.20 W	0	0	0
Henry	16-Jul-01	20	2.8	25	44.19.03 N	97.28.20 W	0	0	0
Henry	16-Jul-01	21	2.5	100	44.19.03 N	97.28.30 W	0	0	0
Henry	16-Jul-01	21	2.5	75	44.19.03 N	97.28.30 W	0	0	0
Henry	16-Jul-01	21	2.5	50	44.19.03 N	97.28.30 W	0	0	0
Henry	16-Jul-01	21	2.5	25	44.19.03 N	97.28.30 W	0	0	0
Henry	16-Jul-01	22	2.3	100	44.18.56 N	97.28.38 W	0	0	0

Henry	16-Jul-01	22	2.3	75	44.18.56 N	97.28.38 W	0	0	0
Henry	16-Jul-01	22	2.3	50	44.18.56 N	97.28.38 W	0	0	0
Henry	16-Jul-01	22	2.3	25	44.18.56 N	97.28.38 W	0	0	0
Henry	30-Jul-02	1	1.8	25	44.18.904	97.29.002	0	0	0
Henry	30-Jul-02	1	1.8	50	44.18.904	97.29.002	P. pect	4	1140
Henry	30-Jul-02	1	1.8	70	44.18.904	97.29.002	P. pect	1	0+
Henry	30-Jul-02	1	1.8	100	44.18.904	97.29.002	0	0	0
Henry	30-Jul-02	2	2	25	44.19.227	97.28.026	0	0	0
Henry	30-Jul-02	2	2	50	44.19.227	97.28.026	P. pect	2	0+
Henry	30-Jul-02	2	2	75	44.19.227	97.28.026	P. pect	4	750
Henry	30-Jul-02	2	2	100	44.19.227	97.28.026	P. pect	3	0+
Henry	30-Jul-02	3	m	25	44.19.959	97.27.863	P. pect	4	800
Henry	30-Jul-02	3	m	25	44.19.959	97.27.863	C. demr	2	0+
Henry	30-Jul-02	3	m	50	44.19.959	97.27.863	P. pect	3	0+
Henry	30-Jul-02	3	m	75	44.19.959	97.27.863	P. pect	4	550
Henry	30-Jul-02	3	m	100	44.19.959	97.27.863	0	0	0
Henry	30-Jul-02	4	2	25	44.20.333	97.28.571	P. pect	620	620
Henry	30-Jul-02	4	2	50	44.20.333	97.28.571	P. pect	1240	1240
Henry	30-Jul-02	4	2	75	44.20.333	97.28.571	P. pect	0+	0
Henry	30-Jul-02	4	2	100	44.20.333	97.28.571	P. pect	0+	0
Henry	30-Jul-02	5	1.4	25	44.20.289	97.29.485	P. pect	3	250
Henry	30-Jul-02	5	1.4	50	44.20.289	97.29.485	P. pect	1	0+
Henry	30-Jul-02	5	1.4	75	44.20.289	97.29.485	P. pect	3	0+
Henry	30-Jul-02	5	1.4	100	44.20.289	97.29.485	P. pect	2	0+
Henry	30-Jul-02	6	1.5	25	44.20.497	97.30.500	P. pect	1	0+
Henry	30-Jul-02	6	1.5	50	44.20.497	97.30.500	P. pect	1	0+
Henry	30-Jul-02	6	1.5	75	44.20.497	97.30.500	0	0	0
Henry	30-Jul-02	6	1.5	100	44.20.497	97.30.500	0	0	0
Henry	30-Jul-02	7	1.4	25	44.19.978	97.30.763	P. pect	4	0+
Henry	30-Jul-02	7	1.4	50	44.19.978	97.30.763	0	0	0
Henry	30-Jul-02	7	1.4	75	44.19.978	97.30.763	0	0	0
Henry	30-Jul-02	7	1.4	100	44.19.978	97.30.763	0	0	0
Henry	30-Jul-02	8	1.9	25	44.19.723	97.30.264	P. pect	3	1170
Henry	30-Jul-02	8	1.9	50	44.19.723	97.30.264	0	0	0
Henry	30-Jul-02	8	1.9	75	44.19.723	97.30.264	0	0	0
Henry	30-Jul-02	8	1.9	100	44.19.723	97.30.264	P. pect	4	970
Henry	30-Jul-02	9	2.3	25	44.19.367	97.30.087	0	0	0

Henry	30-Jul-02	9	2.3	50	44.19.367	97.30.087	0	0	0
Henry	30-Jul-02	9	2.3	75	44.19.367	97.30.087	P. pect	2	0+
Henry	30-Jul-02	9	2.3	100	44.19.367	97.30.087	P. pect	1	0+
Henry	30-Jul-02	10	2	25	44.19.061	97.29.575	0	0	0
Henry	30-Jul-02	10	2	50	44.19.061	97.29.575	P. pect	4	1160
Henry	30-Jul-02	10	2	75	44.19.061	97.29.575	P. pect	4	570
Henry	30-Jul-02	10	2	100	44.19.061	97.29.575	0	0	0
Preston	17-Aug-01	1	2.3	100	44.22.43N	97.22.88W	0	0	0
Preston	17-Aug-01	1	2.3	75	44.22.43N	97.22.88W	0	0	0
Preston	17-Aug-01	1	2.3	50	44.22.43N	97.22.88W	0	0	0
Preston	17-Aug-01	1	2.3	25	44.22.43N	97.22.88W	P. pect	1	0
Preston	17-Aug-01	2	2.3	100	44.23.12N	97.22.94W	0	0	0
Preston	17-Aug-01	2	2.3	75	44.23.12N	97.22.94W	0	0	0
Preston	17-Aug-01	2	2.3	50	44.23.12N	97.22.94W	0	0	0
Preston	17-Aug-01	2	2.3	25	44.23.12N	97.22.94W	P. pect	1	70
Preston	17-Aug-01	3	2.3	100	44.22.82N	97.20.84W	0	0	0
Preston	17-Aug-01	3	2.3	75	44.22.82N	97.20.84W	0	0	0
Preston	17-Aug-01	3	2.3	50	44.22.82N	97.20.84W	0	0	0
Preston	17-Aug-01	3	2.3	25	44.22.82N	97.20.84W	0	0	0
Preston	17-Aug-01	4	2.3	100	44.22.99N	97.19.42W	P. pect	1	0
Preston	17-Aug-01	4	2.3	75	44.22.99N	97.19.42W	0	0	0
Preston	17-Aug-01	4	2.3	50	44.22.99N	97.19.42W	0	0	0
Preston	17-Aug-01	4	2.3	25	44.22.99N	97.19.42W	0	0	0
Preston	17-Aug-01	5	1.8	100	44.23.63N	97.18.97W	0	0	0
Preston	17-Aug-01	5	1.8	75	44.23.63N	97.18.97W	0	0	0
Preston	17-Aug-01	5	1.8	50	44.23.63N	97.18.97W	0	0	0
Preston	17-Aug-01	5	1.8	25	44.23.63N	97.18.97W	0	0	0
Preston	17-Aug-01	6	1.7	100	44.23.33N	97.18.07W	0	0	0
Preston	17-Aug-01	6	1.7	75	44.23.33N	97.18.07W	0	0	0
Preston	17-Aug-01	6	1.7	50	44.23.33N	97.18.07W	0	0	0
Preston	17-Aug-01	6	1.7	25	44.23.33N	97.18.07W	0	0	0
Preston	17-Aug-01	7	1.9	100	44.23.74N	97.16.21W	0	0	0
Preston	17-Aug-01	7	1.9	75	44.23.74N	97.16.21W	0	0	0
Preston	17-Aug-01	7	1.9	50	44.23.74N	97.16.21W	0	0	0
Preston	17-Aug-01	7	1.9	25	44.23.74N	97.16.21W	0	0	0
Preston	17-Aug-01	8	2	100	44.22.93N	97.16.02W	0	0	0
Preston	17-Aug-01	8	2	75	44.22.93N	97.16.02W	0	0	0

Preston	17-Aug-01	8	2	50	44.22.93N	97.16.02W	0	0	0
Preston	17-Aug-01	8	2	25	44.22.93N	97.16.02W	0	0	0
Preston	17-Aug-01	9	1.7	100	44.22.38N	97.17.30W	0	0	0
Preston	17-Aug-01	9	1.7	75	44.22.38N	97.17.30W	0	0	0
Preston	17-Aug-01	9	1.7	50	44.22.38N	97.17.30W	0	0	0
Preston	17-Aug-01	9	1.7	25	44.22.38N	97.17.30W	0	0	0
Preston	17-Aug-01	10	2.3	100	44.22.30N	97.18.78W	0	0	0
Preston	17-Aug-01	10	2.3	75	44.22.30N	97.18.78W	0	0	0
Preston	17-Aug-01	10	2.3	50	44.22.30N	97.18.78W	0	0	0
Preston	17-Aug-01	10	2.3	25	44.22.30N	97.18.78W	0	0	0
Preston	17-Aug-01	11	2.1	100	44.22.31N	97.19.72W	0	0	0
Preston	17-Aug-01	11	2.1	75	44.22.31N	97.19.72W	0	0	0
Preston	17-Aug-01	11	2.1	50	44.22.31N	97.19.72W	0	0	0
Preston	17-Aug-01	11	2.1	25	44.22.31N	97.19.72W	0	0	0
Preston	17-Aug-01	12	2.1	100	44.22.21N	97.20.36W	0	0	0
Preston	17-Aug-01	12	2.1	75	44.22.21N	97.20.36W	0	0	0
Preston	17-Aug-01	12	2.1	50	44.22.21N	97.20.36W	P. pect	1	0
Preston	17-Aug-01	12	2.1	25	44.22.21N	97.20.36W	0	0	0
Preston	23-Aug-02	1	1.6	25	44.22.16	97.20.67	0	0	0
Preston	23-Aug-02	1	1.6	50	44.22.16	97.20.67	0	0	0
Preston	23-Aug-02	1	1.6	75	44.22.16	97.20.67	0	0	0
Preston	23-Aug-02	1	1.6	100	44.22.16	97.20.67	0	0	0
Preston	23-Aug-02	2	1.4	25	44.22.10	97.18.66	0	0	0
Preston	23-Aug-02	2	1.4	50	44.22.10	97.18.66	0	0	0
Preston	23-Aug-02	2	1.4	75	44.22.10	97.18.66	0	0	0
Preston	23-Aug-02	2	1.4	100	44.22.10	97.18.66	0	0	0
Preston	23-Aug-02	3	1.3	25	44.22.51	97.16.68	0	0	0
Preston	23-Aug-02	3	1.3	50	44.22.51	97.16.68	0	0	0
Preston	23-Aug-02	3	1.3	75	44.22.51	97.16.68	0	0	0
Preston	23-Aug-02	3	1.3	100	44.22.51	97.16.68	0	0	0
Preston	23-Aug-02	4	1.4	25	44.23.81	97.16.20	0	0	0
Preston	23-Aug-02	4	1.4	50	44.23.81	97.16.20	0	0	0
Preston	23-Aug-02	4	1.4	75	44.23.81	97.16.20	0	0	0
Preston	23-Aug-02	4	1.4	100	44.23.81	97.16.20	0	0	0
Preston	23-Aug-02	5	0.6	25	44.23.10	97.17.66	0	0	0
Preston	23-Aug-02	5	0.6	50	44.23.10	97.17.66	0	0	0
Preston	23-Aug-02	5	0.6	75	44.23.10	97.17.66	0	0	0

Preston	23-Aug-02	5	0.6	100	44.23.10	97.17.66	0	0	0
Preston	23-Aug-02	6	1	25	44.23.37	97.18.05	0	0	0
Preston	23-Aug-02	6	1	50	44.23.37	97.18.05	0	0	0
Preston	23-Aug-02	6	1	75	44.23.37	97.18.05	0	0	0
Preston	23-Aug-02	6	1	100	44.23.37	97.18.05	0	0	0
Preston	23-Aug-02	7	1.4	25	44.23.03	97.19.38	0	0	0
Preston	23-Aug-02	7	1.4	50	44.23.03	97.19.38	0	0	0
Preston	23-Aug-02	7	1.4	75	44.23.03	97.19.38	0	0	0
Preston	23-Aug-02	7	1.4	100	44.23.03	97.19.38	0	0	0
Preston	23-Aug-02	8	1.5	25	44.22.66	97.20.47	0	0	0
Preston	23-Aug-02	8	1.5	50	44.22.66	97.20.47	0	0	0
Preston	23-Aug-02	8	1.5	75	44.22.66	97.20.47	0	0	0
Preston	23-Aug-02	8	1.5	100	44.22.66	97.20.47	0	0	0
Preston	23-Aug-02	9	1.6	25	44.22.43	97.22.88	0	0	0
Preston	23-Aug-02	9	1.6	50	44.22.43	97.22.88	0	0	0
Preston	23-Aug-02	9	1.6	75	44.22.43	97.22.88	0	0	0
Preston	23-Aug-02	9	1.6	100	44.22.43	97.22.88	0	0	0
Preston	23-Aug-02	10	1.6	25	44.22.82	97.20.84	0	0	0
Preston	23-Aug-02	10	1.6	50	44.22.82	97.20.84	0	0	0
Preston	23-Aug-02	10	1.6	75	44.22.82	97.20.84	0	0	0
Preston	23-Aug-02	10	1.6	100	44.22.82	97.20.84	0	0	0
Thompson	16-Aug-01	1	3.3	100	44.16.68N	97.26.00W	0	0	0
Thompson	16-Aug-01	1	3.3	75	44.16.68N	97.26.00W	0	0	0
Thompson	16-Aug-01	1	3.3	50	44.16.68N	97.26.00W	0	0	0
Thompson	16-Aug-01	1	3.3	25	44.16.68N	97.26.00W	0	0	0
Thompson	16-Aug-01	2	1.7	100	44.14.98N	97.25.46W	0	0	0
Thompson	16-Aug-01	2	1.7	75	44.14.98N	97.25.46W	0	0	0
Thompson	16-Aug-01	2	1.7	50	44.14.98N	97.25.46W	P. pect	2	490
Thompson	16-Aug-01	2	1.7	25	44.14.98N	97.25.46W	0	0	0
Thompson	16-Aug-01	3	1.6	100	44.13.45N	97.26.02W	0	0	0
Thompson	16-Aug-01	3	1.6	75	44.13.45N	97.26.02W	0	0	0
Thompson	16-Aug-01	3	1.6	50	44.13.45N	97.26.02W	0	0	0
Thompson	16-Aug-01	3	1.6	25	44.13.45N	97.26.02W	0	0	0
Thompson	16-Aug-01	4	3	100	44.14.38N	97.27.55W	0	0	0
Thompson	16-Aug-01	4	3	75	44.14.38N	97.27.55W	0	0	0
Thompson	16-Aug-01	4	3	50	44.14.38N	97.27.55W	0	0	0
Thompson	16-Aug-01	4	3	25	44.14.38N	97.27.55W	0	0	0

Thompson	16-Aug-01	5	1.6	100	44.15.33N	97.28.11W	0	0	0
Thompson	16-Aug-01	5	1.6	75	44.15.33N	97.28.11W	0	0	0
Thompson	16-Aug-01	5	1.6	50	44.15.33N	97.28.11W	0	0	0
Thompson	16-Aug-01	5	1.6	25	44.15.33N	97.28.11W	0	0	0
Thompson	16-Aug-01	6	4.3	100	44.16.27N	97.30.02W	0	0	0
Thompson	16-Aug-01	6	4.3	75	44.16.27N	97.30.02W	0	0	0
Thompson	16-Aug-01	6	4.3	50	44.16.27N	97.30.02W	0	0	0
Thompson	16-Aug-01	6	4.3	25	44.16.27N	97.30.02W	0	0	0
Thompson	16-Aug-01	7	3.5	100	44.17.48N	97.30.31W	0	0	0
Thompson	16-Aug-01	7	3.5	75	44.17.48N	97.30.31W	0	0	0
Thompson	16-Aug-01	7	3.5	50	44.17.48N	97.30.31W	0	0	0
Thompson	16-Aug-01	7	3.5	25	44.17.48N	97.30.31W	0	0	0
Thompson	16-Aug-01	8	3.5	100	44.18.14N	97.29.69W	0	0	0
Thompson	16-Aug-01	8	3.5	75	44.18.14N	97.29.69W	0	0	0
Thompson	16-Aug-01	8	3.5	50	44.18.14N	97.29.69W	0	0	0
Thompson	16-Aug-01	8	3.5	25	44.18.14N	97.29.69W	0	0	0
Thompson	16-Aug-01	9	4.3	100	44.18.64N	97.28.87W	0	0	0
Thompson	16-Aug-01	9	4.3	75	44.18.64N	97.28.87W	0	0	0
Thompson	16-Aug-01	9	4.3	50	44.18.64N	97.28.87W	0	0	0
Thompson	16-Aug-01	9	4.3	25	44.18.64N	97.28.87W	0	0	0
Thompson	16-Aug-01	10	3.3	100	44.18.92N	97.28.27W	0	0	0
Thompson	16-Aug-01	10	3.3	75	44.18.92N	97.28.27W	0	0	0
Thompson	16-Aug-01	10	3.3	50	44.18.92N	97.28.27W	0	0	0
Thompson	16-Aug-01	10	3.3	25	44.18.92N	97.28.27W	0	0	0
Thompson	16-Aug-01	11	3.7	100	44.19.12N	97.27.88W	0	0	0
Thompson	16-Aug-01	11	3.7	75	44.19.12N	97.27.88W	0	0	0
Thompson	16-Aug-01	11	3.7	50	44.19.12N	97.27.88W	0	0	0
Thompson	16-Aug-01	11	3.7	25	44.19.12N	97.27.88W	0	0	0
Thompson	16-Aug-01	12	4.5	100	44.19.23N	97.26.90W	0	0	0
Thompson	16-Aug-01	12	4.5	75	44.19.23N	97.26.90W	0	0	0
Thompson	16-Aug-01	12	4.5	50	44.19.23N	97.26.90W	0	0	0
Thompson	16-Aug-01	12	4.5	25	44.19.23N	97.26.90W	0	0	0
Thompson	14-Aug-02	1	3.1	25	44.17.003	97.26.089	0	0	0
Thompson	14-Aug-02	1	3.1	50	44.17.003	97.26.089	0	0	0
Thompson	14-Aug-02	1	3.1	75	44.17.003	97.26.089	P. pect	2	0+
Thompson	14-Aug-02	1	3.1	100	44.17.003	97.26.089	P. pect	1	0+
Thompson	14-Aug-02	2	2.8	25	44.15.760	97.25.776	0	0	0

Thompson	14-Aug-02	2	2.8	50	44.15.760	97.25.776	0	0	0
Thompson	14-Aug-02	2	2.8	75	44.15.760	97.25.776	P. pect	1	0+
Thompson	14-Aug-02	2	2.8	100	44.15.760	97.25.776	P. pect	1	0+
Thompson	14-Aug-02	3	2.5	25	44.14.594	97.25.404	P. pect	1	0+
Thompson	14-Aug-02	3	2.5	50	44.14.594	97.25.404	0	0	0
Thompson	14-Aug-02	3	2.5	75	44.14.594	97.25.404	P. pect	2	0+
Thompson	14-Aug-02	3	2.5	100	44.14.594	97.25.404	P. pect	2	0
Thompson	14-Aug-02	4	2	25	44.13.854	97.27.487	P. pect	3	0+
Thompson	14-Aug-02	4	2	50	44.13.854	97.27.487	P. pect	3	250
Thompson	14-Aug-02	4	2	75	44.13.854	97.27.487	P. pect	1	0+
Thompson	14-Aug-02	4	2	100	44.13.854	97.27.487	0	0	0
Thompson	14-Aug-02	5	1.5	25	44.15.056	97.28.105	P. pect	3	400
Thompson	14-Aug-02	5	1.5	50	44.15.056	97.28.105	P. pect	4	1060
Thompson	14-Aug-02	5	1.5	75	44.15.056	97.28.105	P. pect	4	550
Thompson	14-Aug-02	5	1.5	100	44.15.056	97.28.105	P. pect	4	0+
Thompson	14-Aug-02	6	4.2	25	44.16.142	97.29.885	0	0	0
Thompson	14-Aug-02	6	4.2	50	44.16.142	97.29.885	0	0	0
Thompson	14-Aug-02	6	4.2	75	44.16.142	97.29.885	0	0	0
Thompson	14-Aug-02	6	4.2	100	44.16.142	97.29.885	0	0	0
Thompson	14-Aug-02	7	3.7	25	44.17.615	97.30.282	0	0	0
Thompson	14-Aug-02	7	3.7	50	44.17.615	97.30.282	0	0	0
Thompson	14-Aug-02	7	3.7	75	44.17.615	97.30.282	0	0	0
Thompson	14-Aug-02	7	3.7	100	44.17.615	97.30.282	0	0	0
Thompson	14-Aug-02	8	4.5	25	44.18.548	97.29.021	0	0	0
Thompson	14-Aug-02	8	4.5	50	44.18.548	97.29.021	0	0	0
Thompson	14-Aug-02	8	4.5	75	44.18.548	97.29.021	0	0	0
Thompson	14-Aug-02	8	4.5	100	44.18.548	97.29.021	0	0	0
Thompson	14-Aug-02	9	3.6	25	44.19.175	97.27.806	0	0	0
Thompson	14-Aug-02	9	3.6	50	44.19.175	97.27.806	0	0	0
Thompson	14-Aug-02	9	3.6	75	44.19.175	97.27.806	0	0	0
Thompson	14-Aug-02	9	3.6	100	44.19.175	97.27.806	0	0	0
Thompson	14-Aug-02	10	4.1	25	44.19.111	97.25.789	0	0	0
Thompson	14-Aug-02	10	4.1	50	44.19.111	97.25.789	0	0	0
Thompson	14-Aug-02	10	4.1	75	44.19.111	97.25.789	0	0	0
Thompson	14-Aug-02	10	4.1	100	44.19.111	97.25.789	0	0	0
Whitewood	15-Aug-01	1	2.3	100	44.19.26N	97.21.87W	0	0	0
Whitewood	15-Aug-01	1	2.3	75	44.19.26N	97.21.87W	0	0	0

Whitewood	15-Aug-01	1	2.3	50	44.19.26N	97.21.87W	0	0	0
Whitewood	15-Aug-01	1	2.3	25	44.19.26N	97.21.87W	0	0	0
Whitewood	15-Aug-01	2	2.2	100	44.19.86N	97.19.88W	0	0	0
Whitewood	15-Aug-01	2	2.2	75	44.19.86N	97.19.88W	0	0	0
Whitewood	15-Aug-01	2	2.2	50	44.19.86N	97.19.88W	P. pect	2	0
Whitewood	15-Aug-01	2	2.2	25	44.19.86N	97.19.88W	0	0	0
Whitewood	15-Aug-01	3	2.3	100	44.20.49 N	97.18.85 W	0	0	0
Whitewood	15-Aug-01	3	2.3	75	44.20.49 N	97.18.85 W	0	0	0
Whitewood	15-Aug-01	3	2.3	50	44.20.49 N	97.18.85 W	0	0	0
Whitewood	15-Aug-01	3	2.3	25	44.20.49 N	97.18.85 W	0	0	0
Whitewood	15-Aug-01	4	2.1	100	44.21.32 N	97.17.76 W	0	0	0
Whitewood	15-Aug-01	4	2.1	75	44.21.32 N	97.17.76 W	0	0	0
Whitewood	15-Aug-01	4	2.1	50	44.21.32 N	97.17.76 W	0	0	0
Whitewood	15-Aug-01	4	2.1	25	44.21.32 N	97.17.76 W	0	0	0
Whitewood	15-Aug-01	5	2.1	100	44.21.30N	97.16.54W	0	0	0
Whitewood	15-Aug-01	5	2.1	75	44.21.30N	97.16.54W	0	0	0
Whitewood	15-Aug-01	5	2.1	50	44.21.30N	97.16.54W	0	0	0
Whitewood	15-Aug-01	5	2.1	25	44.21.30N	97.16.54W	0	0	0
Whitewood	15-Aug-01	6	1.8	100	44.21.30N	97.16.54W	0	0	0
Whitewood	15-Aug-01	6	1.8	75	44.21.30N	97.16.54W	0	0	0
Whitewood	15-Aug-01	6	1.8	50	44.21.30N	97.16.54W	0	0	0
Whitewood	15-Aug-01	6	1.8	25	44.21.30N	97.16.54W	0	0	0
Whitewood	15-Aug-01	7	1.6	100	44.19.43N	97.14.67W	0	0	0
Whitewood	15-Aug-01	7	1.6	75	44.19.43N	97.14.67W	0	0	0
Whitewood	15-Aug-01	7	1.6	50	44.19.43N	97.14.67W	0	0	0
Whitewood	15-Aug-01	7	1.6	25	44.19.43N	97.14.67W	P. pect	3	155
Whitewood	15-Aug-01	8	1.9	100	44.20.14N	97.15.50W	0	0	0
Whitewood	15-Aug-01	8	1.9	75	44.20.14N	97.15.50W	0	0	0
Whitewood	15-Aug-01	8	1.9	50	44.20.14N	97.15.50W	0	0	0
Whitewood	15-Aug-01	8	1.9	25	44.20.14N	97.15.50W	P. pect	2	110
Whitewood	15-Aug-01	9	2	100	44.20.34N	97.16.34W	0	0	0
Whitewood	15-Aug-01	9	2	75	44.20.34N	97.16.34W	0	0	0
Whitewood	15-Aug-01	9	2	50	44.20.34N	97.16.34W	0	0	0
Whitewood	15-Aug-01	9	2	25	44.20.34N	97.16.34W	P. pect	3	650
Whitewood	15-Aug-01	10	2.3	100	44.20.41N	97.17.80W	0	0	0
Whitewood	15-Aug-01	10	2.3	75	44.20.41N	97.17.80W	0	0	0
Whitewood	15-Aug-01	10	2.3	50	44.20.41N	97.17.80W	0	0	0

Whitewood	15-Aug-01	10	2.3	25	44.20.41N	97.17.80W	0	0	0
Whitewood	15-Aug-01	11	2.2	100	44.19.55N	97.18.80W	0	0	0
Whitewood	15-Aug-01	11	2.2	75	44.19.55N	97.18.80W	0	0	0
Whitewood	15-Aug-01	11	2.2	50	44.19.55N	97.18.80W	0	0	0
Whitewood	15-Aug-01	11	2.2	25	44.19.55N	97.18.80W	0	0	0
Whitewood	15-Aug-01	12	2.1	100	44.18.94N	97.20.02W	0	0	0
Whitewood	15-Aug-01	12	2.1	75	44.18.94N	97.20.02W	0	0	0
Whitewood	15-Aug-01	12	2.1	50	44.18.94N	97.20.02W	0	0	0
Whitewood	15-Aug-01	12	2.1	25	44.18.94N	97.20.02W	0	0	0
Whitewood	19-Aug-02	1	2.2	25	44.19.547	97.21.190	0	0	0
Whitewood	19-Aug-02	1	2.2	50	44.19.547	97.21.190	0	0	0
Whitewood	19-Aug-02	1	2.2	75	44.19.547	97.21.190	P. pect	1	0+
Whitewood	19-Aug-02	1	2.2	100	44.19.547	97.21.190	0	0	0
Whitewood	19-Aug-02	2	2	25	44.20.323	97.19.271	P. pect	1	0+
Whitewood	19-Aug-02	2	2	50	44.20.323	97.19.271	0	0	0
Whitewood	19-Aug-02	2	2	75	44.20.323	97.19.271	0	0	0
Whitewood	19-Aug-02	2	2	100	44.20.323	97.19.271	0	0	0
Whitewood	19-Aug-02	3	2.1	25	44.21.364	97.17.097	0	0	0
Whitewood	19-Aug-02	3	2.1	50	44.21.364	97.17.097	0	0	0
Whitewood	19-Aug-02	3	2.1	75	44.21.364	97.17.097	0	0	0
Whitewood	19-Aug-02	3	2.1	100	44.21.364	97.17.097	0	0	0
Whitewood	19-Aug-02	4	1.7	25	44.20.463	97.15.205	0	0	0
Whitewood	19-Aug-02	4	1.7	50	44.20.463	97.15.205	0	0	0
Whitewood	19-Aug-02	4	1.7	75	44.20.463	97.15.205	0	0	0
Whitewood	19-Aug-02	4	1.7	100	44.20.463	97.15.205	0	0	0
Whitewood	19-Aug-02	5	1.6	25	44.19.615	97.15.044	0	0	0
Whitewood	19-Aug-02	5	1.6	50	44.19.615	97.15.044	0	0	0
Whitewood	19-Aug-02	5	1.6	75	44.19.615	97.15.044	0	0	0
Whitewood	19-Aug-02	5	1.6	100	44.19.615	97.15.044	0	0	0
Whitewood	19-Aug-02	6	1.4	25	44.20.551	97.15.844	0	0	0
Whitewood	19-Aug-02	6	1.4	50	44.20.551	97.15.844	0	0	0
Whitewood	19-Aug-02	6	1.4	75	44.20.551	97.15.844	0	0	0
Whitewood	19-Aug-02	6	1.4	100	44.20.551	97.15.844	0	0	0
Whitewood	19-Aug-02	7	2	25	44.20.465	94.17.518	0	0	0
Whitewood	19-Aug-02	7	2	50	44.20.465	94.17.518	0	0	0
Whitewood	19-Aug-02	7	2	75	44.20.465	94.17.518	0	0	0
Whitewood	19-Aug-02	7	2	100	44.20.465	94.17.518	0	0	0

Whitewood	19-Aug-02	8	1.8	25	44.19.545	97.18.909	0	0	0
Whitewood	19-Aug-02	8	1.8	50	44.19.545	97.18.909	0	0	0
Whitewood	19-Aug-02	8	1.8	75	44.19.545	97.18.909	0	0	0
Whitewood	19-Aug-02	8	1.8	100	44.19.545	97.18.909	P. pect	2	0+
Whitewood	19-Aug-02	9	1.7	25	44.19.016	97.19.790	0	0	0
Whitewood	19-Aug-02	9	1.7	50	44.19.016	97.19.790	0	0	0
Whitewood	19-Aug-02	9	1.7	75	44.19.016	97.19.790	0	0	0
Whitewood	19-Aug-02	9	1.7	100	44.19.016	97.19.790	0	0	0
Whitewood	19-Aug-02	10	2	25	44.18.424	97.21.076	P. pect	1	0+
Whitewood	19-Aug-02	10	2	50	44.18.424	97.21.076	0	0	0
Whitewood	19-Aug-02	10	2	75	44.18.424	97.21.076	0	0	0
Whitewood	19-Aug-02	10	2	100	44.18.424	97.21.076	0	0	0

APPENDIX XV – Lake Phytoplankton Taxa List

Phylum	Order	Family	Genera	Species
Chlorophyta	Chlorococcales	Oocystaceae	*Ankistrodesmus*	*falcatus*
Chlorophyta	Chlorococcales	Oocystaceae	*Kirchneriella*	*contorta*
Chlorophyta	Chlorococcales	Hydrodictyaceae	*Pediastrum*	*borynam*
Chlorophyta	Chlorococcales	Scenedesmaceae	*Scenedesmus*	*sp.*
Chlorophyta	Chlorococcales	Chlorococcaceae	*Tetraedron*	*limneticum*
Chlorophyta	Zygnematales	Zygnemataceae	*Spirogyra*	*sp.*
Chlorophyta	Tetrasporales	Gloeocystaceae	*Gloeocystis*	*ampla*
Chrysophyta	Ochromomadales	Dinobryaceae	*Dinobryon*	*setularia*
Chrysophyta	Centrales	Coscinodiscaceae	*Stephanodiscus*	*niagarae*
Chrysophyta	Centrales	Coscinodiscaceae	*Melosira*	*granulata*
Chrysophyta	Centrales	Coscinodiscaceae	*Cyclotella*	*meneghiniana*
Chrysophyta	Pennales	Naviculaceae	*Navicula*	*radiosa*
Chrysophyta	Pennales	Naviculaceae	*Navicula*	*tripunctata*
Chrysophyta	Pennales	Naviculaceae	*Nitzschia*	*linearis*
Chrysophyta	Pennales	Naviculaceae	*Nitzschia*	*sigmoidia*
Chrysophyta	Pennales	Fragilariaceae	*Fragilaria*	*crotonensis*
Cryptophyta		Cryptomonadaceae	*Cryptomonas*	*sp.*
Cyanobacteria	Chroococcales	Chroococcaceae	*Aphanocapsa*	*elachista*
Cyanobacteria	Chroococcales	Chroococcaceae	*Chroococcus*	*limneticus*
Cyanobacteria	Chroococcales	Chroococcaceae	*Gloeocapsa*	*decorticans*
Cyanobacteria	Chroococcales	Chroococcaceae	*Gomphosphaeria*	*aponina*
Cyanobacteria	Chroococcales	Chroococcaceae	*Merismopedia*	*glauca*
Cyanobacteria	Chroococcales	Chroococcaceae	*Merismopedia*	*tenuissima*
Cyanobacteria	Chroococcales	Chroococcaceae	*Microcystis*	*aeruginosa*
Cyanobacteria	Chroococcales	Chroococcaceae	*Synechococcus*	*aeruginosus*
Cyanobacteria	Nostocales	Nostocaceae	*Anabaena*	*circinalis*
Cyanobacteria	Nostocales	Nostocaceae	*Aphanizomenon*	*flos-aquae*
Cyanobacteria	Oscillatoriales	Oscillatoriaceae	*Lyngbya*	*contorta*
Cyanobacteria	Oscillatoriales	Oscillatoriaceae	*Planktothrix*	*nigra*
Euglenophyta	Euglenales	Euglenaceae	*Euglena*	*sp.*
Euglenophyta	Euglenales	Euglenaceae	*Phacus*	*sp.*
Pyrrhophyta	Dinokontae	Ceratiaceae	*Ceratium*	*hirundinella*
Pyrrhophyta	Dinokontae	Peridiniaceae	*Peridinium*	*wisconsinense*

APPENDIX XVI – Lake Phytoplankton Optimal Metrics

Lake	Basin	Year	Month	Ntaxa	PerChr	PerPyr	PerCen	H'	Even	CChla	TSIChl	ChlTax	CyaTax
				#	%	%	%			ug/L		#	#
Alice	North	2001	8	9	0.0	8.2	0.00	2.75	0.1280	95.45	75.30	3	5
Alice	Middle	2001	8	10	0.0	3.6	0.00	2.86	0.1200	72.76	72.62	2	7
Alice	South	2001	8	8	1.7	1.7	100.00	2.47	0.1482	66.08	71.67	0	6
Cochrane	West	2001	8	5	2.6	28.9	100.00	1.92	0.2471	47.26	68.36	0	3
Cochrane	Middle	2001	8	3	0.0	9.5	0.00	1.34	0.3084	36.85	65.93	0	2
Cochrane	East	2001	8	4	0.0	32.7	0.00	1.72	0.3091	38.18	66.30	0	3
Brant	West	2001	8	1	0.0	0.0	0.00	0.00	0.0000	51.53	69.24	0	1
Brant	Middle	2001	8	4	0.0	0.0	0.00	1.75	0.1518	43.37	67.34	0	4
Brant	East	2001	8	4	2.4	0.0	0.00	1.25	0.1390	40.05	66.09	0	3
Henry	Middle	2001	8	4	0.0	0.0	0.00	1.56	0.1204	28.48	63.5	0	4
Preston	West	2001	8	8	27.4	0.0	100.00	2.44	0.2814	77.16	73.13	1	5
Preston	Mid	2001	8	9	7.3	0.0	100.00	2.47	0.2702	49.40	68.83	1	6
Preston	East	2001	8	6	0.0	0.0	0.00	2.02	0.2186	56.07	70.09	1	5
Thompson	North	2001	8	5	2.8	0.0	100.00	1.32	0.3970	37.17	66.01	0	4
Thompson	Mid	2001	8	4	0.0	0.0	0.00	1.73	0.1882	9.85	53.04	0	4
Thompson	South	2001	8	7	8.3	0.0	100.00	2.33	0.2219	9.88	53.04	1	4
Whitewood	West	2001	8	5	72.0	0.0	100.00	1.57	0.1423	38.45	65.92	1	2
Whitewood	Mid	2001	8	5	93.3	0.0	100.00	1.20	0.1224	80.77	73.68	1	2
Whitewood	East	2001	8	4	95.5	0.0	100.00	0.87	0.0792	110.36	76.74	1	1
Brant	West	2002	6	2	0.0	0.0	0.00	1.04	0.0926	9.35	51.98	0	2
Brant	Mid	2002	6	1	0.0	0.0	0.00	0.96	0.1042	12.28	55.17	0	1
Brant	East	2002	6	1	0.0	0.0	0.00	1.20	0.1678	9.35	52.49	0	1
Henry	Mid	2002	6	3	0.0	0.0	0.00	1.54	0.5188	4.81	46.0	0	2
Thompson	North	2002	6	5	4.8	0.0	100.00	1.39	0.1542	6.83	49.40	0	3
Thompson	Mid	2002	6	4	13.0	0.0	100.00	1.60	0.2943	8.54	51.33	0	2
Thompson	South	2002	6	4	48.7	0.0	100.00	1.62	0.4878	12.55	55.31	0	2
Whitewood	West	2002	6	6	49.1	0.0	100.00	2.02	0.1601	32.31	64.67	0	4
Whitewood	Mid	2002	6	7	47.4	0.0	100.00	2.04	0.2020	45.39	68.02	1	4
Whitewood	East	2002	6	7	65.4	0.0	98.57	2.00	0.1939	38.72	66.44	0	4
Preston	West	2002	6	5	5.3	0.0	100.00	1.72	0.1740	66.75	71.81	0	3
Preston	Mid	2002	6	4	22.0	0.0	100.00	1.46	0.1366	38.72	66.32	0	2
Preston	East	2002	6	4	4.7	0.0	100.00	0.66	0.0661	19.58	58.05	0	3
Brant	West	2002	6	4	9.1	0.0	66.67	0.51	0.0883	78.77	73.34	0	2

Brant	Mid	2002	6	3	21.6	0.0	62.49	0.00	0.0000	7.74	49.12	0	1
Brant	East	2002	6	3	31.4	0.0	63.63	0.00	0.0000	4.54	44.97	0	1
Alice	West	2002	6	3	0.0	0.0	0.00	1.33	0.0000	22.89	61.28	0	3
Alice	Mid	2002	6	3	0.0	0.0	0.00	1.31	0.2414	23.27	61.44	0	3
Alice	East	2002	6	3	0.0	0.0	0.00	1.18	0.1895	19.07	59.48	0	3
Cochrane	West	2002	6	4	16.7	73.3	0.00	1.25	0.1397	11.75	54.70	0	1
Cochrane	Mid	2002	6	5	10.0	83.3	0.00	0.97	0.0932	14.15	56.26	0	1
Cochrane	East	2002	6	4	18.2	66.7	0.00	1.40	0.1924	10.41	52.98	0	1
Alice	West	2002	7	3	0.0	0.0	0.00	0.94	0.1546	21.36	60.55	1	2
Alice	Mid	2002	7	2	0.0	0.0	0.00	0.29	0.0490	26.70	62.79	0	2
Alice	East	2002	7	6	5.8	8.3	100.00	1.96	0.2114	32.04	64.55	0	4
Cochrane	West	2002	7	7	0.0	44.8	0.00	2.24	0.1900	25.63	62.36	0	4
Cochrane	Mid	2002	7	11	6.1	35.6	87.50	2.62	0.2114	22.16	60.64	0	5
Cochrane	East	2002	7	6	0.0	31.7	0.00	2.40	0.1738	23.23	60.93	0	4
Thompson	North	2002	7	4	11.8	0.0	100.00	1.27	0.2254	25.63	62.39	0	3
Thompson	Mid	2002	7	2	0.0	0.0	0.00	0.70	0.1234	8.81	51.91	0	2
Thompson	South	2002	7	3	0.0	0.0	0.00	1.14	0.1209	18.96	59.38	0	3
Whitewood	West	2002	7	5	5.5	0.0	100.00	0.63	0.0499	98.88	75.64	0	3
Whitewood	Mid	2002	7	3	4.7	0.0	100.00	0.32	0.0269	146.34	79.51	0	1
Whitewood	East	2002	7	4	4.7	0.0	100.00	0.45	0.0361	165.99	80.70	0	2
Henry	Mid	2002	7	2	14.3	0.0	100.00	0.59	0.2207	137.95	78.9	0	1
Preston	West	2002	7	6	2.4	0.0	100.00	0.52	0.0504	178.00	81.43	0	4
Preston	Mid	2002	7	5	16.1	0.0	100.00	1.55	0.1903	61.41	70.98	0	3
Preston	East	2002	7	7	6.5	0.0	93.94	1.67	0.2902	36.05	65.71	0	4
Brant	West	2002	8	1	0.0	0.0	0.00	0.00	0.0000	213.33	83.05	0	1
Brant	Mid	2002	8	1	0.0	0.0	0.00	0.00	0.0000	184.76	81.76	0	1
Brant	East	2002	8	1	0.0	0.0	0.00	0.00	0.0000	38.45	66.23	0	1
Alice	West	2002	8	6	10.5	0.0	100.00	2.27	0.1722	24.41	61.84	1	3
Alice	Mid	2002	8	4	20.0	2.9	100.00	1.37	0.1998	23.36	61.48	0	1
Alice	East	2002	8	2	0.0	15.6	0.00	0.62	0.0851	18.69	58.30	0	1
Cochrane	West	2002	8	5	10.7	60.0	100.00	1.77	0.1992	53.67	68.21	0	3
Cochrane	Mid	2002	8	5	6.2	37.0	100.00	1.92	0.2371	28.30	62.34	0	2
Cochrane	East	2002	8	2	0.0	67.7	0.00	0.91	0.2698	14.15	56.42	0	1
Henry	Mid	2002	8	3	0.0	0.0	0.00	0.39	0.0682	48.06	68.6	0	3
Thompson	North	2002	8	6	1.3	0.0	100.00	1.17	0.1025	26.17	61.83	0	4
Thompson	Mid	2002	8	1	0.0	0.0	0.00	0.00	0.0000	8.01	46.00	0	1
Thompson	South	2002	8	5	5.5	0.0	85.71	0.60	0.0840	9.35	51.53	0	3

Preston	West	2002	8	5	4.9	0.0	45.46	0.39	0.0482	128.69	78.25	0	2
Preston	Mid	2002	8	8	6.1	0.0	100.00	1.74	0.4620	53.40	69.31	2	5
Preston	East	2002	8	7	15.9	0.0	100.00	2.17	0.1718	52.07	69.11	1	4
Whitewood	West	2002	8	3	2.2	0.0	100.00	0.17	0.0126	89.26	74.52	0	1
Whitewood	Mid	2002	8	2	0.0	0.0	0.00	0.06	0.0030	75.19	72.98	0	2
Whitewood	East	2002	8	3	0.0	0.0	0.00	0.17	0.0097	69.09	72.10	1	2
Whitewood	West	2003	6	6	2.7	0.0	100.00	0.52	0.0332	59.79	70.56	1	2
Whitewood	Mid	2003	6	6	1.4	0.0	100.00	0.50	0.0365	56.83	70.22	1	2
Whitewood	East	2003	6	10	1.9	0.0	80.00	0.67	0.0502	56.34	69.98	2	4
Henry	Mid	2003	6	8	32.3	0.0	95.00	2.54	0.1847	17.09	58.4	1	3
Thompson	North	2003	6	5	13.9	0.0	100.00	2.15	0.2386	10.68	53.37	0	3
Thompson	Mid	2003	6	6	51.0	0.0	100.00	2.44	0.2834	10.95	53.83	0	3
Thompson	South	2003	6	6	47.4	0.0	100.00	2.52	0.2753	6.68	49.15	0	2
Alice	West	2003	6	3	17.1	0.0	100.00	1.46	0.2128	11.75	54.68	0	2
Alice	Mid	2003	6	3	36.1	0.0	100.00	1.47	0.2524	9.61	52.80	0	2
Alice	East	2003	6	4	46.5	4.7	100.00	1.61	0.2101	10.41	53.56	0	2
Brant	West	2003	6	2	0.0	0.0	0.00	0.08	0.0050	40.58	66.92	0	2
Brant	Mid	2003	6	2	0.0	0.0	0.00	0.18	0.0134	10.15	53.32	0	2
Brant	East	2003	6	1	0.0	0.0	0.00	0.00	0.0000	39.25	66.41	0	1
Cochrane	West	2003	6	8	5.9	27.5	100.00	2.40	0.1324	15.49	57.43	0	4
Cochrane	Mid	2003	6	10	6.7	44.9	100.00	2.75	0.1691	15.49	57.38	1	5
Cochrane	East	2003	6	7	9.9	46.9	87.50	1.86	0.2008	11.75	54.68	1	2
Preston	West	2003	6	9	1.8	0.0	53.85	0.37	0.0283	88.91	74.62	1	4
Preston	Mid	2003	6	10	28.8	0.0	100.00	2.29	0.2748	52.07	69.29	3	5
Preston	East	2003	6	11	50.5	0.0	100.00	2.16	0.2206	50.73	69.06	3	4

APPENDIX XVII – Lake Invertebrate Taxa List

Major Group	Minor Group	Family	Genera	Species
Annelida	Hirudinoidea	Glossiphoniidae	*Helobdella*	*elongata*
Annelida	Hirudinoidea	Glossiphoniidae	*Glossiphonia*	*complanata*
Annelida	Hirudinoidea	Erpobdellidae	*Erpobdella*	*punctata*
Annelida	Hirudinoidea	Glossiphoniidae	*Placobdella*	*montifera*
Annelida	Oligocheata	Naididae	*Bratislavia*	*bilongata*
Annelida	Oligocheata	Naididae	*Nais*	*bretscheri*
Annelida	Oligocheata	Naididae	*Pristina*	*aquesita*
Annelida	Oligocheata	Naididae	*Pristinella*	*longisoma*
Annelida	Oligocheata	Tubuficidae	*Tubifex*	*tubifex*
Annelida	Oligocheata	Tubuficidae	*Ilyodrilus*	*templetoni*
Annelida	Oligocheata	Tubuficidae	*Limnodrilus*	*cervix*
Arachnoidea	Hydracarina	Eremeaidae	*Hydrozetes*	*sp*
Arachnoidea	Hydracarina	Eylaidae	*Eylais*	*sp*
Arachnoidea	Hydracarina	Hydrachnidae	*Hydrachna*	*sp*
Arachnoidea	Hydracarina	Limnesiidae	*Limnesia*	*sp*
Arachnoidea	Hydracarina	Unionicolidae	*Neumania*	*sp*
Arachnoidea	Hydracarina	Arrenuridae	*Arrenurus*	*sp*
Arachnoidea	Hydracarina	Pionidae	*Piona*	*sp*
Crustacean	Amphipoda	Gammaridae	*Gammarus*	*lacustris*
Crustacean	Amphipoda	Talitridae	*Hyalella*	*azteca*
Insecta	Coleoptera	Chrysomelidae	*Donacia*	*sp*
Insecta	Coleoptera	Curculionidae	*Stenopelmus*	*sp*
Insecta	Coleoptera	Dytiscidae	*Hydaticus*	*sp*
Insecta	Coleoptera	Dytiscidae	*Laccophilus*	*sp*
Insecta	Coleoptera	Elmidae	*Dubiraphia*	*sp*
Insecta	Coleoptera	Haliplidae	*Peltodytes*	*sp*
Insecta	Diptera	Ceratopogonidae	*Bezzia/Palpomyia*	*sp*
Insecta	Diptera	Ceratopogonidae	*Culicoides*	*sp*
Insecta	Diptera	Ceratopogonidae	*Ceratopogon*	*sp*
Insecta	Diptera	Ceratopogonidae	*Mallochohelea*	*sp*
Insecta	Diptera	Chironomidae	*Ablabesmyia*	*sp*
Insecta	Diptera	Chironomidae	*Chironomus*	*sp*
Insecta	Diptera	Chironomidae	*Cladotanytarsus*	*sp*
Insecta	Diptera	Chironomidae	*Corynocera*	*sp*
Insecta	Diptera	Chironomidae	*Cricotopus (C.)*	*trifascia*
Insecta	Diptera	Chironomidae	*Cricotopus (Iso)*	*elegans*
Insecta	Diptera	Chironomidae	*Cricotopus (C.)*	*sp*
Insecta	Diptera	Chironomidae	*Cricotopus/Orthocladius*	*sp*
Insecta	Diptera	Chironomidae	*Cryptochironomus*	*sp*

Insecta	Diptera	Chironomidae	*Cryptotendipes*	*sp*
Insecta	Diptera	Chironomidae	*Dicrotendipes*	*sp*
Insecta	Diptera	Chironomidae	*Einfeldia*	*sp*
Insecta	Diptera	Chironomidae	*Endochironomus*	*sp*
Insecta	Diptera	Chironomidae	*Eukiefferella*	*sp*
Insecta	Diptera	Chironomidae	*Glyptotendipes*	*sp*
Insecta	Diptera	Chironomidae	*Guttipelopia*	*sp*
Insecta	Diptera	Chironomidae	*Labrundinia*	*sp*
Insecta	Diptera	Chironomidae	*Nanocladius*	*sp*
Insecta	Diptera	Chironomidae	*Parachironomus*	*abortivus*
Insecta	Diptera	Chironomidae	*Paratanytarsus*	*sp*
Insecta	Diptera	Chironomidae	*Polypedilum*	*sp*
Insecta	Diptera	Chironomidae	*Procladius*	*sp*
Insecta	Diptera	Chironomidae	*Psectrocladius*	*sp*
Insecta	Diptera	Chironomidae	*Pseudochironomus*	*sp*
Insecta	Diptera	Chironomidae	*Rheotanytarsus*	*sp*
Insecta	Diptera	Chironomidae	*Coleotanypus*	*sp*
Insecta	Diptera	Chironomidae	*Tanypus*	*sp*
Insecta	Diptera	Chironomidae	*Tanytarsus*	*sp*
Insecta	Diptera	Chaoboridae	*Chaoborus*	*americanus*
Insecta	Ephemeroptera	Baetidae	*Callibaetis*	*sp*
Insecta	Ephemeroptera	Caenidae	*Caenis*	*sp*
Insecta	Ephemeroptera	Ephemeridae	*Hexagenia*	*limbata*
Insecta	Hemiptera	Corixidae	*Hesperocorixa*	*laevigata*
Insecta	Hemiptera	Corixidae	*Palmocorixa*	*nana*
Insecta	Hemiptera	Corixidae	*Ramphocorixa*	*acuminata*
Insecta	Hemiptera	Corixidae	*Sigara*	*decoratella*
Insecta	Hemiptera	Corixidae	*Trichocorixa*	*borealis*
Insecta	Hemiptera	Corixidae	*Trichocorixa*	*naias*
Insecta	Hemiptera	Pleidae	*Neoplea*	*striola*
Insecta	Odonata	Coenagrionidae	*Enallagma*	*sp*
Insecta	Trichoptera	Hydroptilidae	*Hydroptilla*	*sp*
Insecta	Trichoptera	Hydroptilidae	*Ochrotrichia*	*sp*
Insecta	Trichoptera	Hydroptilidae	*Orthotrichia*	*sp*
Insecta	Trichoptera	Leptoceridae	*Oecetis*	*sp*
Insecta	Trichoptera	Leptoceridae	*Setodes*	*sp*
Insecta	Trichoptera	Polycentropodidae	*Cyrnellus*	*fraturnus*
Insecta	Trichoptera	Polycentropodidae	*Polycentropus*	*sp*
Insecta	Lepidoptera	Pyralidae	*Acentria sp.*	*sp*
Mollusca	Gastropoda	Hydrobiidae	*Amnicola*	*limosa*
Mollusca	Gastropoda	Physidae	*Physella*	*integra*
Mollusca	Gastropoda	Planorbidae	*Planorbula*	*armiger*
Mollusca	Gastropoda	Lymnaeidae	*Fossaria*	*obrusa*
Mollusca	Gastropoda	Valvatidae	*Valvata*	*bicarinata (n.)*
Mollusca	Gastropoda	Valvatidae	*Valvata*	*tricarinata (t.)*
Nematoda	Tylenchida	Tylenchidae	*Tylenchus*	*sp*

Nematoda	Tylenchida	Tylenchidae	*Apelenchoides*	*sp*
Tubellaria	Tricladida	Planariidae	*Dugesia*	tigrina

APPENDIX XVIII – Littoral Invertebrate Optimal Metrics

Lake	Year	Month	PerHem	H'	Even	Ntaxa	PerCG	PerPR	PerSwm	TolTax	HBI	PerDom
			%			#	%	%	%	#		%
Preston	2001	7	0.0	1.5	0.663	10.0	90.3	3.9	71.8	10.0	7.9	52.4
Preston	2001	7	2.8	2.2	0.778	16.0	66.1	11.7	48.3	15.0	7.4	27.8
Preston	2001	7	40.0	2.1	0.718	18.0	37.7	50.6	80.0	14.0	6.1	34.3
Preston	2001	7	0.0	1.3	0.553	11.0	78.4	18.1	88.1	9.0	7.2	58.4
Preston	2001	7	15.6	1.6	0.535	19.0	58.6	37.2	93.7	16.0	6.7	52.3
Henry	2001	7	5.3	1.4	0.579	11.0	92.8	4.8	85.6	10.0	7.5	44.0
Henry	2001	7	0.0	0.6	0.811	2.0	100.0	0.0	75.0	2.0	8.0	75.0
Henry	2001	7	0.0	1.9	0.788	12.0	51.0	27.9	46.2	9.0	7.3	26.9
Henry	2001	7	1.0	1.5	0.558	15.3	68.6	17.4	75.8	13.3	6.9	34.8
Henry	2001	7	0.0	1.8	0.654	18.0	81.6	14.1	73.5	15.0	7.4	36.4
Thompson	2001	7	6.9	2.1	0.832	12.0	67.2	13.8	56.9	10.0	7.1	31.0
Thompson	2001	7	0.0	1.3	0.659	8.0	93.9	0.0	36.5	8.0	8.2	37.5
Thompson	2001	7	11.0	1.9	0.833	10.0	79.5	13.7	57.5	8.0	7.2	24.7
Thompson	2001	7	3.6	1.3	0.612	9.0	80.3	6.2	5.2	8.0	8.1	54.4
Thompson	2001	7	62.9	1.6	0.592	14.0	18.4	74.6	92.6	11.0	5.6	56.5
Thompson	2001	7	1.2	0.5	0.200	11.0	92.9	2.7	94.7	8.0	7.9	90.9
Whitewood	2001	7	0.9	0.5	0.253	9.0	87.9	7.7	88.5	8.0	7.9	86.7
Whitewood	2001	7	13.0	0.6	0.288	7.9	86.5	13.0	96.9	6.9	7.6	83.4
Whitewood	2001	7	0.0	0.1	0.204	3.0	98.0	0.0	98.0	3.0	8.0	95.4
Whitewood	2001	7	2.0	0.5	0.226	11.0	92.6	7.4	96.3	8.0	7.8	89.9
Whitewood	2001	7	14.8	1.8	0.756	12.0	54.4	31.5	68.0	10.0	8.0	33.7
Alice	2001	8	15.7	1.5	0.682	9.0	25.5	74.1	35.7	7.0	4.8	52.1
Alice	2001	8	2.7	2.0	0.699	18.0	42.1	47.2	33.4	16.0	6.2	39.8
Alice	2001	8	52.2	1.9	0.668	16.0	5.6	53.8	74.4	12.0	4.9	34.9
Alice	2001	8	15.6	2.4	0.755	23.9	38.3	30.9	50.6	13.0	6.7	19.0
Alice	2001	8	0.0	1.7	0.707	11.0	86.9	9.0	57.3	10.0	6.9	42.2
Cochrane	2001	8	0.0	1.1	0.556	7.0	97.6	2.4	73.2	7.0	7.1	70.7
Cochrane	2001	8	0.0	0.7	0.426	5.0	100.0	0.0	99.1	5.0	7.3	77.9
Cochrane	2001	8	0.0	1.0	0.394	13.0	96.7	1.3	96.1	12.0	7.4	68.5
Cochrane	2001	8	0.0	0.3	0.135	9.0	97.4	0.7	95.7	8.0	7.0	95.1
Cochrane	2001	8	0.0	0.9	0.296	18.0	90.9	5.7	88.6	18.0	7.1	83.6
Brant	2001	8	0.0	1.8	0.760	11.0	94.6	0.0	63.1	11.0	7.7	39.2
Brant	2001	8	15.7	2.0	0.808	12.0	76.4	1.1	71.9	12.0	7.3	30.3

Brant	2001	8	3.4	1.8	0.627	17.0	86.2	6.0	60.3	16.0	7.0	51.7
Brant	2001	8	16.7	1.9	0.870	9.0	69.4	11.1	63.9	9.0	7.5	38.9
Brant	2001	8	5.0	2.0	0.713	16.0	90.4	6.0	66.9	14.0	7.4	39.9
Henry	2001	8	1.1	0.9	0.375	12.0	89.0	3.3	84.0	11.0	7.9	79.6
Henry	2001	8	2.0	0.4	0.163	10.0	96.4	2.6	97.7	9.0	7.9	93.4
Henry	2001	8	0.0	1.1	0.783	4.0	92.0	8.0	64.0	4.0	8.1	56.0
Henry	2001	8	0.3	0.2	0.105	6.0	97.7	2.3	97.7	6.0	8.0	96.8
Henry	2001	8	44.4	1.4	0.841	5.0	50.0	44.4	66.7	4.0	6.6	38.9
Preston	2001	8	94.4	0.3	0.150	6.0	4.7	95.0	99.1	6.0	5.1	94.4
Preston	2001	8	79.7	0.7	0.343	7.0	19.0	79.4	99.0	6.0	5.6	79.1
Preston	2001	8	94.4	0.3	0.156	7.0	3.6	96.0	98.0	6.0	5.1	94.4
Preston	2001	8	87.5	0.6	0.345	5.0	12.5	86.8	100.0	5.0	5.5	84.6
Preston	2001	8	25.2	1.1	0.421	15.0	70.2	25.2	97.4	12.0	7.2	65.6
Thompson	2001	8	1.9	1.3	0.479	15.0	90.5	5.4	84.9	14.0	7.8	69.7
Thompson	2001	8	0.0	0.8	0.725	3.0	100.0	0.0	85.7	3.0	7.9	71.4
Thompson	2001	8	7.3	1.4	0.586	11.0	61.8	9.1	67.3	10.0	7.3	56.4
Thompson	2001	8	8.3	1.7	0.682	12.0	56.7	10.0	66.7	10.0	7.1	48.3
Whitewood	2001	8	0.0	0.0	0.000	1.0	100.0	0.0	100.0	1.0	8.0	100.0
Whitewood	2001	8	0.0	0.4	0.161	9.0	96.3	0.3	94.6	8.0	7.9	93.6
Whitewood	2001	8	0.0	0.1	0.057	3.0	99.0	0.0	99.0	3.0	8.0	99.0
Whitewood	2001	8	20.6	0.9	0.345	12.0	76.8	21.3	96.6	9.0	7.3	74.8
Whitewood	2001	8	2.0	0.5	0.264	6.0	97.7	2.4	99.3	6.0	7.9	87.6
Henry	2002	6	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Henry	2002	6	28.6	1.0	0.870	3.0	71.4	0.0	85.7	3.0	8.0	57.1
Henry	2002	6	0.0	1.1	0.668	5.0	59.3	37.0	92.6	4.0	6.3	51.9
Henry	2002	6	22.2	1.7	0.936	6.0	33.3	44.4	44.4	4.0	5.8	33.3
Henry	2002	6	5.3	1.0	0.648	5.0	78.9	15.8	94.7	4.0	7.2	68.4
Whitewood	2002	6	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Whitewood	2002	6	83.3	0.5	0.650	2.0	16.7	83.3	83.3	2.0	5.5	83.3
Whitewood	2002	6	10.5	1.3	0.731	6.0	63.2	31.6	84.2	5.0	7.2	57.9
Whitewood	2002	6	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Whitewood	2002	6	98.1	0.6	0.432	4.0	0.4	79.7	100.0	3.0	5.0	78.2
Thompson	2002	6	7.8	1.4	0.692	8.0	91.2	3.9	54.9	7.0	8.0	45.1
Thompson	2002	6	0.7	0.6	0.400	4.0	81.3	18.7	100.0	3.0	7.2	80.6
Thompson	2002	6	31.4	1.5	0.766	7.0	13.7	62.7	88.2	5.0	4.8	49.0
Thompson	2002	6	8.0	1.6	0.733	10.0	32.0	48.0	72.0	9.0	6.0	36.0
Thompson	2002	6	0.0	0.5	0.783	3.0	15.4	69.2	84.6	2.0	4.3	69.2

Preston	2002	6	21.1	1.0	0.885	3.0	21.1	78.9	100.0	2.0	4.7	57.9
Preston	2002	6	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Preston	2002	6	83.3	0.5	0.650	2.0	16.7	83.3	100.0	2.0	5.3	83.3
Preston	2002	6	25.0	1.6	0.819	6.9	31.3	62.5	62.5	5.9	6.1	31.3
Preston	2002	6	13.6	1.7	0.952	6.0	36.4	40.9	54.5	5.0	6.0	22.7
Brant	2002	6	0.0	0.6	0.918	2.0	33.3	66.7	33.3	1.0	5.1	66.7
Brant	2002	6	0.0	1.4	0.851	5.0	57.9	36.8	26.3	4.0	6.3	36.8
Brant	2002	6	0.0	0.0	0.000	1.0	100.0	0.0	100.0	1.0	8.0	100.0
Brant	2002	6	0.0	0.0	0.000	1.0	0.0	100.0	0.0	1.0	9.0	100.0
Brant	2002	6	0.0	0.0	0.000	1.0	100.0	0.0	100.0	1.0	8.0	100.0
Alice	2002	6	3.4	0.6	0.342	6.0	14.3	83.4	99.4	5.0	4.4	82.3
Alice	2002	6	10.4	1.3	0.595	9.0	35.1	54.5	96.1	8.0	5.6	50.6
Alice	2002	6	0.0	0.9	0.624	4.0	31.0	69.0	93.1	3.0	5.1	65.5
Alice	2002	6	21.6	1.9	0.747	12.0	43.2	45.7	88.4	10.0	5.9	30.2
Alice	2002	6	22.7	1.4	0.673	8.0	55.3	27.3	93.3	6.0	6.5	53.3
Cochrane	2002	6	0.0	0.5	0.722	2.0	20.0	80.0	0.0	2.0	6.4	80.0
Cochrane	2002	6	0.0	0.0	0.000	1.0	100.0	0.0	100.0	1.0	7.0	100.0
Cochrane	2002	6	0.0	0.5	0.463	3.0	92.9	7.1	85.7	3.0	7.3	85.7
Cochrane	2002	6	0.0	1.2	0.865	4.0	75.0	25.0	58.3	4.0	6.8	50.0
Cochrane	2002	6	0.0	1.7	0.850	7.0	75.0	12.5	33.3	7.0	7.4	37.5
Alice	2002	7	12.7	1.3	0.667	7.0	41.8	57.0	98.7	5.0	5.7	44.3
Alice	2002	7	1.3	1.1	0.425	14.0	88.3	11.0	92.2	12.0	7.4	72.1
Alice	2002	7	8.4	1.0	0.469	8.0	81.9	10.8	92.8	6.0	7.4	75.9
Alice	2002	7	3.1	1.5	0.711	8.0	59.4	40.6	81.3	6.0	6.3	53.1
Alice	2002	7	0.0	1.4	0.699	7.0	50.7	46.6	91.8	5.0	5.8	43.8
Cochrane	2002	7	0.0	1.5	0.784	7.0	42.9	52.4	4.8	7.0	7.4	42.9
Cochrane	2002	7	1.3	0.8	0.337	9.0	95.3	4.0	96.0	8.0	7.1	80.7
Cochrane	2002	7	0.0	0.2	0.276	2.0	95.2	4.8	95.2	2.0	7.0	95.2
Cochrane	2002	7	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cochrane	2002	7	0.0	1.7	0.634	15.6	93.9	6.1	69.4	15.6	7.7	46.9
Brant	2002	7	3.8	2.1	0.718	15.0	78.8	6.3	45.0	12.0	7.5	31.3
Brant	2002	7	9.1	2.0	0.773	14.0	75.8	12.1	63.6	14.0	7.8	45.5
Brant	2002	7	20.0	1.0	0.865	3.0	80.0	0.0	80.0	3.0	7.6	60.0
Brant	2002	7	11.9	1.1	0.478	11.0	83.7	11.1	90.4	9.0	6.8	72.6
Brant	2002	7	70.7	1.4	0.559	13.0	14.1	60.6	76.8	13.0	5.8	59.1
Thompson	2002	7	87.6	0.5	0.339	5.0	9.7	89.9	99.7	4.0	5.2	87.6
Thompson	2002	7	0.0	0.5	0.488	3.0	7.7	84.6	92.3	2.0	4.3	84.6

Thompson	2002	7	12.0	1.7	0.794	8.0	20.0	64.0	72.0	7.0	5.3	48.0
Thompson	2002	7	6.7	1.3	0.812	6.0	40.0	53.3	86.7	5.0	5.4	46.7
Thompson	2002	7	0.0	1.6	0.844	7.0	65.6	31.3	75.0	6.0	6.6	28.1
Whitewood	2002	7	93.5	0.3	0.183	6.0	4.8	95.2	99.7	4.0	5.1	93.5
Whitewood	2002	7	93.1	0.3	0.216	5.0	3.6	96.4	100.0	3.0	5.0	93.1
Whitewood	2002	7	65.9	1.0	0.508	7.0	6.3	93.5	99.7	4.0	4.8	65.6
Whitewood	2002	7	68.5	1.1	0.595	6.0	21.4	77.3	98.7	4.0	5.5	68.5
Whitewood	2002	7	93.1	0.3	0.227	4.0	3.3	96.7	100.0	2.0	5.1	93.1
Henry	2002	7	0.0	0.9	0.859	3.0	50.0	50.0	100.0	2.0	5.8	50.0
Henry	2002	7	1.5	1.5	0.652	10.0	34.8	6.1	33.3	8.0	7.8	51.5
Henry	2002	7	36.4	0.7	0.946	2.0	63.6	36.4	100.0	2.0	6.9	63.6
Henry	2002	7	0.0	0.7	0.971	2.0	100.0	0.0	40.0	2.0	8.0	60.0
Henry	2002	7	0.0	0.9	0.393	9.9	94.7	4.2	87.4	8.9	8.0	77.9
Preston	2002	7	72.1	1.0	0.531	7.0	11.6	86.0	90.7	6.0	5.3	72.1
Preston	2002	7	71.3	0.9	0.450	7.0	14.0	85.3	98.3	6.0	5.1	71.3
Preston	2002	7	94.0	0.3	0.197	4.0	4.0	96.0	99.7	3.0	5.1	94.0
Preston	2002	7	75.0	0.7	0.635	4.0	9.4	87.5	87.5	3.0	5.3	75.0
Preston	2002	7	69.0	0.9	0.536	5.0	18.3	81.3	99.2	4.0	5.2	69.0
Brant	2002	8	14.3	1.1	0.805	4.0	64.3	14.3	71.4	4.0	6.8	57.1
Brant	2002	8	0.0	2.1	0.936	9.0	81.5	0.0	18.5	9.0	7.7	29.6
Brant	2002	8	28.9	1.7	0.614	16.0	68.2	26.4	80.6	16.0	7.1	44.2
Brant	2002	8	57.1	1.4	0.730	7.0	42.9	17.9	94.6	7.0	6.4	39.3
Brant	2002	8	51.7	1.7	0.796	9.0	48.3	16.7	78.3	9.0	6.5	35.0
Alice	2002	8	50.0	1.0	0.921	3.0	50.0	16.7	50.0	3.0	6.5	50.0
Alice	2002	8	22.2	1.4	0.887	5.0	55.6	0.0	66.7	5.0	6.4	44.4
Alice	2002	8	0.0	2.0	0.879	10.0	60.0	11.1	71.1	9.0	7.0	33.3
Alice	2002	8	44.4	1.3	0.718	6.0	51.9	44.4	88.9	5.0	6.7	44.4
Alice	2002	8	0.0	0.7	1.000	2.0	50.0	50.0	50.0	1.0	5.9	50.0
Cochrane	2002	8	0.0	0.6	0.918	2.0	66.7	0.0	0.0	2.0	7.7	66.7
Cochrane	2002	8	0.0	0.0	0.000	1.0	100.0	0.0	0.0	1.0	7.0	100.0
Cochrane	2002	8	0.0	0.9	0.537	5.0	100.0	0.0	78.4	5.0	7.3	75.7
Cochrane	2002	8	0.0	1.2	0.860	4.0	100.0	0.0	68.4	4.0	8.1	47.4
Cochrane	2002	8	0.0	1.6	0.752	8.0	96.1	0.0	82.4	8.0	7.8	39.2
Henry	2002	8	10.3	2.1	0.898	10.0	41.4	41.4	44.8	5.3	7.6	24.1
Henry	2002	8	33.1	1.6	0.654	12.0	33.1	42.1	65.3	9.0	6.7	32.2
Henry	2002	8	16.1	1.5	0.632	12.0	52.4	25.9	69.4	8.0	7.2	49.2
Henry	2002	8	0.0	0.8	0.773	3.0	88.9	11.1	77.8	2.0	8.0	66.7

Henry	2002	8	3.1	0.7	0.348	7.0	91.3	5.5	90.6	5.0	7.8	84.3
Thompson	2002	8	52.0	1.6	0.598	15.0	30.4	56.0	81.6	13.0	6.1	49.6
Thompson	2002	8	33.9	1.5	0.774	9.0	40.7	37.6	74.6	8.0	6.6	32.2
Thompson	2002	8	0.0	0.6	0.397	4.0	82.3	16.8	81.4	4.0	8.3	81.4
Thompson	2002	8	26.7	1.0	0.546	6.0	66.7	6.8	97.8	4.0	7.0	64.4
Thompson	2002	8	0.0	0.0	0.000	1.0	100.0	0.0	0.0	1.0	7.0	100.0
Preston	2002	8	62.5	1.1	0.774	4.0	37.5	62.5	62.5	4.0	6.1	62.5
Preston	2002	8	100.0	0.0	0.000	1.0	0.0	100.0	100.0	1.0	5.0	100.0
Preston	2002	8	94.5	0.3	0.194	4.0	5.5	94.5	97.3	4.0	5.2	94.5
Preston	2002	8	85.7	0.5	0.432	3.0	14.3	85.7	97.6	3.0	5.3	85.7
Preston	2002	8	94.8	0.2	0.206	3.0	0.7	99.3	99.3	2.0	5.0	94.8
Whitewood	2002	8	59.5	1.0	0.630	5.0	21.9	77.8	100.0	3.0	5.4	59.2
Whitewood	2002	8	19.6	1.1	0.674	5.0	40.9	58.8	99.7	2.0	5.7	40.9
Whitewood	2002	8	99.1	0.1	0.075	2.0	0.0	100.0	100.0	1.0	5.0	99.1
Whitewood	2002	8	99.5	0.0	0.046	2.0	0.0	100.0	100.0	1.0	5.0	99.5
Whitewood	2002	8	100.0	0.0	0.000	1.0	0.0	100.0	100.0	1.0	5.0	100.0
Whitewood	2003	6	100.0	0.0	0.000	1.0	0.0	100.0	100.0	1.0	5.0	100.0
Whitewood	2003	6	100.0	0.0	0.000	1.0	0.0	100.0	100.0	1.0	5.0	100.0
Whitewood	2003	6	100.0	0.0	0.000	1.0	0.0	100.0	100.0	1.0	5.0	100.0
Whitewood	2003	6	99.7	0.0	0.030	2.0	0.3	99.7	100.0	2.0	5.0	99.7
Whitewood	2003	6	99.8	0.0	0.022	2.0	0.2	99.8	100.0	2.0	5.0	99.8
Henry	2003	6	49.2	1.2	0.649	6.0	39.2	47.7	87.7	6.0	6.5	46.2
Henry	2003	6	27.9	1.2	0.653	6.0	56.9	25.9	83.8	6.0	7.2	55.8
Henry	2003	6	26.8	1.2	0.645	6.0	61.0	34.1	95.1	5.0	6.8	58.5
Henry	2003	6	72.9	0.8	0.492	5.0	22.9	73.8	93.8	5.0	5.8	72.9
Henry	2003	6	0.0	0.7	0.444	5.0	89.1	0.0	81.3	5.0	8.1	81.3
Thompson	2003	6	70.6	1.1	0.997	3.0	0.0	35.3	70.6	3.0	5.6	35.3
Thompson	2003	6	10.5	1.3	0.707	6.0	72.8	10.5	79.8	6.0	7.6	61.4
Thompson	2003	6	99.0	0.2	0.149	4.0	0.3	95.7	99.3	4.0	5.1	95.7
Thompson	2003	6	94.4	0.3	0.194	4.0	4.6	94.4	99.0	4.0	5.1	94.4
Thompson	2003	6	100.0	0.0	0.000	1.0	0.0	100.0	100.0	1.0	5.0	100.0
Alice	2003	6	14.3	2.0	0.732	16.4	73.8	21.4	47.6	9.0	7.2	31.0
Alice	2003	6	0.0	0.7	1.000	2.0	100.0	0.0	50.0	2.0	7.5	50.0
Alice	2003	6	58.3	1.1	0.712	4.9	25.0	58.3	75.0	3.0	5.9	58.3
Alice	2003	6	10.0	1.7	0.801	8.7	80.0	10.0	60.0	5.0	7.5	40.0
Alice	2003	6	88.9	0.90	0.443	7.6	11.1	59.3	88.9	2.0	6.0	59.3
Brant	2003	6	61.4	1.4	0.862	5.0	19.3	40.4	78.9	5.0	6.0	40.4

Brant	2003	6	93.3	0.5	0.330	5.0	3.7	87.4	97.0	5.0	5.2	87.4
Brant	2003	6	32.1	1.6	0.892	6.0	42.9	42.9	46.4	5.0	5.8	32.1
Brant	2003	6	63.0	1.0	0.690	4.0	11.1	63.0	70.4	4.0	5.9	63.0
Brant	2003	6	36.4	1.2	0.838	4.0	9.1	36.4	45.5	4.0	6.6	45.5
Cochrane	2003	6	0.0	1.5	0.720	8.0	92.5	1.9	73.6	8.0	7.5	41.5
Cochrane	2003	6	0.0	1.2	0.607	7.0	92.0	4.0	16.0	7.0	6.4	68.0
Cochrane	2003	6	0.0	0.7	0.478	4.0	95.5	0.0	86.4	4.0	7.7	81.8
Cochrane	2003	6	0.0	1.6	0.820	7.0	85.9	5.4	54.3	7.0	7.1	33.7
Cochrane	2003	6	0.0	1.5	0.778	7.0	96.0	0.0	38.7	7.0	6.9	44.0
Preston	2003	6	97.9	0.1	0.105	3.0	0.7	97.9	99.3	3.0	5.1	97.9
Preston	2003	6	100.0	0.0	0.000	1.0	0.0	100.0	100.0	1.0	5.0	100.0
Preston	2003	6	98.7	0.1	0.097	4.0	1.3	97.7	99.0	4.0	5.1	97.7
Preston	2003	6	99.5	0.2	0.172	3.0	0.5	95.8	99.5	3.0	5.1	95.8
Preston	2003	6	99.8	0.0	0.025	2.0	0.0	99.8	100.0	2.0	5.0	99.8

APPENDIX XIX – Basin Invertebrate Optimal Metrics

Lake	Year	Month	PerChr %	PerOrth %	PerTany %	Ntaxa #	OliTax #	PerCG %	PerPR %	PerBur %	TolTax #	PerSdI %
Thompson	2001	7	90.9	9.1	0.0	2.0	0.0	90.9	9.1	90.9	2.0	9.09
Thompson	2001	7	92.3	7.7	0.0	3.0	0.0	92.3	7.7	84.6	3.0	15.38
Thompson	2001	7	75.0	0.0	0.0	2.0	0.0	100.0	0.0	75.0	2.0	25.00
Whitewood	2001	7	66.4	29.2	0.0	6.0	3.0	70.8	29.2	47.8	6.0	52.21
Whitewood	2001	7	70.1	26.9	0.0	6.0	2.0	72.5	26.9	50.3	6.0	49.70
Whitewood	2001	7	52.8	43.2	0.0	6.0	3.0	56.8	43.2	38.4	6.0	61.60
Henry	2001	7	83.4	11.7	0.0	5.0	2.0	88.3	11.7	79.3	5.0	20.69
Preston	2001	7	95.1	2.4	0.0	6.0	2.0	97.2	2.4	94.4	6.0	5.59
Preston	2001	7	84.0	16.0	0.0	2.0	0.0	84.0	16.0	84.0	2.0	16.00
Preston	2001	7	83.3	1.3	0.0	6.0	1.0	89.7	2.6	82.1	6.0	17.95
Alice	2001	8	82.9	2.9	5.7	6.0	0.0	82.9	17.1	77.1	5.0	22.86
Alice	2001	8	88.0	8.0	2.0	5.0	0.0	88.0	12.0	80.0	4.0	20.00
Alice	2001	8	84.6	7.7	0.0	4.0	0.0	84.6	15.4	61.5	4.0	38.46
Cochrane	2001	8	57.9	21.1	0.0	4.0	1.0	68.4	31.6	57.9	4.0	42.11
Cochrane	2001	8	23.1	0.0	0.0	2.0	0.0	23.1	76.9	23.1	2.0	76.92
Cochrane	2001	8	5.0	0.0	0.0	3.0	1.0	10.0	90.0	5.0	3.0	95.00
Brant	2001	8	0.0	0.0	100.0	2.0	0.0	0.0	100.0	20.8	2.0	79.17
Brant	2001	8	3.1	0.0	90.6	4.0	1.0	9.4	90.6	50.0	4.0	50.00
Brant	2001	8	0.0	0.0	71.4	3.0	2.0	28.6	71.4	71.4	3.0	28.57
Henry	2001	8	13.4	11.3	0.0	7.0	2.0	86.3	11.7	4.1	6.0	95.88
Preston	2001	8	61.8	8.8	0.0	6.0	3.0	91.2	8.8	59.6	6.0	40.44
Preston	2001	8	86.6	6.3	0.0	6.0	3.0	93.7	6.3	82.4	6.0	17.61
Preston	2001	8	100.0	0.0	0.0	1.0	0.0	100.0	0.0	100.0	1.0	0.00
Thompson	2001	8	75.0	25.0	0.0	2.0	0.0	75.0	25.0	75.0	2.0	25.00
Thompson	2001	8	48.0	12.0	0.0	7.0	3.0	84.0	12.0	36.0	7.0	64.00
Thompson	2001	8	7.1	0.0	0.0	3.0	2.0	100.0	0.0	7.1	3.0	92.86
Whitewood	2001	8	0.0	25.0	0.0	2.0	1.0	75.0	25.0	0.0	2.0	100.00
Whitewood	2001	8	26.6	14.2	8.9	7.0	3.0	76.9	23.1	33.7	7.0	66.27
Whitewood	2001	8	14.3	28.6	42.9	4.0	0.0	14.3	85.7	71.4	4.0	28.57
Whitewood	2001	9	12.9	26.7	1.7	6.0	2.0	71.6	28.4	8.6	6.0	91.38
Whitewood	2001	9	49.3	22.4	0.0	5.0	2.0	77.6	22.4	40.3	5.0	59.70

Whitewood	2001	9	24.3	29.7	2.7	8.0	2.0	62.2	37.8	24.3	8.0	75.68
Henry	2001	9	10.8	13.8	0.0	9.0	3.0	81.6	13.8	3.9	9.0	96.07
Preston	2001	9	26.1	4.3	0.0	4.0	2.0	95.7	4.3	26.1	4.0	73.91
Preston	2001	9	78.6	10.7	3.6	7.0	3.0	85.7	14.3	67.9	7.0	32.14
Preston	2001	9	81.3	18.8	0.0	3.0	0.0	81.3	18.8	75.0	3.0	25.00
Thompson	2001	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Thompson	2001	9	0.0	100.0	0.0	1.0	0.0	0.0	100.0	0.0	1.0	100.00
Thompson	2001	9	0.0	57.1	0.0	2.0	1.0	42.9	57.1	0.0	2.0	100.00
Henry	2002	4	10.9	26.6	0.0	7.0	3.0	73.4	26.6	7.8	7.0	92.19
Thompson	2002	4	75.0	25.0	0.0	2.0	0.0	75.0	25.0	75.0	2.0	25.00
Thompson	2002	4	16.2	50.8	2.3	7.0	3.0	46.9	53.1	16.2	7.0	83.85
Thompson	2002	4	20.0	37.1	0.0	6.0	2.0	54.3	37.1	17.1	6.0	82.86
Preston	2002	4	72.0	20.0	8.0	4.0	0.0	72.0	28.0	76.0	4.0	24.00
Preston	2002	4	58.8	32.4	8.8	4.0	0.0	58.8	41.2	55.9	4.0	44.12
Preston	2002	4	4.7	0.0	0.0	9.0	4.0	96.5	0.0	2.3	9.0	97.67
Whitewood	2002	4	50.0	45.5	0.0	4.0	0.0	50.0	50.0	40.9	4.0	59.09
Whitewood	2002	4	32.8	17.5	13.1	7.0	2.0	68.6	30.7	37.2	7.0	62.77
Whitewood	2002	4	5.3	78.9	0.0	3.0	0.0	5.3	94.7	21.1	3.0	78.95
Henry	2002	5	45.3	18.4	1.7	9.0	3.0	63.1	20.1	21.8	9.0	78.21
Thompson	2002	5	15.4	69.2	0.0	3.0	1.0	30.8	69.2	15.4	3.0	84.62
Thompson	2002	5	0.0	64.3	21.4	4.0	2.0	14.3	85.7	21.4	4.0	78.57
Thompson	2002	5	0.0	100.0	0.0	1.0	0.0	0.0	100.0	0.0	1.0	100.00
Whitewood	2002	5	40.0	52.0	8.0	4.0	0.0	40.0	60.0	44.0	4.0	56.00
Preston	2002	5	81.8	18.2	0.0	3.0	0.0	81.8	18.2	72.7	3.0	27.27
Preston	2002	5	88.9	5.6	5.6	4.0	0.0	88.9	11.1	77.8	4.0	22.22
Preston	2002	5	100.0	0.0	0.0	2.0	0.0	100.0	0.0	75.0	2.0	25.00
Whitewood	2002	5	53.3	40.0	0.0	4.0	0.0	53.3	46.7	26.7	4.0	73.33
Whitewood	2002	5	27.8	61.1	5.6	5.0	1.0	33.3	66.7	22.2	5.0	77.78
Henry	2002	6	81.1	15.8	1.9	7.0	2.0	78.6	17.7	80.1	7.0	19.88
Whitewood	2002	6	61.5	34.6	3.8	4.0	0.0	61.5	38.5	53.8	4.0	46.15
Whitewood	2002	6	58.5	19.5	7.3	5.0	1.0	73.2	26.8	58.5	5.0	41.46
Whitewood	2002	6	50.0	30.0	0.0	3.0	0.0	50.0	50.0	70.0	3.0	30.00
Thompson	2002	6	100.0	0.0	0.0	2.0	0.0	100.0	0.0	8.3	2.0	91.67
Thompson	2002	6	33.3	66.7	0.0	3.0	0.0	33.3	66.7	16.7	3.0	83.33
Thompson	2002	6	92.9	7.1	0.0	2.0	0.0	92.9	7.1	92.9	2.0	7.14
Preston	2002	6	78.3	21.7	0.0	2.0	0.0	78.3	21.7	78.3	2.0	21.74
Preston	2002	6	25.0	56.3	12.5	4.0	0.0	25.0	75.0	43.8	4.0	56.25

Preston	2002	6	100.0	0.0	0.0	1.0	0.0	100.0	0.0	0.0	1.0	100.00
Brant	2002	6	0.0	27.3	72.7	3.0	0.0	0.0	100.0	63.6	3.0	36.36
Brant	2002	6	0.0	0.0	28.6	4.0	2.0	71.4	28.6	28.6	4.0	71.43
Brant	2002	6	16.7	16.7	50.0	5.0	1.0	33.3	66.7	50.0	5.0	50.00
Alice	2002	6	3.6	14.3	7.1	9.0	2.0	17.9	64.3	53.6	9.0	46.43
Alice	2002	6	20.0	15.0	20.0	9.0	0.0	15.0	70.0	70.0	9.0	30.00
Alice	2002	6	0.0	30.8	7.7	5.0	0.0	0.0	76.9	46.2	5.0	53.85
Cochrane	2002	6	60.0	5.0	0.0	5.0	1.0	65.0	35.0	65.0	5.0	35.00
Cochrane	2002	6	100.0	0.0	0.0	1.0	0.0	100.0	0.0	100.0	1.0	0.00
Cochrane	2002	6	35.5	0.0	0.0	3.0	1.0	38.7	61.3	35.5	3.0	64.52
Alice	2002	7	0.0	0.0	0.0	3.0	1.0	31.3	68.8	68.8	3.0	31.25
Alice	2002	7	0.0	66.7	0.0	2.0	0.0	0.0	100.0	33.3	2.0	66.67
Alice	2002	7	0.0	5.9	0.0	6.0	1.0	23.5	35.3	29.4	5.0	70.59
Cochrane	2002	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cochrane	2002	7	100.0	0.0	0.0	2.0	0.0	100.0	0.0	88.9	2.0	11.11
Cochrane	2002	7	60.0	0.0	0.0	2.0	0.0	60.0	40.0	60.0	2.0	40.00
Brant	2002	7	0.0	0.0	100.0	2.0	0.0	0.0	100.0	6.3	2.0	93.75
Brant	2002	7	13.0	16.3	68.5	4.0	0.0	15.2	84.8	13.0	4.0	86.96
Brant	2002	7	12.9	0.0	85.7	4.0	1.0	14.3	85.7	25.7	4.0	74.29
Thompson	2002	7	41.7	58.3	0.0	3.0	0.0	41.7	58.3	25.0	3.0	75.00
Thompson	2002	7	23.1	53.8	0.0	4.0	1.0	46.2	53.8	15.4	4.0	84.62
Thompson	2002	7	0.0	0.0	0.0	3.0	2.0	100.0	0.0	0.0	3.0	100.00
Whitewood	2002	7	48.9	14.9	0.0	6.0	3.0	85.1	14.9	36.2	6.0	63.83
Whitewood	2002	7	87.8	4.8	1.5	7.0	2.0	93.0	6.3	86.3	7.0	13.70
Whitewood	2002	7	80.0	15.0	5.0	4.0	0.0	80.0	20.0	75.0	4.0	25.00
Henry	2002	7	31.6	31.6	0.0	9.0	3.0	63.2	32.3	18.0	8.0	81.95
Preston	2002	7	33.3	33.3	0.0	5.0	1.0	58.3	41.7	33.3	5.0	66.67
Preston	2002	7	50.0	0.0	0.0	2.0	1.0	100.0	0.0	50.0	2.0	50.00
Preston	2002	7	0.0	0.0	100.0	1.0	0.0	0.0	100.0	100.0	1.0	0.00
Brant	2002	8	4.5	0.0	95.5	2.0	0.0	4.5	95.5	4.5	2.0	95.45
Brant	2002	8	0.0	33.3	66.7	3.0	0.0	0.0	100.0	58.3	3.0	41.67
Brant	2002	8	0.0	0.0	100.0	2.0	0.0	0.0	100.0	59.0	2.0	41.03
Alice	2002	8	8.3	8.3	50.0	7.9	1.0	12.5	62.5	58.3	6.9	41.67
Alice	2002	8	50.0	37.5	0.0	3.0	1.0	62.5	37.5	50.0	3.0	50.00
Alice	2002	8	6.3	18.8	12.5	8.0	0.0	6.3	37.5	25.0	7.0	75.00
Cochrane	2002	8	33.3	0.0	0.0	4.0	2.0	44.4	55.6	33.3	4.0	66.67
Cochrane	2002	8	63.6	0.0	0.0	2.0	0.0	63.6	36.4	63.6	2.0	36.36

Cochrane	2002	8	20.3	0.0	0.0	2.0	0.0	20.3	79.7	20.3	2.0	79.69
Henry	2002	8	19.0	50.0	6.9	7.0	3.0	43.1	56.9	17.2	7.0	82.76
Thompson	2002	8	42.9	57.1	0.0	3.0	0.0	42.9	57.1	14.3	3.0	85.71
Thompson	2002	8	62.5	37.5	0.0	2.0	0.0	62.5	37.5	62.5	2.0	37.50
Thompson	2002	8	7.7	0.0	0.0	3.0	2.0	100.0	0.0	7.7	3.0	92.31
Preston	2002	8	50.0	33.3	16.7	3.0	0.0	50.0	50.0	66.7	3.0	33.33
Preston	2002	8	0.0	11.1	77.8	3.0	1.0	11.1	88.9	77.8	3.0	22.22
Preston	2002	8	0.0	50.0	50.0	3.0	0.0	0.0	100.0	25.0	3.0	75.00
Whitewood	2002	8	66.7	0.0	33.3	2.0	0.0	66.7	33.3	33.3	2.0	66.67
Whitewood	2002	8	100.0	0.0	0.0	2.0	0.0	100.0	0.0	75.0	2.0	25.00
Whitewood	2002	8	88.9	0.0	11.1	2.0	0.0	88.9	11.1	100.0	2.0	0.00
Thompson	2002	9	0.0	66.7	0.0	2.0	1.0	33.3	66.7	0.0	2.0	100.00
Thompson	2002	9	11.1	88.9	0.0	2.0	0.0	11.1	88.9	11.1	2.0	88.89
Thompson	2002	9	0.0	0.0	0.0	2.9	0.0	97.0	3.0	0.0	2.9	100.00
Whitewood	2002	9	63.2	26.3	5.3	5.0	0.0	63.2	36.8	68.4	5.0	31.58
Whitewood	2002	9	24.7	5.9	0.0	5.0	3.0	94.1	5.9	24.7	5.0	75.29
Whitewood	2002	9	63.6	0.0	36.4	2.0	0.0	63.6	36.4	100.0	2.0	0.00
Henry	2002	10	11.1	58.3	11.1	6.0	3.0	30.6	69.4	11.1	6.0	88.89
Preston	2002	10	93.3	0.0	6.7	2.0	0.0	93.3	6.7	100.0	2.0	0.00
Preston	2002	10	12.5	75.0	0.0	3.0	1.0	25.0	75.0	0.0	3.0	100.00
Preston	2002	10	66.7	0.0	0.0	3.0	0.0	91.7	0.0	66.7	3.0	33.33
Henry	2003	4	37.1	50.9	0.0	8.0	4.0	49.1	50.9	27.6	8.0	72.41
Thompson	2003	4	61.5	38.5	0.0	3.0	0.0	61.5	38.5	46.2	3.0	53.85
Thompson	2003	4	39.5	60.5	0.0	3.0	0.0	39.5	60.5	31.6	3.0	68.42
Thompson	2003	4	7.1	42.9	0.0	4.0	1.0	57.1	35.7	7.1	4.0	92.86
Preston	2003	4	68.4	15.8	15.8	3.0	0.0	68.4	31.6	84.2	3.0	15.79
Preston	2003	4	0.0	36.4	63.6	2.0	0.0	0.0	100.0	63.6	2.0	36.36
Preston	2003	4	5.9	52.9	41.2	3.0	0.0	5.9	94.1	47.1	3.0	52.94
Whitewood	2003	4	55.9	32.4	11.8	4.0	0.0	55.9	44.1	47.1	4.0	52.94
Whitewood	2003	4	47.1	35.3	17.6	4.0	0.0	47.1	52.9	55.9	4.0	44.12
Whitewood	2003	4	78.9	5.3	15.8	3.0	0.0	78.9	21.1	94.7	3.0	5.26
Henry	2003	5	35.9	41.0	0.0	9.0	4.0	46.2	41.0	14.1	9.0	85.90
Thompson	2003	5	16.7	83.3	0.0	2.0	0.0	16.7	83.3	16.7	2.0	83.33
Thompson	2003	5	25.6	71.8	0.0	3.0	1.0	28.2	71.8	25.6	3.0	74.36
Thompson	2003	5	0.0	14.3	0.0	4.0	2.0	85.7	14.3	28.6	4.0	71.43
Preston	2003	5	100.0	0.0	0.0	1.0	0.0	100.0	0.0	100.0	1.0	0.00
Preston	2003	5	0.0	31.6	68.4	2.0	0.0	0.0	100.0	68.4	2.0	31.58

Preston	2003	5	11.1	44.4	44.4	3.0	0.0	11.1	88.9	44.4	3.0	55.56
Whitewood	2003	5	34.8	65.2	0.0	3.0	0.0	34.8	65.2	13.0	3.0	86.96
Whitewood	2003	5	45.5	45.5	9.1	4.0	0.0	45.5	54.5	36.4	4.0	63.64
Whitewood	2003	5	71.4	17.1	8.6	5.0	0.0	71.4	28.6	60.0	5.0	40.00
Whitewood	2003	6	80.0	20.0	0.0	2.0	0.0	80.0	20.0	80.0	2.0	20.00
Whitewood	2003	6	41.4	3.4	31.0	6.0	2.0	65.5	31.0	44.8	6.0	55.17
Whitewood	2003	6	90.6	9.4	0.0	3.0	0.0	90.6	9.4	81.3	3.0	18.75
Henry	2003	6	39.4	42.4	18.2	3.0	0.0	39.4	60.6	57.6	3.0	42.42
Thompson	2003	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Thompson	2003	6	54.2	45.8	0.0	3.0	0.0	54.2	45.8	37.5	3.0	62.50
Thompson	2003	6	60.0	40.0	0.0	5.0	0.0	53.3	33.3	53.3	5.0	46.67
Alice	2003	6	60.0	20.0	20.0	3.0	0.0	60.0	40.0	60.0	3.0	40.00
Alice	2003	6	20.0	10.0	60.0	4.0	0.0	20.0	70.0	70.0	4.0	30.00
Alice	2003	6	90.9	0.0	9.1	3.0	0.0	81.8	9.1	100.0	3.0	0.00
Brant	2003	6	0.0	25.9	66.7	4.0	0.0	0.0	100.0	11.1	4.0	88.89
Brant	2003	6	16.7	27.8	55.6	4.0	0.0	16.7	83.3	38.9	4.0	61.11
Brant	2003	6	0.0	50.0	50.0	2.0	0.0	0.0	100.0	0.0	2.0	100.00
Cochrane	2003	6	71.4	0.0	0.0	2.0	0.0	71.4	28.6	71.4	2.0	28.57
Cochrane	2003	6	50.0	0.0	0.0	2.0	0.0	50.0	50.0	50.0	2.0	50.00
Cochrane	2003	6	57.1	0.0	0.0	2.0	0.0	57.1	42.9	57.1	2.0	42.86
Preston	2003	6	53.3	6.7	40.0	4.0	0.0	53.3	46.7	86.7	4.0	13.33
Preston	2003	6	0.0	66.7	33.3	2.0	0.0	0.0	100.0	33.3	2.0	66.67
Preston	2003	6	0.0	46.2	53.8	2.0	0.0	0.0	100.0	53.8	2.0	46.15

APPENDIX XX – Quality Assurance/Quality Control Data

Quality assurance/quality control data were collected throughout the project period. All electronic meters and lab water chemistry procedures were calibrated against accepted standards prior to each sampling run. In addition, field blanks and duplicates were analyzed at random from 10% of total sample numbers. QA/QC analyses for nitrogen and phosphorus parameters were conducted by the South Dakota State University Water Quality Testing Laboratory during 2001 and 2002 and the South Dakota Public Health Laboratory in Pierre during 2003. We detected TKN and ammonia hits in blank values from samples run at the SDSU Water Testing Laboratory. The lab was able to trace these hits to a leaking seal on their apparatus. Subsequent nitrogen and phosphorus analyses were conducted by the South Dakota Public Health Laboratory in Pierre. No problems with QA/QC data were observed following this change in contract laboratory services.

In addition to water chemistry QA/QC analyses, we maintained a voucher collection of invertebrate taxa found from stream and lake sites. This voucher collection is located in the Environmental Biology Laboratory of South Dakota State University.

Quality Assurance/Quality Control Data

Site	QA/QC #	Date	Fecal #/100 mL	TS mg/L	TDS mg/L	TSS mg/L	Turb NTU	Alkal mg/L	pH S.U.	NO3-N mg/L	NH3-N mg/L	TKN mg/L	TP mg/L	TDP mg/L
WMS	Blank1	09-Jul-01	-10	-1	0	-0.8	100.0	1000	6.99	0.005	0.050	0.409	0.005	0.005
WMS	Dup1	09-Jul-01	-10	928	914	13.2	2.1	195	8.61	0.094	0.802	2.635	0.742	0.724
WMS	Sample1	09-Jul-01	-10	897	890	7.6	2.1	194	8.61	0.114	0.716	2.657	0.759	0.720
(%)	PD1		0.0	3.4	2.8	73.7	0.0	0.5	0.0	17.5	12.0	0.8	2.2	0.6
HMS	Blank2	11-Jul-01	-10	1	0	0.8	100.0	1000	6.99	0.005	0.050	0.409	0.005	0.005
HMS	Dup2	11-Jul-01	-10	790	780	10.0	11.6	208	8.64	0.060	0.202	1.738	0.337	0.296
HMS	Sample2	11-Jul-01	-10	790	780	10.8	11.6	207	8.64	0.053	0.112	1.679	0.337	0.300
(%)	PD2		0.0	0.1	0.0	7.4	0.0	0.5	0.0	13.2	80.4	3.5	0.1	1.3
LWT2	Blank3	20-Jul-01	-10	0	0	0.0	100.0	1000	6.99	0.003	1.526	2.166	0.004	0.000
LWT2	Dup3	20-Jul-01	-10	715	472	243.0	318.5	101	7.50	0.716	0.211	1.781	0.921	0.476
LWT2	Sample3	20-Jul-01	140	584	331	253.0	318.5	101	7.50	0.712	0.221	1.753	0.845	0.462
(%)	PD3		107.1	22.4	42.6	4.0	0.0	0.0	0.0	0.6	4.5	1.6	9.0	3.0
LPT5	Blank4	20-Jul-01	-10	0	0	0.0	100.0	1000	6.99	0.006	1.466	1.711	0.002	0.001
LPT5	Dup4	20-Jul-01	40	454	444	9.7	38.5	54	7.39	1.810	0.240	1.977	1.174	1.084
LPT5	Sample4	20-Jul-01	290	302	293	9.7	38.5	58	7.39	1.818	0.228	1.996	1.163	1.089
(%)	PD4		86.2	50.1	51.8	0.0	0.0	6.9	0.0	0.4	5.3	1.0	0.9	0.5

TND	Blank5	29-Aug-01	-10	7	5	2.0	100.0	1000	7.00	0.004	0.000	0.362	0.007	0.005
TND	Dup5	29-Aug-01	-10	931	908	23.0	21.2	278	8.69	0.066	0.166	1.955	0.418	0.369
TND	Sample5	29-Aug-01	-10	933	911	22.0	21.2	277	8.69	0.032	0.138	1.900	0.417	0.348
(%)	PD5		0.0	0.2	0.3	4.5	0.0	0.4	0.0	106.3	20.3	2.9	0.2	6.0
PWS	Blank6	28-Aug-01	-10	5	3	2.0	100.0	1000	7.00	0.004	0.000	0.362	0.007	0.005
PWS	Dup6	28-Aug-01	30	1055	993	62.0	43.5	191	8.75	0.092	0.096	2.214	0.794	0.666
PWS	Sample6	28-Aug-01	40	1022	992	30.5	43.5	189	8.75	0.070	0.106	1.942	0.555	0.353
(%)	PD6		25.0	3.3	0.2	103.3	0.0	1.1	0.0	31.4	9.4	14.0	43.1	88.7
LTO	Blank7	30-Aug-01	-10	10	8	2.0	100.0	1000	7.00	0.022	0.000	0.366	0.000	0.000
LTO	Dup7	30-Aug-01	-10	963	931	32.5	47.2	308	8.71	0.041	0.455	3.287	0.331	0.236
LTO	Sample7	30-Aug-01	-10	958	922	36.0	47.2	308	8.71	0.046	0.431	3.314	0.323	0.209
(%)	PD7		0.0	0.6	1.0	9.7	0.0	0.0	0.0	10.9	5.6	0.8	2.5	12.9
HMS	Blank8	18-Sep-01	-10	1	2	-1.0	100.0	1000	7.00	0.001	0.007	0.362	0.004	0.000
HMS	Dup8	18-Sep-01	10	977	968	8.5	52.5	259	8.71	0.088	0.189	2.400	0.507	0.432
HMS	Sample8	18-Sep-01	-10	921	913	8.0	52.5	263	8.71	0.164	0.314	1.830	0.336	0.309
(%)	PD8		200.0	6.0	6.0	6.2	0.0	1.5	0.0	46.3	39.8	31.1	50.9	39.8
PED	Blank9	19-Sep-01	-10	3	1	1.5	100.0	1000	7.00	0.001	0.007	0.362	0.004	0.000
PED	Dup9	19-Sep-01	240	1033	1003	29.5	47.5	227	8.40	0.184	0.258	1.751	0.326	0.308
PED	Sample9	19-Sep-01	500	1001	972	29.5	47.5	238	8.40	0.098	0.182	2.482	0.516	0.407
(%)	PD9		52.0	3.1	3.2	0.0	0.0	4.6	0.0	87.8	41.8	29.5	36.8	24.3
LTT3	Blank10	24-Sep-01	-10	1	1	0.0	100.0	1000	7.00	0.024	0.000	0.378	0.000	0.000
LTT3	Dup10	24-Sep-01	30	979	957	21.5	35	294	8.84	0.111	0.384	1.930	0.330	0.248
LTT3	Sample10	24-Sep-01	10	890	867	23.0	35	294	8.84	0.106	0.303	1.818	0.323	0.238
(%)	PD10		200.0	9.9	10.4	6.5	0.0	0.0	0.0	4.7	26.7	6.2	2.2	4.2
LPT5	Blank11	30-Mar-02	-10	-6	-3	-2.5	100.0	1000	7.00	0.020	0.000	0.420	0.002	0.002
LPT5	Dup11	30-Mar-02	40	385	335	50.0	87.1	78	7.04	1.038	1.684	5.703	1.685	1.486
LPT5	Sample11	30-Mar-02	20	401	353	48.0	87.1	75	7.04	1.005	2.038	6.650	1.660	1.501
(%)	PD11		100.0	3.9	5.0	4.2	0.0	4.0	0.0	3.3	17.4	14.2	1.5	1.0
LTO	Blank12	01-Apr-02	-10	3	4	-1.0	100.0	1000	7.00	0.018	0.000	0.377	0.017	0.006
LTO	Dup 12	01-Apr-02	-10	761	690	71.0	96	223	8.21	0.215	0.156	2.150	0.346	0.125
LTO	Sample12	01-Apr-02	-10	777	700	77.0	96	227	8.21	0.212	0.092	2.128	0.331	0.094
(%)	PD12		0.0	2.1	1.4	7.8	0.0	1.8	0.0	1.4	69.6	1.0	4.5	33.0
LWT4	Blank13	01-Apr-02	m	1	4	-3.0	100.0	1000	7.00	0.024	0.000	0.038	0.017	0.000
LWT4	Dup13	01-Apr-02	m	7	0	6.5	11.6	150	7.47	1.820	0.178	1.352	0.386	0.332
LWT4	Sample13	01-Apr-02	m	1229	1222	7.5	11.6	149	7.47	1.843	0.146	1.452	0.358	0.324
(%)	PD13		m	99.5	100.0	13.3	0.0	0.7	0.0	1.2	21.9	6.9	7.8	2.5
LPT4	Blank14	24-Apr-02	-10	-2	-1	-1.0	100.0	1000	7.00	0.038	0.016	0.506	0.000	0.009

LPT4	Dup14	24-Apr-02	-10	1291	1271	20.5	40.4	212	8.03	0.052	0.140	1.260	0.310	0.272
LPT4	Sample14	24-Apr-02	-10	1265	1247	18.5	40.4	212	8.03	0.050	0.140	1.152	0.308	0.220
(%)	PD14		0.0	2.1	1.9	10.8	0.0	0.0	0.0	4.0	0.0	9.4	0.6	23.6
TSS	Blank15	22-Apr-02	-10	2	3	-0.8	100.0	1000	7.00	0.084	0.000	0.506	0.009	0.003
TSS	Dup15	22-Apr-02	-10	882	865	16.8	13.5	306	7.44	0.104	0.258	2.342	0.266	0.158
TSS	Sample15	22-Apr-02	-10	948	931	16.8	13.3	308	7.44	0.132	0.110	2.192	0.223	0.153
(%)	PD15		0.0	7.0	7.1	0.0	1.5	0.6	0.0	21.2	134.5	6.8	19.3	3.3
WED	Blank16	29-Apr-02	10	12	13	-1.0	100.0	1000	7.00	0.084	0.021	0.458	0.004	0.023
WED	Dup16	29-Apr-02	-10	913	888	25.0	30.8	287	8.27	0.051	0.144	1.728	0.276	0.157
WED	Sample16	29-Apr-02	-10	1001	969	32.0	30.8	288	8.27	0.054	0.162	1.740	0.296	0.164
(%)	PD16		0.0	8.8	8.4	21.9	0.0	0.3	0.0	5.6	11.1	0.7	6.8	4.3
LPT3	Blank17	08-May-02	-10	0	1	-1.0	100.0	1000	7.00	0.025	0.008	0.446	0.000	0.000
LPT3	Dup17	08-May-02	110	553	518	34.5	50.8	67	7.47	0.086	0.128	1.104	0.344	0.221
LPT3	Sample17	08-May-02	110	501	466	35.0	48.8	67	7.47	0.996	0.168	1.406	0.314	0.203
(%)	PD17		0.0	10.3	11.1	1.4	4.1	0.0	0.0	91.4	23.8	21.5	9.6	8.9
LPO	Blank18	09-May-02	m	0	1	-0.5	100.0	1000	7.01	0.026	0.004	0.408	0.003	0.008
LPO	Dup18	09-May-02	m	1052	908	144.0	161.3	216	8.66	0.088	0.184	2.754	0.641	0.164
LPO	Sample18	09-May-02	210	1054	902	152.0	161.3	215	8.66	0.084	0.102	2.710	0.648	0.151
(%)	PD18		m	0.2	0.7	5.3	0.0	0.5	0.0	4.8	80.4	1.6	1.1	8.6
TMD	Blank19	20-May-02	-10	2	2	0.0	100.0	1000	7.01	0.023	0.000	0.328	0.004	0.137
TMD	Dup19	20-May-02	-10	336	329	6.5	2.4	305	8.92	0.036	0.070	1.389	0.163	0.004
TMD	Sample19	20-May-02	-10	409	405	3.5	2.4	304	8.92	0.044	0.131	1.568	0.163	0.143
(%)	PD19		0.0	18.0	18.9	85.7	0.0	0.3	0.0	18.2	46.6	11.4	0.0	97.2
PMD	Blank20	28-May-02	-10	1	1	0.0	100.0	1000	7.01	m	m	m	m	m
PMD	Dup20	28-May-02	-10	1149	1103	46.7	68.5	289	8.54	0.026	0.044	1.967	0.434	0.242
PMD	Sample20	28-May-02	-10	1116	1068	48.0	68.5	288	8.54	0.036	0.152	2.552	0.471	0.245
(%)	PD20		0.0	3.0	3.3	2.8	0.0	0.3	0.0	27.8	71.1	22.9	7.9	1.2
LWT3	Blank21	21-May-02	-10	-1	-1	-0.5	100.0	1000	7.01	0.016	0.000	0.360	0.009	0.000
LWT3	Dup21	21-May-02	6300	1607	1579	27.5	50.9	278	7.83	0.057	0.092	0.654	0.152	0.119
LWT3	Sample21	21-May-02	4200	1638	1608	30.0	50.9	272	7.83	0.038	0.092	1.866	0.135	0.130
(%)	PD21		50.0	1.9	1.8	8.3	0.0	2.2	0.0	50.0	0.0	65.0	12.6	8.5
LPT3	Blank22	22-May-02	-10	-1	-1	0.0	100.0	1000	7.01	0.012	0.000	0.340	0.000	0.000
LPT3	Dup22	22-May-02	-10	1552	1531	21.0	54.7	164	8.23	0.024	0.158	1.830	0.219	0.168
LPT3	Sample22	22-May-02	10	1608	1591	17.5	54.7	162	8.23	0.024	0.114	1.604	0.234	0.135
(%)	PD22		200.0	3.5	3.7	20.0	0.0	1.2	0.0	0.0	38.6	14.1	6.4	24.4
TMD	Blank23	20-Jun-02	-10	3	3	0.5	101.0	1000	7.01	0.000	0.000	0.260	0.038	0.029
TMD	Dup23	20-Jun-02	-10	694	628	66.0	10.2	343	8.46	0.012	0.030	2.092	0.409	0.216

TMD	Sample23	20-Jun-02	-10	191	129	61.5	10.2	342	8.46	0.034	0.186	2.267	0.395	0.260
(%)	PD23		0.0	264.3	386.8	7.3	0.0	0.3	0.0	64.7	83.9	7.7	3.5	16.9
WMS	Blank24	19-Jun-02	-10	7	8	-1.0	101.0	1000	7.01	0.018	0.000	0.128	0.040	0.000
WMS	Dup24	19-Jun-02	-10	471	441	30.5	34.5	291	8.47	0.029	0.238	2.734	0.367	0.256
WMS	Sample24	19-Jun-02	-10	821	793	28.0	34.5	290	8.47	0.032	0.130	0.670	0.289	0.210
(%)	PD24		0.0	42.6	44.5	8.9	0.0	0.3	0.0	9.4	83.1	308.1	27.0	21.9
LTO	Blank25	21-Jun-02	-10	0	1	-1.0	101.0	1000	7.01	0.014	0.008	0.355	0.000	0.000
LTO	Dup25	21-Jun-02	-10	1000	865	135.0	167.8	312	8.45	0.088	0.278	2.908	0.375	0.071
LTO	Sample25	21-Jun-02	-10	988	829	159.0	167.8	316	8.45	0.085	0.209	3.110	0.387	0.040
(%)	PD25		0.0	1.2	4.3	15.1	0.0	1.3	0.0	3.5	33.0	6.5	3.1	77.5
PED	Blank26	23-Jul-02	-10	2	1	1.0	100.6	1000	7.01	0.000	0.014	0.429	0.000	0.000
PED	Dup26	23-Jul-02	-10	1291	1237	53.3	74.1	301	8.55	0.022	0.190	2.399	0.737	0.504
PED	Sample26	23-Jul-02	-10	1261	1196	64.7	74	302	8.55	0.021	0.183	2.556	0.755	0.530
(%)	PD26		0.0	2.4	3.5	17.5	0.1	0.3	0.0	4.8	3.8	6.1	2.4	4.9
PMS	Blank27	23-Jul-02	-10	4	3	1.0	100.6	1000	7.01	0.003	0.027	0.476	0.000	0.000
PMS	Dup27	23-Jul-02	-10	1179	1111	68.0	94.5	337	8.52	0.016	0.190	2.392	0.820	0.508
PMS	Sample27	23-Jul-02	-10	1117	1053	63.3	94.3	336	8.52	0.021	0.406	2.748	0.813	0.557
(%)	PD27		0.0	5.6	5.5	7.4	0.2	0.3	0.0	23.8	53.2	13.0	0.9	8.8
LTO	Blank28	31-Jul-02	m	-1	-1	-0.5	100.6	1000	7.01	0.024	0.000	0.148	0.013	0.008
LTO	Dup28	31-Jul-02	m	1084	1006	77.5	228	259	8.44	0.034	0.283	4.183	0.465	0.086
LTO	Sample28	31-Jul-02	20	1153	1070	82.5	m	m	m	0.034	0.204	4.148	0.485	0.092
(%)	PD28		m	5.9	5.9	6.1	m	m	m	0.0	38.7	0.8	4.1	6.5
LWO	Blank29	02-Oct-02	-10	0	0	0.0	100.6	1000	7.01	0.018	0.004	0.378	0.002	0.005
LWO	Dup29	02-Oct-02	210	1206	1127	78.7	65	365	8.98	0.046	0.444	5.672	0.970	0.264
LWO	Sample29	02-Oct-02	230	1195	1118	76.7	64.9	365	8.98	0.040	0.372	5.657	1.067	0.277
(%)	PD29		8.7	0.9	0.8	2.6	0.2	0.0	0.0	15.0	19.4	0.3	9.1	4.7
WWS	Blank30	28-Aug-02	-10	3	0	3.0	98.2	1000	7.01	0.006	0.000	0.375	0.001	0.000
WWS	Dup30	28-Aug-02	120	1247	1203	44.0	44.8	283	8.91	0.020	0.172	3.608	1.061	0.756
WWS	Sample30	28-Aug-02	60	1018	978	40.0	44.8	283	8.91	0.020	0.172	3.608	1.061	0.756
(%)	PD30		100.0	22.6	23.1	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TNS	Blank31	27-Aug-02	-10	1	1	0.0	98.2	1000	7.01	0.009	0.000	0.038	0.000	0.000
TNS	Dup31	27-Aug-02	-10	956	935	21.0	6.21	371	8.95	0.029	0.415	2.390	0.065	0.051
TNS	Sample31	27-Aug-02	m	967	956	11.0	6.21	370	8.95	0.028	0.420	2.478	0.351	0.279
(%)	PD31		m	1.1	2.1	90.9	0.0	0.3	0.0	3.6	1.2	3.6	81.5	81.7
WES	Blank32	30-Sep-02	-10	-1	1	-2.0	98.2	1000	7.01	0.012	0.015	0.304	0.021	0.000
WES	Dup32	30-Sep-02	180	1114	1068	46.0	50.2	292	8.84	0.022	0.252	3.956	0.835	0.591
WES	Sample32	30-Sep-02	170	1158	1112	46.5	50.1	294	8.84	0.018	0.212	3.646	0.843	0.559

(%)	PD32		5.9	3.8	3.9	1.1	0.2	0.7	0.0	22.2	18.9	8.5	0.9	5.7
TSS	Blank33	30-Sep-02	-10	1	2	-1.3	98.2	1000	7.01	0.010	0.018	0.042	0.000	0.000
TSS	Dup33	30-Sep-02	20	805	790	15.5	10.1	347	9.23	0.038	0.137	2.042	0.318	0.229
TSS	Sample33	30-Sep-02	50	939	931	8.5	9.99	346	9.23	0.021	0.181	2.185	0.306	0.221
(%)	PD33		60.0	14.3	15.2	82.4	1.1	0.3	0.0	81.0	24.3	6.5	3.9	3.6
WES	Blank34	22-Apr-03	-10	3	2	1.0	97	1000	6.95	<0.1	<0.02	<0.11	0.004	0.002
WES	Dup34	22-Apr-03	58	565	525	40.0	54.4	265	7.54	<0.1	<0.02	1.060	0.290	0.084
WES	Sample34	22-Apr-03	60	978	940	38.5	54.2	267	7.54	<0.1	<0.02	1.370	0.277	0.086
(%)	PD34		3.3	42.3	44.1	3.9	0.4	0.7	0.0	0.0	0.0	22.6	4.7	2.3
WMS	Blank35	22-Apr-03	-10	5	4	1.0	97	1000	6.95	<0.1	<0.02	<0.11	0.000	0.000
WMS	Dup35	22-Apr-03	310	1119	1080	39.0	34.4	261	7.73	<0.1	<0.02	1.860	0.283	0.108
WMS	Sample35	22-Apr-03	320	950	920	29.5	34.6	261	7.73	<0.1	<0.02	1.690	0.287	0.110
(%)	PD35		3.1	17.8	17.3	32.2	0.6	0.0	0.0	0.0	0.0	10.1	1.4	1.8
LPT3	Blank 36	28-Apr-03	-10	0	0	0.0	2	0	7.38	0.050	0.010	0.055	0.002	0.003
LPT3	Dup 36	28-Apr-03	-10	1481	1473	7.5	2	244	7.38	0.010	0.010	1.990	0.382	0.325
LPT3	Sample36	28-Apr-03	-10	1518	1511	7.5	2	242	7.38	0.010	0.010	2.350	0.389	0.326
(%)	PD36		0.0	2.5	2.5	0.0	0.0	0.8	0.0	0.0	0.0	15.3	1.8	0.3
LWT2	Blank 37	28-Apr-03	10	0	0	-0.5	0	0	7.60	<.1	<.02	<0.11	0.003	0.004
LWT2	dup37	28-Apr-03	30	2408	2396	12.0	5.2	274	7.60	<.1	<.02	1.300	0.355	0.338
LWT2	Sample37	28-Apr-03	20	2103	2096	7.5	5.2	276	7.60	<0.1	<0.02	1.140	0.320	0.360
(%)	PD37		50.0	14.5	14.3	60.0	0.0	0.7	0.0	0.0	0.0	14.0	10.9	6.1
PWS	Blank38	22-May-03	-10	1	0	1.0	100	1000	6.94	<0.1	<0.02	<0.11	0.002	0.003
PWS	Dup38	22-May-03	-10	1025	983	42.0	69.1	310	8.07	<0.1	<0.02	2.120	0.307	0.095
PWS	Sample38	22-May-03	-10	1040	998	42.0	68.2	308	8.06	<0.1	<0.02	2.210	0.310	0.095
(%)	PD38		0.0	1.4	1.5	0.0	1.3	0.6	0.1	0.0	0.0	4.1	1.0	0.0
PMS	Blank39	22-May-03	-10	2	1	1.5	100	1000	6.94	<0.1	<0.02	<0.11	<0.002	0.003
PMS	Dup39	22-May-03	-10	1094	981	113.0	188	315	8.14	<0.1	<0.02	2.010	0.724	0.268
PMS	Sample39	22-May-03	-10	1094	986	108.0	186.1	314	8.16	<0.1	<0.02	2.810	0.671	0.269
(%)	PD39		0.0	0.0	0.5	4.6	1.0	0.3	0.2	0.0	0.0	28.5	7.9	0.4
LPT3	Blank40	10-Jun-03	-10	0	0	0.0	0	0	7.00	<0.1	0.040	<.11	0.002	0.011
LPT3	Dup40	10-Jun-03	-10	2557	2544	13.0	3.5	240	8.40	<0.1	<0.02	1.800	0.461	0.396
LPT3	sample40	10-Jun-03	20	2451	2443	8.0	3.4	238	8.40	<0.1	0.050	1.860	0.438	0.363
(%)	PD40		150.0	4.3	4.1	62.5	2.9	0.8	0.0	0.0	0.0	3.2	5.3	9.1
LHO	Blank41	10-Jun-03	-10	0	0	-0.5	0	0	7.00	<0.1	<0.02	<0.11	<.002	<.002
LHO	Dup41	10-Jun-03	100	1261	1187	74.0	69	334	8.66	<0.1	<0.02	2.100	0.450	0.201
LHO	sample41	10-Jun-03	160	1125	1055	70.0	69	334	8.66	<0.1	<0.02	1.950	0.448	0.197
(%)	PD41		37.5	12.1	12.5	5.7	0.0	0.0	0.0	0.0	0.0	7.7	0.4	2.0

WED	Blank42	19-Jun-03	-10	2	1	1.0	100	1000	7.01	<0.1	<0.02	<0.11	0.003	0.008
WED	Dup42	19-Jun-03	-10	1131	1108	22.5	48.8	291	8.75	<0.1	<0.02	2.430	0.824	0.608
WED	Sample42	19-Jun-03	-10	1089	1063	25.5	48.6	289	8.74	<0.1	<0.02	2.330	0.844	0.626
(%)	PD42		0.0	3.8	4.2	11.8	0.4	0.7	0.1	0.0	0.0	4.3	2.4	2.9
PMS	Blank43	30-Jun-03	-10	3	2	1.0	100	1000	7.01	<0.1	<0.02	<0.11	0.002	<0.002
PMS	Dup43	30-Jun-03	-10	1294	1223	71.0	81.1	309	8.97	0.100	0.020	1.790	0.584	0.356
PMS	Sample43	30-Jun-03	-10	1290	1218	72.0	81.3	308	8.98	0.100	<0.02	1.730	0.619	0.351
(%)	PD43		0.0	0.3	0.4	1.4	0.2	0.3	0.1	0.0	0.0	3.5	5.7	1.4
LPT5	Blank44	25-Jun-03	-10	0	0	0.0	0.34	0	7.00	<0.1	<0.02	<.11	0.006	0.005
LPT5	Dup44	25-Jun-03	15000	423	384	38.5	45	72	7.40	7.800	0.070	3.050	1.610	1.460
LPT5	sample44	25-Jun-03	25000	451	414	36.5	45	72	7.40	7.900	0.070	2.910	1.630	1.450
(%)	PD44		40.0	6.2	7.2	5.5	0.0	0.0	0.0	1.3	0.0	4.8	1.2	0.7
LWT2	Blank45	25-Jun-03	-10	0	0	0.5	0.37	0	7.00	<.01	<.02	<.11	0.006	0.004
LWT2	Dup45	25-Jun-03	8300	1056	807	249.0	198	145	7.60	0.200	0.090	1.010	1.280	0.669
LWT2	Sample45	25-Jun-03	6700	1047	804	242.5	199	143	7.60	0.200	0.090	0.990	1.240	0.672
(%)	PD45		23.9	0.9	0.4	2.7	0.5	1.4	0.0	0.0	0.0	2.0	3.2	0.4

APPENDIX XXI – USACE FLUX Model Output

LPT1 VAR=TP METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	288	9	9	.9	.094	.801	.147	.438
2	74	4	4	30.4	12.837	11.946	-.394	.182
3	45	4	4	68.7	47.653	85.749	.077	.571
***	407	17	17	100.0	7.669	23.411		

FLOW STATISTICS
FLOW DURATION = 407.0 DAYS = 1.114 YEARS
MEAN FLOW RATE = 7.669 HM3/YR
TOTAL FLOW VOLUME = 8.55 HM3
FLOW DATE RANGE = 20010705 TO 20030701
SAMPLE DATE RANGE = 20010718 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	9599.9	8615.1	.4084E+07	1123.34	.235
2 Q WTD C	6676.1	5991.3	.1157E+06	781.21	.057
3 IJC	6631.2	5951.0	.8878E+05	775.96	.050
4 REG-1	6420.6	5762.0	.3510E+06	751.31	.103
5 REG-2	6501.5	5834.6	.3477E+06	760.78	.101
6 REG-3	6599.3	5922.4	.2736E+06	772.23	.088

LPT1 VAR=TONIT METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	288	9	9	.9	.094	.801	-.078	.587
2	74	4	4	30.4	12.837	11.946	-.512	.037
3	45	4	4	68.7	47.653	85.749	-.097	.606
***	407	17	17	100.0	7.669	23.411		

FLOW STATISTICS
FLOW DURATION = 407.0 DAYS = 1.114 YEARS
MEAN FLOW RATE = 7.669 HM3/YR
TOTAL FLOW VOLUME = 8.55 HM3
FLOW DATE RANGE = 20010705 TO 20030701
SAMPLE DATE RANGE = 20010718 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	39681.8	35611.3	.9582E+08	4643.40	.275
2 Q WTD C	24628.8	22102.4	.3523E+07	2881.96	.085
3 IJC	24354.9	21856.6	.4004E+07	2849.91	.092
4 REG-1	25469.8	22857.1	.4928E+07	2980.37	.097
5 REG-2	25601.2	22975.0	.4197E+07	2995.74	.089
6 REG-3	25836.7	23186.3	.4928E+07	3023.30	.096

LPT1 VAR=TS METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	288	9	9	.9	.094	.801	-.126	.140
2	74	4	4	30.4	12.837	11.946	.480	.055
3	45	4	4	68.7	47.653	85.749	-.044	.927

```
***       407  17  17 100.0        7.669       23.411

 FLOW STATISTICS
 FLOW DURATION =     407.0 DAYS  =  1.114 YEARS
 MEAN FLOW RATE =     7.669 HM3/YR
 TOTAL FLOW VOLUME =       8.55 HM3
 FLOW DATE RANGE   = 20010705 TO 20030701
 SAMPLE DATE RANGE = 20010718 TO 20030625

 METHOD         MASS (KG)   FLUX (KG/YR)  FLUX VARIANCE CONC (PPB)      CV
 1 AV LOAD      7266161.0      6520799.0      .5344E+13  850255.90    .355
 2 Q WTD C      4767704.0      4278634.0      .8012E+12  557896.90    .209
 3 IJC          4892269.0      4390421.0      .1135E+13  572473.00    .243
 4 REG-1        4929769.0      4424074.0      .4949E+12  576861.00    .159
 5 REG-2        4774956.0      4285142.0      .3408E+12  558745.50    .136
 6 REG-3        4899639.0      4397035.0      .6099E+12  573335.40    .178


 LPT2                             VAR=TP        METHOD= 2 Q WTD C
 COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS
 STR       NQ  NC  NE  VOL%   TOTAL FLOW SAMPLED FLOW   C/Q SLOPE SIGNIF
  1       369   3   3  24.8         .188         .585        .074   .407
  2        39   4   4  75.2        5.398        6.618        .195   .291
***       408   7   7 100.0         .686        4.032

 FLOW STATISTICS
 FLOW DURATION =     408.0 DAYS  =  1.117 YEARS
 MEAN FLOW RATE =      .686 HM3/YR
 TOTAL FLOW VOLUME =        .77 HM3
 FLOW DATE RANGE   = 20010703 TO 20030630
 SAMPLE DATE RANGE = 20010719 TO 20030319

 METHOD         MASS (KG)   FLUX (KG/YR)  FLUX VARIANCE CONC (PPB)      CV
 1 AV LOAD         1168.2         1045.8      .3393E+06    1523.99    .557
 2 Q WTD C          564.7          505.5      .1958E+04     736.61    .088
 3 IJC              576.3          515.9      .2675E+04     751.84    .100
 4 REG-1            532.1          476.3      .2394E+04     694.12    .103
 5 REG-2            560.6          501.8      .9389E+05     731.27    .611
 6 REG-3            565.6          506.3      .4577E+05     737.79    .423


 LPT2                             VAR=TONIT     METHOD= 2 Q WTD C
 COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS
 STR       NQ  NC  NE  VOL%   TOTAL FLOW SAMPLED FLOW   C/Q SLOPE SIGNIF
  1       369   3   3  24.8         .188         .585       -.217   .451
  2        39   4   4  75.2        5.398        6.618        .358   .342
***       408   7   7 100.0         .686        4.032

 FLOW STATISTICS
 FLOW DURATION =     408.0 DAYS  =  1.117 YEARS
 MEAN FLOW RATE =      .686 HM3/YR
 TOTAL FLOW VOLUME =        .77 HM3
 FLOW DATE RANGE   = 20010703 TO 20030630
 SAMPLE DATE RANGE = 20010719 TO 20030319

 METHOD         MASS (KG)   FLUX (KG/YR)  FLUX VARIANCE CONC (PPB)      CV
```

1 AV LOAD	5306.7	4750.7	.5456E+07	6922.72	.492
2 Q WTD C	3007.9	2692.7	.2891E+06	3923.82	.200
3 IJC	3118.9	2792.1	.3754E+06	4068.65	.219
4 REG-1	3097.3	2772.7	.3292E+06	4040.45	.207
5 REG-2	2260.5	2023.6	.2203E+06	2948.87	.232
6 REG-3	2837.7	2540.3	.4529E+06	3701.78	.265

LPT2 VAR=TS METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	369	3	3	24.8	.188	.585	-.509	.293
2	39	4	4	75.2	5.398	6.618	-.077	.616
***	408	7	7	100.0	.686	4.032		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010719 TO 20030319

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	469587.9	420384.8	.2167E+11	612586.60	.350
2 Q WTD C	278943.5	249716.0	.2537E+10	363887.20	.202
3 IJC	267183.4	239188.0	.1402E+10	348545.90	.157
4 REG-1	335215.8	300092.1	.6361E+10	437295.50	.266
5 REG-2	233952.6	209439.2	.1431E+11	305195.80	.571
6 REG-3	279646.0	250344.9	.5476E+10	364803.70	.296

LPT3 VAR=TP METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	359	3	3	17.0	.132	.734	.300	.853
2	49	5	5	83.0	4.743	9.716	.072	.833
***	408	8	8	100.0	.686	6.348		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010718 TO 20030319

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	1592.8	1425.9	.2127E+06	2077.84	.323
2 Q WTD C	575.8	515.5	.2552E+04	751.14	.098
3 IJC	580.3	519.5	.2873E+04	756.97	.103
4 REG-1	533.3	477.4	.2857E+05	695.68	.354
5 REG-2	541.0	484.4	.4857E+05	705.81	.455
6 REG-3	691.9	619.4	.4665E+05	902.64	.349

LPT3 VAR=TONIT METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

```
 STR        NQ  NC  NE  VOL%   TOTAL FLOW SAMPLED FLOW   C/Q SLOPE SIGNIF
  1        359   3   3  17.0         .132         .734        .832   .364
  2         49   5   5  83.0        4.743        9.716       -.119   .642
***        408   8   8 100.0         .686        6.348

 FLOW STATISTICS
 FLOW DURATION =     408.0 DAYS  =  1.117 YEARS
 MEAN FLOW RATE =      .686 HM3/YR
 TOTAL FLOW VOLUME =        .77 HM3
 FLOW DATE RANGE   = 20010703 TO 20030630
 SAMPLE DATE RANGE = 20010718 TO 20030319

 METHOD          MASS (KG)   FLUX (KG/YR)  FLUX VARIANCE CONC (PPB)      CV
 1 AV LOAD          6285.3         5626.7      .4050E+07    8199.25    .358
 2 Q WTD C          2329.7         2085.6      .2207E+06    3039.10    .225
 3 IJC              2364.1         2116.4      .3107E+06    3084.01    .263
 4 REG-1            2329.1         2085.1      .2263E+06    3038.37    .228
 5 REG-2            2457.3         2199.8      .1914E+06    3205.60    .199
 6 REG-3            2740.8         2453.7      .3150E+06    3575.47    .229


 LPT3                              VAR=TS        METHOD= 2 Q WTD C
 COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS
 STR        NQ  NC  NE  VOL%   TOTAL FLOW SAMPLED FLOW   C/Q SLOPE SIGNIF
  1        359   3   3  17.0         .132         .734       -.808   .490
  2         49   5   5  83.0        4.743        9.716        .211   .543
***        408   8   8 100.0         .686        6.348

 FLOW STATISTICS
 FLOW DURATION =     408.0 DAYS  =  1.117 YEARS
 MEAN FLOW RATE =      .686 HM3/YR
 TOTAL FLOW VOLUME =        .77 HM3
 FLOW DATE RANGE   = 20010703 TO 20030630
 SAMPLE DATE RANGE = 20010718 TO 20030319

 METHOD          MASS (KG)   FLUX (KG/YR)  FLUX VARIANCE CONC (PPB)      CV
 1 AV LOAD       1467038.0      1313323.0      .1669E+12 1913780.00    .311
 2 Q WTD C        494597.2       442773.6      .2760E+11  645211.70    .375
 3 IJC            485226.1       434384.3      .3909E+11  632986.90    .455
 4 REG-1          524257.5       469326.1      .9114E+11  683904.20    .643
 5 REG-2          505703.3       452716.0      .2438E+12  659699.80   1.091
 6 REG-3          433556.8       388129.0      .5540E+11  565583.30    .606


 LPT4                              VAR=TP        METHOD= 2 Q WTD C
 COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS
 STR        NQ  NC  NE  VOL%   TOTAL FLOW SAMPLED FLOW   C/Q SLOPE SIGNIF
  1        330   3   3   2.9         .025         .208        .419   .444
  2         78   4   4  97.1        3.485       46.339       -.196   .074
***        408   7   7 100.0         .686       26.568

 FLOW STATISTICS
 FLOW DURATION =     408.0 DAYS  =  1.117 YEARS
 MEAN FLOW RATE =      .686 HM3/YR
 TOTAL FLOW VOLUME =        .77 HM3
 FLOW DATE RANGE   = 20010703 TO 20030630
```

SAMPLE DATE RANGE = 20010720 TO 20030319

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	6037.9	5405.3	.1447E+08	7876.57	.704
2 Q WTD C	461.5	413.1	.3615E+05	601.98	.460
3 IJC	439.0	393.0	.3561E+05	572.70	.480
4 REG-1	742.1	664.3	.3997E+22	968.04	********
5 REG-2	903.1	808.5	.5110E+27	1178.15	********
6 REG-3	865.6	774.9	.5848E+13	1129.23	3120.635

LPT4 VAR=TONIT METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	330	3	3	2.9	.025	.208	.416	.498
2	78	4	4	97.1	3.485	46.339	-.066	.101
***	408	7	7	100.0	.686	26.568		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010720 TO 20030319

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	39969.8	35781.7	.7621E+09	52141.32	.772
2 Q WTD C	3036.0	2717.9	.2636E+06	3960.46	.189
3 IJC	2976.2	2664.3	.2913E+06	3882.48	.203
4 REG-1	3540.5	3169.5	.1232E+27	4618.62	********
5 REG-2	3852.8	3449.1	.2693E+32	5025.99	********
6 REG-3	3839.2	3436.9	.3095E+17	5008.31	********

LPT4 VAR=TS METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	330	3	3	2.9	.025	.208	-.231	.686
2	78	4	4	97.1	3.485	46.339	.023	.786
***	408	7	7	100.0	.686	26.568		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010720 TO 20030319

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	3702029.0	3314132.0	.7042E+13	4829369.00	.801
2 Q WTD C	285527.2	255609.8	.2724E+09	372475.80	.065
3 IJC	287077.4	256997.6	.4236E+09	374498.10	.080
4 REG-1	281733.3	252213.4	.3146E+10	367526.50	.222
5 REG-2	247068.1	221180.5	.4574E+10	322305.20	.306
6 REG-3	280997.7	251554.9	.9288E+12	366567.00	3.831

```
 LPT5                           VAR=TP        METHOD= 2 Q WTD C
 COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS
 STR       NQ  NC  NE  VOL%   TOTAL FLOW SAMPLED FLOW   C/Q SLOPE SIGNIF
  1       330   3   3   2.9         .025         .332        .537   .394
  2        14   3   3   5.4        1.076         .955      -4.145   .379
  3        64   3   3  91.7        4.012       30.568        .008   .965
***       408   9   9 100.0         .686       10.618

 FLOW STATISTICS
 FLOW DURATION =     408.0 DAYS  =  1.117 YEARS
 MEAN FLOW RATE =      .686 HM3/YR
 TOTAL FLOW VOLUME =        .77 HM3
 FLOW DATE RANGE   = 20010703 TO 20030630
 SAMPLE DATE RANGE = 20010719 TO 20030625

 METHOD         MASS (KG)   FLUX (KG/YR)  FLUX VARIANCE CONC (PPB)      CV
 1 AV LOAD         7111.1         6366.0      .2168E+08    9276.55    .731
 2 Q WTD C          949.0          849.6      .1587E+05    1238.00    .148
 3 IJC              940.1          841.6      .2976E+05    1226.36    .205
 4 REG-1            876.3          784.5      .6028E+05    1143.15    .313
 5 REG-2            904.3          809.6      .8232E+05    1179.70    .354
 6 REG-3           1009.1          903.4      .7389E+05    1316.41    .301


 LPT5                           VAR=TONIT     METHOD= 2 Q WTD C
 COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS
 STR       NQ  NC  NE  VOL%   TOTAL FLOW SAMPLED FLOW   C/Q SLOPE SIGNIF
  1       330   3   3   2.9         .025         .332        .471   .380
  2        14   3   3   5.4        1.076         .955     -11.000   .018
  3        64   3   3  91.7        4.012       30.568       -.239   .119
***       408   9   9 100.0         .686       10.618

 FLOW STATISTICS
 FLOW DURATION =     408.0 DAYS  =  1.117 YEARS
 MEAN FLOW RATE =      .686 HM3/YR
 TOTAL FLOW VOLUME =        .77 HM3
 FLOW DATE RANGE   = 20010703 TO 20030630
 SAMPLE DATE RANGE = 20010719 TO 20030625

 METHOD         MASS (KG)   FLUX (KG/YR)  FLUX VARIANCE CONC (PPB)      CV
 1 AV LOAD        25176.9        22538.9      .2108E+09   32843.81    .644
 2 Q WTD C         3414.4         3056.6      .2548E+07    4454.11    .522
 3 IJC             3234.9         2896.0      .2704E+07    4220.01    .568
 4 REG-1           4973.8         4452.6      .2896E+06    6488.38    .121
 5 REG-2           5939.7         5317.3      .2546E+06    7748.40    .095
 6 REG-3           5829.7         5218.9      .2184E+06    7604.95    .090


 LPT5                           VAR=TS        METHOD= 2 Q WTD C
 COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS
 STR       NQ  NC  NE  VOL%   TOTAL FLOW SAMPLED FLOW   C/Q SLOPE SIGNIF
  1       330   3   3   2.9         .025         .332       -.432   .361
  2        14   3   3   5.4        1.076         .955       7.637   .213
  3        64   3   3  91.7        4.012       30.568       -.352   .377
***       408   9   9 100.0         .686       10.618
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FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010719 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	1983057.0	1775273.0	.1288E+13	2586936.00	.639
2 Q WTD C	270807.8	242432.8	.1734E+11	353274.10	.543
3 IJC	252131.7	225713.5	.7736E+10	328910.70	.390
4 REG-1	571481.7	511602.2	.5447E+11	745509.00	.456
5 REG-2	677512.6	606523.3	.1246E+12	883828.40	.582
6 REG-3	714417.4	639561.1	.4808E+11	931971.40	.343

LPT6 VAR=TP METHOD= 2 Q WTD C
COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	330	3	3	2.9	.025	.431	-1.436	.490
2	62	3	3	49.0	2.213	2.232	-.260	.271
3	16	3	3	48.1	8.417	57.090	-.226	.105
***	408	9	9	100.0	.686	19.918		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010718 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	2075.8	1858.3	.8481E+06	2707.99	.496
2 Q WTD C	481.6	431.1	.1565E+05	628.26	.290
3 IJC	454.3	406.7	.1817E+05	592.62	.331
4 REG-1	609.0	545.2	.3751E+05	794.51	.355
5 REG-2	694.2	621.4	.4056E+05	905.55	.324
6 REG-3	658.4	589.4	.3814E+05	858.85	.331

LPT6 VAR=TONIT METHOD= 2 Q WTD C
COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	330	3	3	2.9	.025	.431	.089	.809
2	62	3	3	49.0	2.213	2.232	.368	.459
3	16	3	3	48.1	8.417	57.090	.065	.722
***	408	9	9	100.0	.686	19.918		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010718 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	13839.3	12389.2	.6244E+08	18053.62	.638
2 Q WTD C	3566.8	3193.1	.1378E+06	4652.96	.116
3 IJC	3675.0	3289.9	.1526E+06	4794.05	.119
4 REG-1	3390.3	3035.0	.2889E+08	4422.67	1.771
5 REG-2	3040.3	2721.7	.1217E+09	3966.07	4.053
6 REG-3	3458.6	3096.2	.2153E+09	4511.82	4.739

LPT6 VAR=TS METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	330	3	3	2.9	.025	.431	.226	.765
2	62	3	3	49.0	2.213	2.232	-.508	.160
3	16	3	3	48.1	8.417	57.090	.000	.994
***	408	9	9	100.0	.686	19.918		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010718 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	1760698.0	1576213.0	.1055E+13	2296866.00	.652
2 Q WTD C	476921.8	426950.2	.1392E+11	622153.90	.276
3 IJC	443426.3	396964.4	.1933E+11	578458.40	.350
4 REG-1	477143.3	427148.5	.3486E+13	622442.90	4.371
5 REG-2	500824.9	448348.8	.1705E+15	653336.00	29.122
6 REG-3	592931.9	530804.8	.8069E+17	773491.40	535.166

LPO VAR=TP METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	273	4	4	2.7	.454	5.819	.435	.718
2	34	3	3	5.4	7.271	17.454	.470	.399
3	100	3	3	91.8	41.807	44.008	.256	.805
***	407	10	10	100.0	11.184	20.766		

FLOW STATISTICS
FLOW DURATION = 407.0 DAYS = 1.114 YEARS
MEAN FLOW RATE = 11.184 HM3/YR
TOTAL FLOW VOLUME = 12.46 HM3
FLOW DATE RANGE = 20010705 TO 20030701
SAMPLE DATE RANGE = 20010719 TO 20020509

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	13939.2	12509.3	.4230E+07	1118.54	.164
2 Q WTD C	11022.6	9891.9	.8036E+06	884.50	.091
3 IJC	11070.4	9934.8	.4823E+06	888.33	.070
4 REG-1	10728.9	9628.3	.1090E+09	860.93	1.084
5 REG-2	10605.1	9517.3	.2911E+09	851.00	1.793
6 REG-3	11034.3	9902.4	.6361E+09	885.44	2.547

LPO VAR=TONIT METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	273	4	4	2.7	.454	5.819	.711	.274
2	34	3	3	5.4	7.271	17.454	.273	.433
3	100	3	3	91.8	41.807	44.008	-.427	.444
***	407	10	10	100.0	11.184	20.766		

FLOW STATISTICS
FLOW DURATION = 407.0 DAYS = 1.114 YEARS
MEAN FLOW RATE = 11.184 HM3/YR
TOTAL FLOW VOLUME = 12.46 HM3
FLOW DATE RANGE = 20010705 TO 20030701
SAMPLE DATE RANGE = 20010719 TO 20020509

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	43324.4	38880.2	.1092E+08	3476.53	.085
2 Q WTD C	29885.1	26819.5	.6218E+07	2398.10	.093
3 IJC	29605.1	26568.3	.6907E+07	2375.64	.099
4 REG-1	29994.5	26917.6	.3639E+09	2406.88	.709
5 REG-2	30155.9	27062.5	.6766E+09	2419.83	.961
6 REG-3	30670.0	27523.9	.9241E+09	2461.09	1.104

LPO VAR=TS METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	273	4	4	2.7	.454	5.819	-.360	.423
2	34	3	3	5.4	7.271	17.454	.016	.896
3	100	3	3	91.8	41.807	44.008	1.972	.198
***	407	10	10	100.0	11.184	20.766		

FLOW STATISTICS
FLOW DURATION = 407.0 DAYS = 1.114 YEARS
MEAN FLOW RATE = 11.184 HM3/YR
TOTAL FLOW VOLUME = 12.46 HM3
FLOW DATE RANGE = 20010705 TO 20030701
SAMPLE DATE RANGE = 20010719 TO 20020509

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	25705400.0	23068550.0	.5999E+14	2062705.00	.336
2 Q WTD C	18832640.0	16900790.0	.2966E+14	1511207.00	.322
3 IJC	19628170.0	17614710.0	.3972E+14	1575044.00	.358
4 REG-1	17168660.0	15407500.0	.3735E+14	1377683.00	.397
5 REG-2	14906060.0	13377000.0	.1679E+14	1196123.00	.306
6 REG-3	15797010.0	14176550.0	.2522E+14	1267616.00	.354

LWT1 VAR=TP METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	359	4	4	17.0	.132	.867	.747	.280
2	49	4	4	83.0	4.743	19.776	.198	.388
***	408	8	8	100.0	.686	10.321		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR

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TOTAL FLOW VOLUME =        .77 HM3
FLOW DATE RANGE   = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010720 TO 20030625
```

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	2892.2	2589.2	.2506E+07	3772.95	.611
2 Q WTD C	633.9	567.5	.3330E+04	826.98	.102
3 IJC	642.7	575.4	.3195E+04	838.43	.098
4 REG-1	434.4	388.9	.2232E+05	566.65	.384
5 REG-2	421.2	377.1	.2658E+05	549.50	.432
6 REG-3	589.5	527.8	.2973E+05	769.08	.327

LWT1 VAR=TONIT METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	359	4	4	17.0	.132	.867	.019	.971
2	49	4	4	83.0	4.743	19.776	.155	.492
***	408	8	8	100.0	.686	10.321		

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FLOW STATISTICS
FLOW DURATION =     408.0 DAYS  =  1.117 YEARS
MEAN FLOW RATE =      .686 HM3/YR
TOTAL FLOW VOLUME =        .77 HM3
FLOW DATE RANGE   = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010720 TO 20030625
```

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	13090.0	11718.4	.4609E+08	17076.15	.579
2 Q WTD C	2874.4	2573.3	.6344E+05	3749.77	.098
3 IJC	2854.5	2555.4	.1308E+06	3723.69	.142
4 REG-1	2382.6	2133.0	.4828E+06	3108.15	.326
5 REG-2	2143.5	1918.9	.8103E+06	2796.27	.469
6 REG-3	2738.1	2451.2	.6440E+06	3571.88	.327

LWT1 VAR=TS METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	359	4	4	17.0	.132	.867	-.653	.224
2	49	4	4	83.0	4.743	19.776	.119	.612
***	408	8	8	100.0	.686	10.321		

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FLOW STATISTICS
FLOW DURATION =     408.0 DAYS  =  1.117 YEARS
MEAN FLOW RATE =      .686 HM3/YR
TOTAL FLOW VOLUME =        .77 HM3
FLOW DATE RANGE   = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010720 TO 20030625
```

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	2606845.0	2333701.0	.2301E+13	3400680.00	.650
2 Q WTD C	569231.3	509587.5	.2140E+11	742573.30	.287
3 IJC	585820.1	524438.2	.2908E+11	764213.80	.325
4 REG-1	649432.4	581385.3	.2702E+11	847197.30	.283
5 REG-2	517766.9	463515.6	.1334E+11	675437.00	.249

6 REG-3	474802.6	425053.0	.5323E+10	619389.30	.172

LWT2 VAR=TP METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	326	4	4	2.1	.018	.248	-.131	.329
2	18	3	3	6.2	.960	1.016	1.074	.753
3	49	4	4	45.5	2.601	3.450	.180	.907
4	15	6	6	46.2	8.621	43.076	.130	.385
***	408	17	17	100.0	.686	16.253		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010718 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	3109.2	2783.4	.2323E+07	4056.02	.548
2 Q WTD C	841.3	753.1	.3325E+05	1097.46	.242
3 IJC	874.2	782.6	.4507E+05	1140.43	.271
4 REG-1	728.0	651.7	.5164E+06	949.71	1.103
5 REG-2	698.1	624.9	.1105E+07	910.66	1.682
6 REG-3	731.6	655.0	.1787E+07	954.44	2.041

LWT2 VAR=TONIT METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	326	4	4	2.1	.018	.248	.013	.911
2	18	3	3	6.2	.960	1.016	-.060	.987
3	49	4	4	45.5	2.601	3.450	.234	.799
4	15	6	6	46.2	8.621	43.076	.466	.021
***	408	17	17	100.0	.686	16.253		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010718 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	10816.2	9682.8	.2204E+08	14109.89	.485
2 Q WTD C	3019.7	2703.3	.1847E+06	3939.24	.159
3 IJC	3101.0	2776.1	.2293E+06	4045.28	.172
4 REG-1	2009.3	1798.8	.1164E+07	2621.16	.600
5 REG-2	1806.6	1617.3	.1754E+07	2356.68	.819
6 REG-3	2039.5	1825.8	.1752E+08	2660.52	2.293

LWT2 VAR=TS METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	326	4	4	2.1	.018	.248	-.122	.492
2	18	3	3	6.2	.960	1.016	-4.227	.334
3	49	4	4	45.5	2.601	3.450	-.449	.735
4	15	6	6	46.2	8.621	43.076	.038	.850
***	408	17	17	100.0	.686	16.253		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010718 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	2312221.0	2069948.0	.8649E+12	3016338.00	.449
2 Q WTD C	645136.7	577539.6	.1444E+11	841593.60	.208
3 IJC	661243.1	591958.4	.1816E+11	862604.60	.228
4 REG-1	689408.6	617172.8	.3042E+11	899347.20	.283
5 REG-2	701031.8	627578.1	.2905E+11	914509.80	.272
6 REG-3	792967.0	709880.4	.1166E+12	1034441.00	.481

LWT3 VAR=TP METHOD= 2 Q WTD C
COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	321	4	4	1.4	.012	.274	1.490	.734
2	28	4	4	9.5	.947	.963	.379	.620
3	44	3	3	42.9	2.732	3.532	.477	.400
4	15	3	3	46.2	8.621	15.333	-.034	.885
***	408	14	14	100.0	.686	4.396		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010718 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	868.1	777.1	.2940E+05	1132.43	.221
2 Q WTD C	533.8	477.9	.4089E+04	696.35	.134
3 IJC	533.7	477.8	.5043E+04	696.25	.149
4 REG-1	498.8	446.5	.7280E+05	650.65	.604
5 REG-2	490.1	438.7	.8696E+05	639.31	.672
6 REG-3	530.3	474.7	.8251E+05	691.76	.605

LWT3 VAR=TONIT METHOD= 2 Q WTD C
COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	321	4	4	1.4	.012	.274	2.760	.364
2	28	4	4	9.5	.947	.963	.330	.389
3	44	3	3	42.9	2.732	3.532	.096	.921
4	15	3	3	46.2	8.621	15.333	.423	.397
***	408	14	14	100.0	.686	4.396		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010718 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	4612.1	4128.9	.1171E+07	6016.64	.262
2 Q WTD C	2684.2	2402.9	.1153E+06	3501.55	.141
3 IJC	2700.0	2417.1	.1435E+06	3522.14	.157
4 REG-1	2366.3	2118.3	.2417E+07	3086.84	.734
5 REG-2	2295.4	2054.8	.3183E+07	2994.33	.868
6 REG-3	2634.9	2358.8	.3659E+07	3437.26	.811

LWT3 VAR=TS METHOD= 2 Q WTD C
COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	321	4	4	1.4	.012	.274	-3.414	.066
2	28	4	4	9.5	.947	.963	-.802	.130
3	44	3	3	42.9	2.732	3.532	-.231	.708
4	15	3	3	46.2	8.621	15.333	1.878	.490
***	408	14	14	100.0	.686	4.396		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010718 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	1246256.0	1115674.0	.4083E+11	1625765.00	.181
2 Q WTD C	548969.7	491449.0	.3397E+10	716141.80	.119
3 IJC	556198.0	497919.9	.3412E+10	725571.30	.117
4 REG-1	484155.7	433426.1	.1644E+11	631590.60	.296
5 REG-2	477758.3	427699.1	.1778E+11	623245.20	.312
6 REG-3	640081.7	573014.3	.1158E+14	834999.30	5.939

LWT4 VAR=TP METHOD= 2 Q WTD C
COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	335	3	3	4.6	.038	.411	-.091	.803
2	73	3	3	95.4	3.661	25.724	-.006	.982
***	408	6	6	100.0	.686	13.068		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010720 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV

1 AV LOAD	3626.0	3246.1	.2291E+07	4730.17	.466
2 Q WTD C	505.1	452.1	.2046E+05	658.85	.316
3 IJC	477.4	427.4	.2941E+05	622.76	.401
4 REG-1	513.9	460.1	.4394E+06	670.43	1.441
5 REG-2	510.9	457.3	.3971E+06	666.45	1.378
6 REG-3	582.6	521.6	.3987E+06	760.04	1.211

LWT4 VAR=TONIT METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	335	3	3	4.6	.038	.411	.099	.764
2	73	3	3	95.4	3.661	25.724	.011	.914
***	408	6	6	100.0	.686	13.068		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010720 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	24568.9	21994.5	.1302E+09	32050.55	.519
2 Q WTD C	3392.8	3037.3	.1059E+06	4426.03	.107
3 IJC	3341.0	2990.9	.1559E+06	4358.35	.132
4 REG-1	3294.2	2949.0	.1244E+07	4297.29	.378
5 REG-2	3317.4	2969.8	.1123E+07	4327.59	.357
6 REG-3	3448.5	3087.2	.1104E+07	4498.66	.340

LWT4 VAR=TS METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	335	3	3	4.6	.038	.411	-.356	.234
2	73	3	3	95.4	3.661	25.724	.059	.748
***	408	6	6	100.0	.686	13.068		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010720 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	3915599.0	3505325.0	.2804E+13	5107975.00	.478
2 Q WTD C	531726.4	476012.5	.5755E+10	693647.50	.159
3 IJC	516017.4	461949.4	.8981E+10	673154.80	.205
4 REG-1	521126.2	466522.9	.1069E+12	679819.30	.701
5 REG-2	478882.0	428705.0	.9824E+11	624710.90	.731
6 REG-3	518853.8	464488.6	.9599E+11	676854.90	.667

LWO VAR=TP METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	408	3	3	100.0	.686	11.277	-2.004	.347
2	0	5	5	.0	.000	26.134	-.211	.811
3	0	3	3	.0	.000	82.234	1.268	.634
***	408	11	11	100.0	.686	37.382		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010719 TO 20020731

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	7222.7	6466.0	.8241E+07	9422.21	.444
2 Q WTD C	439.5	393.5	.7211E+05	573.36	.682
3 IJC	377.7	338.1	.6283E+05	492.74	.741
4 REG-1	1073.3	960.9	.6424E+06	1400.17	.834
5 REG-2	936.5	838.4	.1189E+07	1221.66	1.301
6 REG-3	971.6	869.8	.2171E+06	1267.44	.536

LWO VAR=TONIT METHOD= 2 Q WTD C
COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	408	3	3	100.0	.686	11.277	-1.101	.477
2	0	5	5	.0	.000	26.134	.081	.831
3	0	3	3	.0	.000	82.234	.197	.883
***	408	11	11	100.0	.686	37.382		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010719 TO 20020731

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	29270.1	26203.2	.4124E+08	38183.43	.245
2 Q WTD C	1781.2	1594.5	.4064E+06	2323.55	.400
3 IJC	1639.9	1468.1	.3089E+06	2139.26	.379
4 REG-1	2908.7	2603.9	.3340E+07	3794.48	.702
5 REG-2	2883.8	2581.6	.5718E+07	3761.99	.926
6 REG-3	3017.2	2701.0	.1646E+07	3935.98	.475

LWO VAR=TS METHOD= 2 Q WTD C
COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	408	3	3	100.0	.686	11.277	.011	.966
2	0	5	5	.0	.000	26.134	-.074	.817
3	0	3	3	.0	.000	82.234	.107	.899
***	408	11	11	100.0	.686	37.382		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS

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MEAN FLOW RATE =       .686 HM3/YR
TOTAL FLOW VOLUME =         .77 HM3
FLOW DATE RANGE   = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010719 TO 20020731

METHOD          MASS (KG)   FLUX (KG/YR)  FLUX VARIANCE CONC (PPB)      CV
1 AV LOAD     12653470.0     11327650.0      .9254E+1316506700.00    .269
2 Q WTD C       769992.8       689313.4      .7919E+09 1004471.00    .041
3 IJC           767882.6       687424.3      .6946E+09 1001718.00    .038
4 REG-1         766324.4       686029.4      .9777E+10  999685.10    .144
5 REG-2         765681.6       685453.9      .1017E+11  998846.50    .147
6 REG-3         773304.3       692277.9      .6113E+10 1008790.00    .113


LHO                                VAR=TP        METHOD= 2 Q WTD C
COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS
STR       NQ  NC  NE  VOL%   TOTAL FLOW SAMPLED FLOW   C/Q SLOPE SIGNIF
 1       321   3   3   1.4         .012         .156       -.216   .648
 2        71   3   3  50.5        1.991        1.277        .053   .949
 3        16   4   4  48.1        8.417        8.551       4.472   .429
 4         0   4   4    .0         .000       56.141      -1.577   .392
***      408  14  14 100.0         .686       18.791

FLOW STATISTICS
FLOW DURATION =     408.0 DAYS  =  1.117 YEARS
MEAN FLOW RATE =       .686 HM3/YR
TOTAL FLOW VOLUME =         .77 HM3
FLOW DATE RANGE   = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010719 TO 20030625

METHOD          MASS (KG)   FLUX (KG/YR)  FLUX VARIANCE CONC (PPB)      CV
1 AV LOAD           299.0          267.7      .4734E+04     390.06    .257
2 Q WTD C           353.3          316.3      .3193E+04     460.94    .179
3 IJC               346.3          310.0      .3975E+04     451.72    .203
4 REG-1             356.2          318.9      .2790E+07     464.63   5.238
5 REG-2             534.3          478.3      .9191E+07     696.96   6.339
6 REG-3            1163.6         1041.7      .7712E+08    1518.00   8.430


LHO                                VAR=TONIT     METHOD= 2 Q WTD C
COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS
STR       NQ  NC  NE  VOL%   TOTAL FLOW SAMPLED FLOW   C/Q SLOPE SIGNIF
 1       321   3   3   1.4         .012         .156       -.074   .652
 2        71   3   3  50.5        1.991        1.277        .139   .609
 3        16   4   4  48.1        8.417        8.551       -.224   .896
 4         0   4   4    .0         .000       56.141       -.339   .667
***      408  14  14 100.0         .686       18.791

FLOW STATISTICS
FLOW DURATION =     408.0 DAYS  =  1.117 YEARS
MEAN FLOW RATE =       .686 HM3/YR
TOTAL FLOW VOLUME =         .77 HM3
FLOW DATE RANGE   = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010719 TO 20030625

METHOD          MASS (KG)   FLUX (KG/YR)  FLUX VARIANCE CONC (PPB)      CV
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1 AV LOAD	1631.1	1460.2	.9570E+05	2127.80	.212
2 Q WTD C	1675.9	1500.3	.7524E+04	2186.30	.058
3 IJC	1685.4	1508.8	.6922E+04	2198.65	.055
4 REG-1	1745.3	1562.5	.4491E+06	2276.84	.429
5 REG-2	1699.3	1521.3	.8293E+06	2216.80	.599
6 REG-3	1768.1	1582.8	.8670E+06	2306.51	.588

LHO VAR=TS METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	321	3	3	1.4	.012	.156	-.056	.119
2	71	3	3	50.5	1.991	1.277	.034	.820
3	16	4	4	48.1	8.417	8.551	-.481	.308
4	0	4	4	.0	.000	56.141	-2.353	.382
***	408	14	14	100.0	.686	18.791		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010719 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	761590.3	681791.3	.1520E+11	993509.60	.181
2 Q WTD C	779464.1	697792.3	.4698E+09	1016826.00	.031
3 IJC	782923.5	700889.3	.6275E+09	1021339.00	.036
4 REG-1	790247.3	707445.6	.9973E+10	1030893.00	.141
5 REG-2	773712.4	692643.3	.1051E+11	1009323.00	.148
6 REG-3	782518.8	700526.9	.1118E+11	1020811.00	.151

LTO VAR=TP METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	392	4	4	51.9	.371	1.774	.243	.594
2	16	5	5	48.1	8.417	11.156	-.760	.179
3	0	5	5	.0	.000	35.735	1.748	.388
4	0	4	4	.0	.000	69.908	-2.158	.013
***	408	18	18	100.0	.686	28.955		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010719 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	1816.8	1626.4	.2991E+06	2370.02	.336
2 Q WTD C	462.4	414.0	.1219E+05	603.23	.267
3 IJC	450.3	403.1	.1643E+05	587.37	.318
4 REG-1	380.8	340.9	.2193E+07	496.81	4.343
5 REG-2	558.0	499.5	.2959E+07	727.86	3.444
6 REG-3	554.7	496.6	.1842E+05	723.60	.273

LTO VAR=TONIT METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	392	4	4	51.9	.371	1.774	.144	.246
2	16	5	5	48.1	8.417	11.156	-.383	.281
3	0	5	5	.0	.000	35.735	1.082	.076
4	0	4	4	.0	.000	69.908	-1.325	.031
***	408	18	18	100.0	.686	28.955		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010719 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	8384.1	7505.6	.5421E+07	10937.22	.310
2 Q WTD C	2550.0	2282.8	.5756E+05	3326.50	.105
3 IJC	2544.0	2277.5	.7201E+05	3318.75	.118
4 REG-1	2387.7	2137.5	.1619E+06	3114.79	.188
5 REG-2	2873.1	2572.0	.8480E+05	3747.95	.113
6 REG-3	2703.7	2420.4	.4246E+05	3526.99	.085

LTO VAR=TS METHOD= 2 Q WTD C

COMPARISON OF SAMPLED AND TOTAL FLOW DISTRIBUTIONS

STR	NQ	NC	NE	VOL%	TOTAL FLOW	SAMPLED FLOW	C/Q SLOPE	SIGNIF
1	392	4	4	51.9	.371	1.774	-.042	.829
2	16	5	5	48.1	8.417	11.156	-.188	.258
3	0	5	5	.0	.000	35.735	.257	.698
4	0	4	4	.0	.000	69.908	-.592	.484
***	408	18	18	100.0	.686	28.955		

FLOW STATISTICS
FLOW DURATION = 408.0 DAYS = 1.117 YEARS
MEAN FLOW RATE = .686 HM3/YR
TOTAL FLOW VOLUME = .77 HM3
FLOW DATE RANGE = 20010703 TO 20030630
SAMPLE DATE RANGE = 20010719 TO 20030625

METHOD	MASS (KG)	FLUX (KG/YR)	FLUX VARIANCE	CONC (PPB)	CV
1 AV LOAD	3189859.0	2855628.0	.4401E+12	4161234.00	.232
2 Q WTD C	960895.1	860213.1	.8000E+10	1253507.00	.104
3 IJC	946064.9	846936.8	.9798E+10	1234160.00	.117
4 REG-1	1019678.0	912836.3	.9752E+12	1330190.00	1.082
5 REG-2	960385.0	859756.4	.8886E+11	1252841.00	.347
6 REG-3	1008204.0	902565.3	.9844E+10	1315223.00	.110

APPENDIX XXII – USACE BATHTUB Model Output

BATHTUB SEGMENT NETWORK

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Segment & Tributary Network

--------Segment:	1	Preston	
Outflow Segment:	2	Whitewood	
Tributary:	1	LPT6	Type: Monitored Inflow
Tributary:	2	LPT5	Type: Monitored Inflow
Tributary:	3	LPT4	Type: Monitored Inflow
Tributary:	4	LPT3	Type: Monitored Inflow
Tributary:	5	LPT2	Type: Monitored Inflow
Tributary:	6	LPT1	Type: Monitored Inflow
Tributary:	7	LPO	Type: Reservoir Outflow
--------Segment:	2	Whitewood	
Outflow Segment:	4	Thompson	
Tributary:	8	LWT4	Type: Monitored Inflow
Tributary:	9	LWT3	Type: Monitored Inflow
Tributary:	10	LWT2	Type: Monitored Inflow
Tributary:	11	LWT1	Type: Monitored Inflow
Tributary:	12	LWO	Type: Reservoir Outflow
--------Segment:	3	Henry	
Outflow Segment:	4	Thompson	
Tributary:	13	LHO	Type: Reservoir Outflow
--------Segment:	4	Thompson	
Outflow Segment:	0	Out of Reservoir	
Tributary:	14	LTO	Type: Reservoir Outflow

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Description:

All four basins are linked.
Model input based upon 2001-2003
field data. Default values were used for
atmospheric loads.

Global Variables	Mean	CV
Averaging Period (yrs)	1.00	0.00
Precipitation (m)	0.59	0.20
Evaporation (m)	0.20	0.30
Storage Increase (m)	-0.50	0.00

Atmos. Loads (kg/km2-yr)	Mean	CV
Conserv. Substance	7.90	0.05
Total P	30.00	0.50
Total N	1000.00	0.50
Ortho P	15.00	0.50
Inorganic N	500.00	0.50

Model Options	Code	Description
Conservative Substance	1.00	COMPUTED
Phosphorus Balance	1.00	2ND ORDER, AVAIL P
Nitrogen Balance	1.00	2ND ORDER, AVAIL N
Chlorophyll-a	2.00	P, LIGHT, T
Secchi Depth	1.00	VS. CHLA & TURBIDITY
Dispersion	1.00	FISCHER-NUMERIC
Phosphorus Calibration	1.00	DECAY RATES
Nitrogen Calibration	1.00	DECAY RATES
Error Analysis	1.00	MODEL & DATA
Availability Factors	0.00	IGNORE
Mass-Balance Tables	1.00	USE ESTIMATED CONCS
Output Destination	2.00	EXCEL WORKSHEET

Segment Morphometry

		Outflow		Area	Depth	Length	Mixed Depth (m)		Hypol Depth	
Seg	Name	Segment	Group	km2	m	km	Mean	CV	Mean	CV
1	Preston	2.00	1.00	21.14	0.75	10.50	0.75	0.12	0.00	0.00
2	Whitewood	4.00	1.00	20.11	1.15	10.46	1.15	0.12	0.00	0.00

3	Henry	4.00	1.00	15.00	3.00	2.50	3.00	0.12	0.00	0.00
4	Thompson	0.00	1.00	65.70	2.80	24.14	2.80	0.12	0.00	0.00

		Outflow				Internal Loads (mg/m2-day)					
Seg	**Name**	**Segment**	**Group**	**Non-Algal Turb (m-1)**		**Conserv.**		**Total P**		**Total N**	
1	Preston	2.00	1.00	**Mean**	**CV**	**Mean**	**CV**	**Mean**	**CV**	**Mean**	**CV**
2	Whitewood	4.00	1.00	1.66	1.66	0.00	0.00	0.00	0.00	0.00	0.00
3	Henry	4.00	1.00	0.08	131.08	0.00	0.00	0.00	0.00	0.00	0.00
4	Thompson	0.00	1.00	0.08	12.70	0.00	0.00	0.00	0.00	0.00	0.00
				0.08	9.69	0.00	0.00	0.00	0.00	0.00	0.00

Segment Observed Water Quality

	Conserv		Total P (ppb)		Total N (ppb)		Chl-a (ppb)		Secchi (m)		Organic N (ppb)	
Seg	**Mean**	**CV**	**Mean**	**CV**	**Mean**	**CV**	**Mean**	**CV**	**Mean**	**CV**	**Mean**	**CV**
1	1467.60	0.10	682.60	0.41	2565.30	0.28	61.86	0.58	0.31	0.81	2358.00	0.30
2	1276.90	0.06	575.20	0.46	2510.20	0.31	63.10	0.66	0.55	0.87	2309.80	0.31
3	1157.50	0.06	309.30	0.37	2150.30	0.29	28.00	1.33	1.35	0.54	1876.80	0.29
4	1253.90	0.04	304.10	0.24	1980.60	0.20	27.94	0.93	1.59	0.68	1742.70	0.19

	TP - Ortho P (ppb)		HOD (ppb/day)		MOD (ppb/day)	
Seg	**Mean**	**CV**	**Mean**	**CV**	**Mean**	**CV**
1	428.10	0.55	0.00	0.00	0.00	0.00
2	399.70	0.57	0.00	0.00	0.00	0.00
3	250.90	0.47	0.00	0.00	0.00	0.00
4	253.80	0.29	0.00	0.00	0.00	0.00

Segment Calibration Factors

	Dispersion Rate		Total P (ppb)		Total N (ppb)		Chl-a (ppb)		Secchi (m)		Organic N (ppb)	
Seg	**Mean**	**CV**	**Mean**	**CV**	**Mean**	**CV**	**Mean**	**CV**	**Mean**	**CV**	**Mean**	**CV**
1	1.00	0.00	1.18	0.00	1.00	0.00	0.34	0.00	1.50	0.00	1.00	0.00
2	1.00	0.00	1.13	0.00	1.00	0.00	0.41	0.00	1.70	0.00	1.00	0.00
3	1.00	0.00	0.98	0.00	1.00	0.00	0.47	0.00	2.20	0.00	1.00	0.00
4	1.00	0.00	0.93	0.00	1.00	0.00	0.40	0.00	2.70	0.00	1.00	0.00

	TP - Ortho P (ppb)		HOD (ppb/day)		MOD (ppb/day)	
Seg	**Mean**	**CV**	**Mean**	**CV**	**Mean**	**CV**
1	1.00	0.00	1.00	0.00	1.00	0.00
2	1.00	0.00	1.00	0.00	1.00	0.00
3	1.00	0.00	1.00	0.00	1.00	0.00

4		1.00	0.00	1.00	0.00	1.00	0.00

Tributary Data

Trib	Trib Name	Segment	Type	Dr Area km2	Flow (hm3/yr) Mean	CV	Conserv. Mean	CV
1	LPT6	1.00	1.00	4.74	7.16	2.61	1283.40	0.52
2	LPT5	1.00	1.00	17.30	1.54	11.81	991.30	0.51
3	LPT4	1.00	1.00	21.00	6.40	3.61	1127.80	0.54
4	LPT3	1.00	1.00	16.20	23.66	5.67	1501.40	0.48
5	LPT2	1.00	1.00	28.99	1.36	2.87	1027.50	0.74
6	LPT1	1.00	1.00	48.39	15.34	2.36	1198.20	0.39
7	LPO	1.00	4.00	226.30	22.36	1.59	1433.80	0.19
8	LWT4	2.00	1.00	3.30	0.32	10.19	1878.50	0.56
9	LWT3	2.00	1.00	14.08	0.90	1.98	1716.60	0.51
10	LWT2	2.00	1.00	64.74	7.82	4.26	1237.40	0.57
11	LWT1	2.00	1.00	7.69	2.60	4.11	1371.00	0.52
12	LWO	2.00	4.00	614.50	26.05	1.70	1333.50	0.16
13	LHO	3.00	4.00	219.20	15.46	1.76	1260.30	0.13
14	LTO	4.00	4.00	833.70	49.78	1.05	1286.70	0.16

Trib	Trib Name	Segment	Type	Total P (ppb) Mean	CV	Total N (ppb) Mean	CV	Ortho P (ppb) Mean	CV	Inorganic N (ppb) Mean	CV
1	LPT6	1.00	1.00	899.80	0.75	4141.60	0.34	732.20	0.86	1751.70	0.66
2	LPT5	1.00	1.00	1321.30	0.54	5852.70	0.57	1192.80	0.53	2861.30	0.86
3	LPT4	1.00	1.00	840.40	0.63	3749.00	0.47	546.80	0.86	156.50	0.79
4	LPT3	1.00	1.00	624.70	0.55	2552.60	0.40	529.20	0.64	694.40	1.10
5	LPT2	1.00	1.00	689.40	0.61	3563.10	0.64	553.60	0.71	1501.70	1.21
6	LPT1	1.00	1.00	750.80	0.75	2575.40	0.56	571.10	0.84	798.00	1.10
7	LPO	1.00	4.00	811.40	0.60	3790.30	0.78	409.80	0.69	233.10	0.69
8	LWT4	2.00	1.00	512.30	0.57	5155.40	0.24	366.40	0.53	3293.70	0.43
9	LWT3	2.00	1.00	542.00	0.61	3094.90	0.43	381.70	0.77	1121.90	1.05
10	LWT2	2.00	1.00	776.40	0.60	2675.80	0.58	453.80	0.56	847.80	0.99
11	LWT1	2.00	1.00	728.20	0.57	2870.40	0.44	521.20	0.76	875.70	1.20
12	LWO	2.00	4.00	766.40	0.60	3185.40	0.51	398.30	0.70	290.40	0.74
13	LHO	3.00	4.00	450.90	0.58	2565.40	0.46	208.30	0.76	183.80	0.75
14	LTO	4.00	4.00	530.40	0.63	3512.50	0.34	113.10	0.94	511.60	1.02

Model Coefficients	Mean	CV
Dispersion Rate	0.03	0.70
Total Phosphorus	0.01	0.45
Total Nitrogen	2.58	0.55
Chl-a Model	1.00	0.26

Secchi Model	1.00	0.10
Organic N Model	1.00	0.12
TP-OP Model	1.00	0.15
HODv Model	1.00	0.15
MODv Model	1.00	0.22
Secchi/Chla Slope (m2/mg)	0.03	0.00
Minimum Qs (m/yr)	4.00	0.00
Chl-a Flushing Term	1.00	0.00
Chl-a Temporal CV	0.62	0.00
Avail. Factor - Total P	1.33	0.00
Avail. Factor - Ortho P	0.33	0.00
Avail. Factor - Total N	0.59	0.00
Avail. Factor - Inorganic N	0.79	0.00

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Variable = **CONSERVATIVE SUB** **R2 =** **-24.66**

Global Calibration Factor = **0.03** **CV =** **0.70**

Seg	Group	Name	Calibration Factor Mean	CV	Predicted Mean	CV	Observed Mean	CV	Log (Obs/Pred) Mean	SE	t
1	1	Preston	1.00	0.00	1074.7	0.74	1467.6	0.10	0.31	0.75	0.41
2	1	Whitewood	1.00	0.00	978.5	0.84	1276.9	0.06	0.27	0.84	0.32
3	1	Henry	1.00	0.00	696.2	1.50	1157.5	0.06	0.51	1.50	0.34
4	1	Thompson	1.00	0.00	710.4	1.50	1253.9	0.04	0.57	1.50	0.38
5	1	Area-Wtd Mean			816.0	1.18	1282.9	0.06	0.45	1.19	0.38

Variable = **TOTAL P MG/M3** **R2 =** **0.90**

Global Calibration Factor = **0.01** **CV =** **0.45**

Seg	Group	Name	Calibration Factor Mean	CV	Predicted Mean	CV	Observed Mean	CV	Log (Obs/Pred) Mean	SE	t
1	1	Preston	1.18	0.00	572.8	0.47	682.6	0.41	0.18	0.62	0.28
2	1	Whitewood	1.13	0.00	506.0	0.54	575.2	0.46	0.13	0.71	0.18
3	1	Henry	0.98	0.00	316.9	1.10	309.3	0.37	-0.02	1.16	-0.02

4	1	Thompson	0.93	0.00	326.6	1.11	304.1	0.24	-0.07	1.14	-0.06
5	1	Area-Wtd Mean			397.7	0.78	415.1	0.35	0.04	0.86	0.05

Variable = **TOTAL N** **MG/M3** **R2 =** **-183.76**

Global Calibration Factor = **2.58** **CV =** **0.55**

			Calibration Factor		**Predicted**		**Observed**		**Log (Obs/Pred)**		
Seq	**Group**	**Name**	**Mean**	**CV**	**Mean**	**CV**	**Mean**	**CV**	**Mean**	**SE**	**t**
1	1	Preston	1.00	0.00	1190.9	0.68	2565.3	0.28	0.77	0.74	1.04
2	1	Whitewood	1.00	0.00	817.9	0.73	2510.2	0.31	1.12	0.79	1.42
3	1	Henry	1.00	0.00	319.9	0.56	2150.3	0.29	1.91	0.63	3.03
4	1	Thompson	1.00	0.00	341.6	0.68	1980.6	0.20	1.76	0.71	2.49
5	1	Area-Wtd Mean			564.7	0.66	2190.2	0.25	1.36	0.70	1.93

Variable = **CHL-A** **MG/M3** **R2 =** **0.99**

Global Calibration Factor = **1.00** **CV =** **0.26**

			Calibration Factor		**Predicted**		**Observed**		**Log (Obs/Pred)**		
Seq	**Group**	**Name**	**Mean**	**CV**	**Mean**	**CV**	**Mean**	**CV**	**Mean**	**SE**	**t**
1	1	Preston	0.34	0.00	61.7	0.44	61.9	0.58	0.00	0.73	0.00
2	1	Whitewood	0.41	0.00	63.0	2.29	63.1	0.66	0.00	2.38	0.00
3	1	Henry	0.47	0.00	28.0	0.65	28.0	1.33	-0.00	1.48	-0.00
4	1	Thompson	0.40	0.00	25.5	0.52	27.9	0.93	0.09	1.06	0.09
5	1	Area-Wtd Mean			38.3	0.70	39.6	0.80	0.03	1.06	0.03

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Predicted & Observed Values Ranked Against CE Model Development Dataset

Segment: **5** **Area-Wtd Mean**

	Predicted Values--->			**Observed Values--->**		
Variable	**Mean**	**CV**	**Rank**	**Mean**	**CV**	**Rank**
CONSERVATIVE SUB	816.0	1.18		1282.9	0.06	
TOTAL P MG/M3	397.7	0.78	99.1%	415.1	0.35	99.2%
TOTAL N MG/M3	564.7	0.66	18.5%	2190.2	0.25	88.9%
C.NUTRIENT MG/M3	34.3	0.89	48.0%	155.7	0.27	96.7%
CHL-A MG/M3	38.3	0.70	96.6%	39.6	0.80	96.9%
SECCHI M	2.6	0.69	87.9%	1.2	0.68	54.1%
ORGANIC N MG/M3	1056.3	0.48	94.2%	1959.4	0.25	99.7%
TP-ORTHO-P MG/M3	72.4	0.32	82.3%	307.7	0.43	99.3%
ANTILOG PC-1	825.6	0.67	82.3%	2659.9	0.32	96.6%
ANTILOG PC-2	31.2	0.86	99.9%	14.7	0.51	94.2%
(N - 150) / P	0.9	0.55	0.0%	5.3	0.22	4.4%
INORGANIC N / P	0.0	1.06	0.0%	3.5	2.38	1.5%
TURBIDITY 1/M	0.4	5.22	26.8%	0.4	5.22	26.8%
ZMIX * TURBIDITY	0.4	6.21	0.3%	0.4	6.21	0.3%
ZMIX / SECCHI	1.0	0.89	0.4%	2.0	0.40	6.6%
CHL-A * SECCHI	77.1	1.19	99.8%	37.6	0.78	96.7%
CHL-A / TOTAL P	0.1	0.91	11.8%	0.1	0.56	12.5%
FREQ(CHL-a>10) %	92.6	0.10	96.6%	94.0	0.14	96.9%
FREQ(CHL-a>20) %	67.7	0.33	96.6%	70.8	0.46	96.9%
FREQ(CHL-a>30) %	46.8	0.55	96.6%	49.6	0.63	96.9%

FREQ(CHL-a>40) %	32.6	0.84	96.6%	34.7	0.71	96.9%
FREQ(CHL-a>50) %	23.2	1.18	96.6%	24.6	0.74	96.9%
FREQ(CHL-a>60) %	16.8	1.53	96.6%	17.7	0.79	96.9%
CARLSON TSI-P	90.0	0.14	99.1%	90.2	0.03	99.2%
CARLSON TSI-CHLA	65.5	0.08	96.6%	65.9	0.08	96.9%
CARLSON TSI-SEC	49.7	0.25	12.1%	60.2	0.10	45.9%

Segment: 1 Preston

Variable	**Predicted Values---> Mean**	**CV**	**Rank**	**Observed Values---> Mean**	**CV**	**Rank**
CONSERVATIVE SUB	1074.7	0.74		1467.6	0.10	
TOTAL P MG/M3	572.8	0.47	99.7%	682.6	0.41	99.8%
TOTAL N MG/M3	1190.9	0.68	60.6%	2565.3	0.28	92.9%
C.NUTRIENT MG/M3	85.8	0.77	86.3%	193.1	0.31	98.3%
CHL-A MG/M3	61.7	0.44	99.3%	61.9	0.58	99.3%
SECCHI M	0.5	0.72	13.6%	0.3	0.81	5.1%
ORGANIC N MG/M3	1689.0	0.32	99.4%	2358.0	0.30	99.9%
TP-ORTHO-P MG/M3	145.1	0.35	95.1%	428.1	0.55	99.7%
ANTILOG PC-1	2715.0	0.62	96.7%	5963.7	0.54	99.3%
ANTILOG PC-2	13.7	0.74	92.5%	9.3	0.68	76.1%
(N - 150) / P	1.8	0.63	0.1%	3.5	0.50	1.1%
INORGANIC N / P	0.0	0.61	0.0%	0.8	5.08	0.0%
TURBIDITY 1/M	1.7	1.66	87.3%	1.7	1.66	87.3%
ZMIX * TURBIDITY	1.2	1.66	11.6%	1.2	1.66	11.6%
ZMIX / SECCHI	1.6	0.73	3.0%	2.4	0.80	12.0%
CHL-A * SECCHI	28.9	1.03	92.9%	19.3	1.00	81.6%
CHL-A / TOTAL P	0.1	0.56	17.3%	0.1	0.70	11.3%
FREQ(CHL-a>10) %	99.6	0.01	99.3%	99.6	0.01	99.3%
FREQ(CHL-a>20) %	93.4	0.10	99.3%	93.5	0.12	99.3%
FREQ(CHL-a>30) %	80.3	0.24	99.3%	80.4	0.31	99.3%
FREQ(CHL-a>40) %	65.2	0.40	99.3%	65.3	0.52	99.3%
FREQ(CHL-a>50) %	51.2	0.55	99.3%	51.3	0.72	99.3%
FREQ(CHL-a>60) %	39.6	0.69	99.3%	39.7	0.90	99.3%
CARLSON TSI-P	95.7	0.07	99.7%	98.3	0.06	99.8%
CARLSON TSI-CHLA	71.0	0.06	99.3%	71.1	0.08	99.3%
CARLSON TSI-SEC	70.9	0.15	86.4%	76.8	0.15	94.9%

Segment: 2 Whitew

	ood					
	Predicted Values--->			Observed Values--->		
Variable	Mean	CV	Rank	Mean	CV	Rank
CONSERVATIVE SUB	978.5	0.84		1276.9	0.06	
TOTAL P MG/M3	506.0	0.54	99.6%	575.2	0.46	99.7%
TOTAL N MG/M3	817.9	0.73	37.6%	2510.2	0.31	92.4%
C.NUTRIENT MG/M3	55.3	0.89	70.8%	186.1	0.35	98.0%
CHL-A MG/M3	63.0	2.29	99.3%	63.1	0.66	99.3%
SECCHI M	1.0	4.18	47.4%	0.5	0.87	18.5%
ORGANIC N MG/M3	1598.5	1.57	99.1%	2309.8	0.31	99.9%
TP-ORTHO-P MG/M3	109.9	0.34	91.4%	399.7	0.57	99.7%
ANTILOG PC-1	1436.4	0.74	91.2%	4493.4	0.59	98.7%
ANTILOG PC-2	25.7	4.64	99.6%	13.9	0.74	92.8%
(N - 150) / P	1.3	0.61	0.0%	4.1	0.55	1.8%
INORGANIC N / P	0.0	0.67	0.0%	1.1	5.64	0.1%
TURBIDITY 1/M	0.1	131.08	1.1%	0.1	131.08	1.1%
ZMIX * TURBIDITY	0.1	131.08	0.0%	0.1	131.08	0.0%
ZMIX / SECCHI	1.1	4.19	0.6%	2.1	0.86	8.0%
CHL-A * SECCHI	64.7	6.44	99.5%	34.5	1.09	95.7%
CHL-A / TOTAL P	0.1	2.33	23.7%	0.1	0.79	18.1%
FREQ(CHL-a>10) %	99.6	0.04	99.3%	99.6	0.01	99.3%
FREQ(CHL-a>20) %	93.8	0.48	99.3%	93.9	0.13	99.3%
FREQ(CHL-a>30) %	81.2	1.23	99.3%	81.3	0.34	99.3%
FREQ(CHL-a>40) %	66.3	2.03	99.3%	66.5	0.57	99.3%
FREQ(CHL-a>50) %	52.5	2.80	99.3%	52.6	0.79	99.3%
FREQ(CHL-a>60) %	40.8	3.52	99.3%	40.9	1.00	99.3%
CARLSON TSI-P	93.9	0.08	99.6%	95.8	0.07	99.7%
CARLSON TSI-CHLA	71.2	0.32	99.3%	71.3	0.09	99.3%
CARLSON TSI-SEC	59.6	1.01	52.6%	68.7	0.18	81.5%

Segment:	3	Henry				
	Predicted Values--->			Observed Values--->		
Variable	Mean	CV	Rank	Mean	CV	Rank
CONSERVATIVE SUB	696.2	1.50		1157.5	0.06	
TOTAL P MG/M3	316.9	1.10	98.2%	309.3	0.37	98.1%
TOTAL N MG/M3	319.9	0.56	3.7%	2150.3	0.29	88.4%

C.NUTRIENT MG/M3	14.1	1.05	12.4%	146.7	0.32	96.1%
CHL-A MG/M3	28.0	0.65	92.2%	28.0	1.33	92.2%
SECCHI M	2.8	0.86	89.7%	1.3	0.54	61.5%
ORGANIC N MG/M3	801.6	0.45	84.9%	1876.8	0.29	99.7%
TP-ORTHO-P MG/M3	47.7	0.38	68.7%	250.9	0.47	98.7%
ANTILOG PC-1	200.3	0.86	43.9%	1508.4	0.80	91.7%
ANTILOG PC-2	34.4	1.00	99.9%	14.8	0.99	94.4%
(N - 150) / P	0.5	0.76	0.0%	6.5	0.48	7.8%
INORGANIC N / P	0.0	1.26	0.0%	4.7	4.18	3.2%
TURBIDITY 1/M	0.1	12.70	1.1%	0.1	12.70	1.1%
ZMIX * TURBIDITY	0.2	12.70	0.0%	0.2	12.70	0.0%
ZMIX / SECCHI	1.1	0.85	0.5%	2.2	0.54	9.5%
CHL-A * SECCHI	79.0	1.36	99.8%	37.7	1.44	96.8%
CHL-A / TOTAL P	0.1	1.12	10.5%	0.1	1.38	11.2%
FREQ(CHL-a>10) %	91.2	0.18	92.2%	91.2	0.36	92.2%
FREQ(CHL-a>20) %	59.2	0.68	92.2%	59.2	1.38	92.2%
FREQ(CHL-a>30) %	33.7	1.13	92.2%	33.7	2.32	92.2%
FREQ(CHL-a>40) %	18.8	1.49	92.2%	18.8	3.10	92.2%
FREQ(CHL-a>50) %	10.7	1.80	92.2%	10.7	3.76	92.2%
FREQ(CHL-a>60) %	6.2	2.06	92.2%	6.2	4.33	92.2%
CARLSON TSI-P	87.2	0.18	98.2%	86.8	0.06	98.1%
CARLSON TSI-CHLA	63.3	0.10	92.2%	63.3	0.20	92.2%
CARLSON TSI-SEC	45.1	0.27	10.3%	55.7	0.14	38.5%

Segment:	**4**	**Thompson**				
	Predicted Values--->			**Observed Values--->**		
Variable	**Mean**	**CV**	**Rank**	**Mean**	**CV**	**Rank**
CONSERVATIVE SUB	710.4	1.50		1253.9	0.04	
TOTAL P MG/M3	326.6	1.11	98.4%	304.1	0.24	98.0%
TOTAL N MG/M3	341.6	0.68	4.6%	1980.6	0.20	85.6%
C.NUTRIENT MG/M3	16.0	1.21	15.7%	136.4	0.21	95.3%
CHL-A MG/M3	25.5	0.52	90.3%	27.9	0.93	92.2%
SECCHI M	3.8	0.78	95.0%	1.6	0.68	69.5%
ORGANIC N MG/M3	744.8	0.37	81.2%	1742.7	0.19	99.5%
TP-ORTHO-P MG/M3	43.2	0.37	65.0%	253.8	0.29	98.8%
ANTILOG PC-1	173.4	0.96	39.6%	1298.6	0.62	89.9%
ANTILOG PC-2	37.7	0.84	100.0%	16.6	0.78	96.4%

(N - 150) / P	0.6	0.67	0.0%	6.0	0.32	6.4%
INORGANIC N / P	0.0	1.25	0.0%	4.7	3.04	3.2%
TURBIDITY 1/M	0.1	9.69	1.1%	0.1	9.69	1.1%
ZMIX * TURBIDITY	0.2	9.69	0.0%	0.2	9.69	0.0%
ZMIX / SECCHI	0.7	0.78	0.1%	1.8	0.67	4.3%
CHL-A * SECCHI	96.0	1.13	99.9%	44.5	1.15	98.1%
CHL-A / TOTAL P	0.1	1.06	7.4%	0.1	0.95	11.7%
FREQ(CHL-a>10) %	88.5	0.18	90.3%	91.1	0.25	92.2%
FREQ(CHL-a>20) %	53.3	0.62	90.3%	59.1	0.96	92.2%
FREQ(CHL-a>30) %	28.4	0.99	90.3%	33.5	1.61	92.2%
FREQ(CHL-a>40) %	15.0	1.29	90.3%	18.7	2.16	92.2%
FREQ(CHL-a>50) %	8.2	1.54	90.3%	10.6	2.62	92.2%
FREQ(CHL-a>60) %	4.6	1.75	90.3%	6.1	3.01	92.2%
CARLSON TSI-P	87.6	0.18	98.4%	86.6	0.04	98.0%
CARLSON TSI-CHLA	62.4	0.08	90.3%	63.3	0.14	92.2%
CARLSON TSI-SEC	40.9	0.28	5.0%	53.3	0.18	30.5%

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T Statistics Compare Observed and Predicted Means Using the Following Error Terms:
1 = Observed Water Quality Error Only
2 = Error Typical of Model Development Dataset
3 = Observed & Predicted Error

Segment: **Area-Wtd Mean**

Variable	Observed Mean	CV	Predicted Mean	CV	Obs/Pred Ratio	T-Statistics ----> T1	T2	T3
CONSERVATIVE SUB	1282.9	0.06	816.0	1.18	1.57	7.89		0.38
TOTAL P MG/M3	415.1	0.35	397.7	0.78	1.04	0.12	0.16	0.05
TOTAL N MG/M3	2190.2	0.25	564.7	0.66	3.88	5.46	6.16	1.93
C.NUTRIENT MG/M3	155.7	0.27	34.3	0.89	4.54	5.54	7.52	1.62
CHL-A MG/M3	39.6	0.80	38.3	0.70	1.04	0.04	0.10	0.03
SECCHI M	1.2	0.68	2.6	0.69	0.45	-1.19	-2.89	-0.83
ORGANIC N MG/M3	1959.4	0.25	1056.3	0.48	1.86	2.47	2.47	1.14
TP-ORTHO-P MG/M3	307.7	0.43	72.4	0.32	4.25	3.37	3.95	2.69
ANTILOG PC-1	2659.9	0.32	825.6	0.67	3.22	3.70	3.33	1.58
ANTILOG PC-2	14.7	0.51	31.2	0.86	0.47	-1.47	-2.43	-0.75
(N - 150) / P	5.3	0.22	0.9	0.55	5.83	7.85	5.44	2.95

Segment: **1** **Preston**

	Observed		Predicted		Obs/Pred	T-Statistics ---->		
Variable	**Mean**	**CV**	**Mean**	**CV**	**Ratio**	**T1**	**T2**	**T3**
CONSERVATIVE SUB	1467.6	0.10	1074.7	0.74	1.37	3.21		0.41
TOTAL P MG/M3	682.6	0.41	572.8	0.47	1.19	0.43	0.65	0.28
TOTAL N MG/M3	2565.3	0.28	1190.9	0.68	2.15	2.69	3.49	1.04
C.NUTRIENT MG/M3	193.1	0.31	85.8	0.77	2.25	2.60	4.04	0.98
CHL-A MG/M3	61.9	0.58	61.7	0.44	1.00	0.00	0.01	0.00
SECCHI M	0.3	0.81	0.5	0.72	0.67	-0.50	-1.45	-0.38
ORGANIC N MG/M3	2358.0	0.30	1689.0	0.32	1.40	1.12	1.33	0.77
TP-ORTHO-P MG/M3	428.1	0.55	145.1	0.35	2.95	1.98	2.96	1.67
ANTILOG PC-1	5963.7	0.54	2715.0	0.62	2.20	1.47	2.24	0.96
ANTILOG PC-2	9.3	0.68	13.7	0.74	0.68	-0.57	-1.24	-0.38
(N - 150) / P	3.5	0.50	1.8	0.63	1.95	1.34	2.06	0.83

Segment: **2** **Whitewood**

	Observed		Predicted		Obs/Pred	T-Statistics ---->		
Variable	**Mean**	**CV**	**Mean**	**CV**	**Ratio**	**T1**	**T2**	**T3**
CONSERVATIVE SUB	1276.9	0.06	978.5	0.84	1.31	4.29		0.32
TOTAL P MG/M3	575.2	0.46	506.0	0.54	1.14	0.28	0.48	0.18
TOTAL N MG/M3	2510.2	0.31	817.9	0.73	3.07	3.63	5.10	1.42
C.NUTRIENT MG/M3	186.1	0.35	55.3	0.89	3.36	3.49	6.04	1.28
CHL-A MG/M3	63.1	0.66	63.0	2.29	1.00	0.00	0.01	0.00
SECCHI M	0.5	0.87	1.0	4.18	0.53	-0.73	-2.26	-0.15
ORGANIC N MG/M3	2309.8	0.31	1598.5	1.57	1.44	1.18	1.47	0.23
TP-ORTHO-P MG/M3	399.7	0.57	109.9	0.34	3.64	2.27	3.53	1.95
ANTILOG PC-1	4493.4	0.59	1436.4	0.74	3.13	1.94	3.25	1.20
ANTILOG PC-2	13.9	0.74	25.7	4.64	0.54	-0.83	-1.98	-0.13
(N - 150) / P	4.1	0.55	1.3	0.61	3.11	2.05	3.50	1.37

Segment: **3** **Henry**

	Observed		Predicted		Obs/Pred	T-Statistics ---->		
Variable	**Mean**	**CV**	**Mean**	**CV**	**Ratio**	**T1**	**T2**	**T3**

CONSERVATIVE SUB	1157.5	0.06	696.2	1.50	1.66	8.20		0.34
TOTAL P MG/M3	309.3	0.37	316.9	1.10	0.98	-0.07	-0.09	-0.02
TOTAL N MG/M3	2150.3	0.29	319.9	0.56	6.72	6.55	8.66	3.03
C.NUTRIENT MG/M3	146.7	0.32	14.1	1.05	10.37	7.32	11.64	2.13
CHL-A MG/M3	28.0	1.33	28.0	0.65	1.00	-0.00	-0.00	-0.00
SECCHI M	1.3	0.54	2.8	0.86	0.48	-1.36	-2.64	-0.73
ORGANIC N MG/M3	1876.8	0.29	801.6	0.45	2.34	2.88	3.40	1.58
TP-ORTHO-P MG/M3	250.9	0.47	47.7	0.38	5.27	3.56	4.54	2.77
ANTILOG PC-1	1508.4	0.80	200.3	0.86	7.53	2.51	5.75	1.72
ANTILOG PC-2	14.8	0.99	34.4	1.00	0.43	-0.85	-2.71	-0.60
(N - 150) / P	6.5	0.48	0.5	0.76	12.06	5.21	7.68	2.78

Segment: **4** **Thompson**

Variable	**Observed Mean**	**CV**	**Predicted Mean**	**CV**	**Obs/Pred Ratio**	**T-Statistics ----> T1**	**T2**	**T3**
CONSERVATIVE SUB	1253.9	0.04	710.4	1.50	1.77	14.20		0.38
TOTAL P MG/M3	304.1	0.24	326.6	1.11	0.93	-0.30	-0.27	-0.06
TOTAL N MG/M3	1980.6	0.20	341.6	0.68	5.80	8.83	7.99	2.49
C.NUTRIENT MG/M3	136.4	0.21	16.0	1.21	8.55	10.10	10.68	1.75
CHL-A MG/M3	27.9	0.93	25.5	0.52	1.09	0.10	0.26	0.09
SECCHI M	1.6	0.68	3.8	0.78	0.42	-1.26	-3.07	-0.83
ORGANIC N MG/M3	1742.7	0.19	744.8	0.37	2.34	4.40	3.40	2.06
TP-ORTHO-P MG/M3	253.8	0.29	43.2	0.37	5.87	6.08	4.84	3.73
ANTILOG PC-1	1298.6	0.62	173.4	0.96	7.49	3.27	5.74	1.77
ANTILOG PC-2	16.6	0.78	37.7	0.84	0.44	-1.05	-2.65	-0.72
(N - 150) / P	6.0	0.32	0.6	0.67	10.26	7.36	7.19	3.13

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Hydraulic & Dispersion Parameters

Seg	Name	Outflow Seg	Net Inflow hm3/yr	Resid Time years	Overflow Rate m/yr	Velocity km/yr	Dispersion-----> Estimated km2/yr	Numeric km2/yr	Exchange hm3/yr
1	Preston	2	63.6	0.2492	3.0	42.1	584.4	221.2	52.2
2	Whitewood	4	71.2	0.3246	3.5	32.2	284.6	168.5	24.5
3	Henry	4	8.0	5.6561	0.5	1.0	38.4	0.6	272.8
4	Thompson	0	80.6	2.2821	1.2	10.6	88.7	127.7	0.0

Morphometry

Seg	Name	Area km2	Zmean m	Zmix m	Length km	Volume hm3	Width km	L/W -
1	Preston	21.1	0.8	0.8	10.5	15.9	2.0	5.2
2	Whitewood	20.1	1.1	1.1	10.5	23.1	1.9	5.4
3	Henry	15.0	3.0	3.0	2.5	45.0	6.0	0.4
4	Thompson	65.7	2.8	2.8	24.1	184.0	2.7	8.9
Totals		121.9	2.2			267.9		

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Overall Water & Nutrient Balances

Overall Water Balance — **Averaging Period = 1.00 years**

Trb	**Type**	**Seg**	**Name**	**Area km2**	**Flow hm3/yr**	**Variance (hm3/yr)2**	**CV -**	**Runoff m/yr**
1	1	1	LPT6	4.7	7.2	3.50E+02	2.61	1.51
2	1	1	LPT5	17.3	1.5	3.31E+02	11.81	0.09
3	1	1	LPT4	21.0	6.4	5.33E+02	3.61	0.30
4	1	1	LPT3	16.2	23.7	1.80E+04	5.67	1.46
5	1	1	LPT2	29.0	1.4	1.52E+01	2.87	0.05
6	1	1	LPT1	48.4	15.3	1.31E+03	2.36	0.32
7	4	1	LPO	226.3	22.4	1.26E+03	1.59	0.10
8	1	2	LWT4	3.3	0.3	1.06E+01	10.19	0.10
9	1	2	LWT3	14.1	0.9	3.17E-00	1.98	0.06
10	1	2	LWT2	64.7	7.8	1.11E+03	4.26	0.12
11	1	2	LWT1	7.7	2.6	1.14E+02	4.11	0.34
12	4	2	LWO	614.5	26.0	1.95E+03	1.70	0.04
13	4	3	LHO	219.2	15.5	7.42E+02	1.76	0.07
14	4	4	LTO	833.7	49.8	2.72E+03	1.05	0.06
PRECIPITATION				121.9	71.5	2.04E+02	0.20	0.59
TRIBUTARY INFLOW				226.4	67.1	2.18E+04	2.20	0.30
***TOTAL INFLOW				348.4	138.6	2.20E+04	1.07	0.40
GAUGED OUTFLOW				1893.7	113.6	6.67E+03	0.72	0.06
ADVECTIVE OUTFLOW					61.5	2.87E+04	2.76	
***TOTAL OUTFLOW				348.4	175.2	2.21E+04	0.85	0.50
***EVAPORATION					24.4	5.35E+01	0.30	
***STORAGE					-61.0	0.00E+01	0.00	

INCREASE

Overall Mass Balance Based Upon Component: **Predicted CONSERVATIVE SUBST.** **Outflow & Reservoir Concentrations**

Trb	Type	Seg	Name	Load kg/yr	%Total	Load Variance (kg/yr)2	%Total	CV	Conc mg/m3	Export kg/km2/yr
1	1	1	LPT6	9189.1	10.3%	5.99E+08	1.3%	2.66	1283.4	1938.6
2	1	1	LPT5	1526.6	1.7%	3.25E+08	0.7%	11.82	991.3	88.2
3	1	1	LPT4	7217.9	8.1%	6.93E+08	1.5%	3.65	1127.8	343.7
4	1	1	LPT3	35523.1	39.7%	4.09E+10	88.0%	5.69	1501.4	2192.8
5	1	1	LPT2	1397.4	1.6%	1.71E+07	0.0%	2.96	1027.5	48.2
6	1	1	LPT1	18380.4	20.5%	1.93E+09	4.2%	2.39	1198.2	379.8
7	4	1	LPO	24030.4		1.78E+09		1.75	1074.7	106.2
8	1	2	LWT4	601.1	0.7%	3.76E+07	0.1%	10.21	1878.5	182.2
9	1	2	LWT3	1544.9	1.7%	9.97E+06	0.0%	2.04	1716.6	109.7
10	1	2	LWT2	9676.5	10.8%	1.73E+09	3.7%	4.30	1237.4	149.5
11	1	2	LWT1	3564.6	4.0%	2.18E+08	0.5%	4.14	1371.0	463.5
12	4	2	LWO	25486.8		2.32E+09		1.89	978.5	41.5
13	4	3	LHO	10759.8		6.20E+08		2.31	696.2	49.1
14	4	4	LTO	35360.4		4.18E+09		1.83	710.4	42.4
PRECIPITATION				963.4	1.1%	2.32E+03	0.0%	0.05	13.5	7.9
TRIBUTARY INFLOW				88621.7	98.9%	4.65E+10	100.0%	2.43	1320.7	391.4
***TOTAL INFLOW				89585.1	100.0%	4.65E+10	100.0%	2.41	646.5	257.1
GAUGED OUTFLOW				95637.4	106.8%	1.49E+10		1.28	841.6	50.5
ADVECTIVE OUTFLOW				43703.2	48.8%	3.30E+10		4.15	710.4	
***TOTAL OUTFLOW				139340.6	155.5%	7.47E+10		1.96	795.5	400.0
***STORAGE INCREASE				-78223.6		5.90E+06		0.03	1282.9	
***RETENTION				28468.1	31.8%	3.48E+09		2.07		

Overflow Rate (m/yr)	0.9	Nutrient Resid.	2.4406

		Time (yrs)
Hydraulic Resid. Time (yrs)	2.3466	Turnover Ratio 0.4
Reservoir Conc (mg/m3)	816	Retention Coef. 0.318

Overall Mass Balance Based Upon Component: **Predicted** **TOTAL P** **Outflow & Reservoir Concentrations**

Trb	Type	Seg	Name	Load kg/yr	%Total	Load Variance (kg/yr)2	%Total	CV	Conc mg/m3	Export kg/km2/yr
1	1	1	LPT6	6442.6	12.1%	3.07E+08	3.1%	2.72	899.8	1359.2
2	1	1	LPT5	2034.8	3.8%	5.78E+08	5.8%	11.82	1321.3	117.6
3	1	1	LPT4	5378.6	10.1%	3.88E+08	3.9%	3.66	840.4	256.1
4	1	1	LPT3	14780.4	27.7%	7.10E+09	71.4%	5.70	624.7	912.4
5	1	1	LPT2	937.6	1.8%	7.55E+06	0.1%	2.93	689.4	32.3
6	1	1	LPT1	11517.3	21.6%	8.15E+08	8.2%	2.48	750.8	238.0
7	4	1	LPO	12808.6		4.51E+08		1.66	572.8	56.6
8	1	2	LWT4	163.9	0.3%	2.80E+06	0.0%	10.21	512.3	49.7
9	1	2	LWT3	487.8	0.9%	1.02E+06	0.0%	2.07	542.0	34.6
10	1	2	LWT2	6071.4	11.4%	6.83E+08	6.9%	4.30	776.4	93.8
11	1	2	LWT1	1893.3	3.5%	6.17E+07	0.6%	4.15	728.2	246.2
12	4	2	LWO	13180.9		5.50E+08		1.78	506.0	21.4
13	4	3	LHO	4897.9		1.03E+08		2.07	316.9	22.3
14	4	4	LTO	16258.0		6.18E+08		1.53	326.6	19.5
PRECIPITATION				3658.5	6.9%	3.35E+06	0.0%	0.50	51.2	30.0
TRIBUTARY INFLOW				49707.7	93.1%	9.94E+09	100.0%	2.01	740.8	219.5
***TOTAL INFLOW				53366.2	100.0%	9.95E+09	100.0%	1.87	385.1	153.2
GAUGED OUTFLOW				47145.4	88.3%	2.07E+09		0.96	414.9	24.9
ADVECTIVE OUTFLOW				20093.9	37.7%	5.76E+09		3.78	326.6	
***TOTAL OUTFLOW				67239.3	126.0%	1.02E+10		1.50	383.9	193.0
***STORAGE INCREASE				-25308.2		2.21E+07		0.19	415.1	
***RETENTION				11435.1	21.4%	4.71E+07		0.60		

Overflow Rate (m/yr)	0.9	Nutrient Resid. Time (yrs)	1.9967
Hydraulic Resid. Time (yrs)	2.3466	Turnover Ratio	0.5
Reservoir Conc (mg/m3)	398	Retention Coef.	0.214

Overall Mass Balance Based Upon Component: **Predicted** **TOTAL N** **Outflow & Reservoir Concentrations**

Trb	Type	Seg	Name	Load kg/yr	%Total	Load Variance (kg/yr)2	%Total	CV	Conc mg/m3	Export kg/km2/yr
1	1	1	LPT6	29653.9	9.2%	6.10E+09	3.7%	2.63	4141.6	6256.1
2	1	1	LPT5	9013.2	2.8%	1.13E+10	6.9%	11.82	5852.7	521.0
3	1	1	LPT4	23993.6	7.4%	7.61E+09	4.6%	3.64	3749.0	1142.6
4	1	1	LPT3	60394.5	18.7%	1.18E+11	71.3%	5.69	2552.6	3728.1
5	1	1	LPT2	4845.8	1.5%	2.03E+08	0.1%	2.94	3563.1	167.2
6	1	1	LPT1	39506.6	12.3%	9.18E+09	5.5%	2.43	2575.4	816.4
7	4	1	LPO	26627.6		2.12E+09		1.73	1190.9	117.7
8	1	2	LWT4	1649.7	0.5%	2.83E+08	0.2%	10.19	5155.4	499.9
9	1	2	LWT3	2785.4	0.9%	3.18E+07	0.0%	2.02	3094.9	197.8
10	1	2	LWT2	20924.8	6.5%	8.11E+09	4.9%	4.30	2675.8	323.2
11	1	2	LWT1	7463.0	2.3%	9.50E+08	0.6%	4.13	2870.4	970.5
12	4	2	LWO	21303.9		1.54E+09		1.84	817.9	34.7
13	4	3	LHO	4945.0		8.35E+07		1.85	319.9	22.6
14	4	4	LTO	17005.8		4.50E+08		1.25	341.6	20.4
PRECIPITATION				121950.0	37.9%	3.72E+09	2.2%	0.50	1706.2	1000.0
TRIBUTARY INFLOW				200230.5	62.1%	1.62E+11	97.8%	2.01	2984.1	884.3
***TOTAL INFLOW				322180.5	100.0%	1.66E+11	100.0%	1.26	2325.0	924.8
GAUGED OUTFLOW				69882.4	21.7%	5.24E+09		1.04	614.9	36.9
ADVECTIVE OUTFLOW				21018.1	6.5%	4.87E+09		3.32	341.6	
***TOTAL OUTFLOW				90900.4	28.2%	1.24E+10		1.23	519.0	260.9
***STORAGE INCREASE				-133545.2		3.10E+08		0.13	2190.2	
***RETENTION				364825.3	113.2%	9.35E+10		0.84		

Overflow Rate (m/yr)	0.9	Nutrient Resid. Time (yrs)	0.4696
Hydraulic Resid. Time (yrs)	2.3466	Turnover Ratio	2.1
Reservoir Conc (mg/m3)	565	Retention Coef.	1.132

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Segment Mass Balance Based Upon Predicted Concentrations

Component: **CONSERVATIVE SUBST.** **Segment:** **1** **Preston**

Trib	Type	Location	Flow hm3/yr	Flow %Total	Load kg/yr	Load %Total	Conc mg/m3
1	1	LPT6	7.2	10.6%	9189.1	12.5%	1283
2	1	LPT5	1.5	2.3%	1526.6	2.1%	991
3	1	LPT4	6.4	9.4%	7217.9	9.8%	1128
4	1	LPT3	23.7	34.9%	35523.1	48.4%	1501
5	1	LPT2	1.4	2.0%	1397.4	1.9%	1028
6	1	LPT1	15.3	22.6%	18380.4	25.0%	1198
7	4	LPO	22.4	33.0%	24030.4	32.7%	1075
PRECIPITATION			12.4	18.3%	167.0	0.2%	13
TRIBUTARY INFLOW			55.5	81.7%	73234.6	99.8%	1320
***TOTAL INFLOW			67.9	100.0%	73401.6	100.0%	1082
GAUGED OUTFLOW			22.4	33.0%	24030.4	32.7%	1075
ADVECTIVE OUTFLOW			51.8	76.4%	55704.2	75.9%	1075
NET DIFFUSIVE OUTFLOW			0.0	0.0%	5026.6	6.8%	
***TOTAL OUTFLOW			74.2	109.3%	84761.2	115.5%	1142
***EVAPORATION			4.2	6.2%	0.0	0.0%	
***STORAGE INCREASE			-10.6	-15.6%	-11359.6	-15.5%	1075
***RETENTION			0.0	0.0%	0.0	0.0%	

Hyd. Residence Time =	0.2492	yrs
Overflow Rate =	3.0	m/yr
Mean Depth =	0.8	m

Component: **TOTAL P** **Segment:** **1** **Preston**

Trib	Type	Location	Flow hm3/yr	Flow %Total	Load kg/yr	Load %Total	Conc mg/m3
1	1	LPT6	7.2	10.6%	6442.6	15.4%	900
2	1	LPT5	1.5	2.3%	2034.8	4.9%	1321

3	1	LPT4	6.4	9.4%	5378.6		12.9%	840
4	1	LPT3	23.7	34.9%	14780.4		35.4%	625
5	1	LPT2	1.4	2.0%	937.6		2.2%	689
6	1	LPT1	15.3	22.6%	11517.3		27.6%	751
7	4	LPO	22.4	33.0%	12808.6		30.7%	573
PRECIPITATION			12.4	18.3%	634.2		1.5%	51
TRIBUTARY INFLOW			55.5	81.7%	41091.2		98.5%	741
***TOTAL INFLOW			67.9	100.0%	41725.4		100.0%	615
GAUGED OUTFLOW			22.4	33.0%	12808.6		30.7%	573
ADVECTIVE OUTFLOW			51.8	76.4%	29691.2		71.2%	573
NET DIFFUSIVE OUTFLOW			0.0	0.0%	3489.2		8.4%	
***TOTAL OUTFLOW			74.2	109.3%	45988.9		110.2%	620
***EVAPORATION			4.2	6.2%	0.0		0.0%	
***STORAGE INCREASE			-10.6	-15.6%	-6054.9		-14.5%	573
***RETENTION			0.0	0.0%	1791.3		4.3%	

Hyd. Residence Time = 0.2492 yrs
Overflow Rate = 3.0 m/yr
Mean Depth = 0.8 m

Component:		**TOTAL N**		**Segment:**	**1**	**Preston**	
			Flow	**Flow**	**Load**	**Load**	**Conc**
Trib	**Type**	**Location**	**hm3/yr**	**%Total**	**kg/yr**	**%Total**	**mg/m3**
1	1	LPT6	7.2	10.6%	29653.9	15.7%	4142
2	1	LPT5	1.5	2.3%	9013.2	4.8%	5853
3	1	LPT4	6.4	9.4%	23993.6	12.7%	3749
4	1	LPT3	23.7	34.9%	60394.5	32.0%	2553
5	1	LPT2	1.4	2.0%	4845.8	2.6%	3563
6	1	LPT1	15.3	22.6%	39506.6	21.0%	2575
7	4	LPO	22.4	33.0%	26627.6	14.1%	1191
PRECIPITATION			12.4	18.3%	21140.0	11.2%	1706
TRIBUTARY INFLOW			55.5	81.7%	167407.6	88.8%	3019
***TOTAL INFLOW			67.9	100.0%	188547.6	100.0%	2779
GAUGED OUTFLOW			22.4	33.0%	26627.6	14.1%	1191
ADVECTIVE OUTFLOW			51.8	76.4%	61724.8	32.7%	1191
NET DIFFUSIVE OUTFLOW			0.0	0.0%	19479.0	10.3%	
***TOTAL OUTFLOW			74.2	109.3%	107831.5	57.2%	1453
***EVAPORATION			4.2	6.2%	0.0	0.0%	
***STORAGE INCREASE			-10.6	-15.6%	-12587.4	-6.7%	1191
***RETENTION			0.0	0.0%	93303.5	49.5%	

Hyd. Residence Time =	0.2492	yrs
Overflow Rate =	3.0	m/yr
Mean Depth =	0.8	m

Component: **CONSERVATIVE SUBST.** **Segment: 2 Whitewood**

Trib	Type	Location	Flow hm3/yr	Flow %Total	Load kg/yr	Load %Total	Conc mg/m3
8	1	LWT4	0.3	0.4%	601.1	0.8%	1879
9	1	LWT3	0.9	1.2%	1544.9	2.2%	1717
10	1	LWT2	7.8	10.4%	9676.5	13.6%	1237
11	1	LWT1	2.6	3.5%	3564.6	5.0%	1371
12	4	LWO	26.0	34.6%	25486.8	35.8%	978
PRECIPITATION			11.8	15.7%	158.9	0.2%	13
TRIBUTARY INFLOW			11.6	15.5%	15387.1	21.6%	1322
ADVECTIVE INFLOW			51.8	68.9%	55704.2	78.2%	1075
***TOTAL INFLOW			75.3	100.0%	71250.2	100.0%	947
GAUGED OUTFLOW			26.0	34.6%	25486.8	35.8%	978
ADVECTIVE OUTFLOW			55.2	73.4%	54053.3	75.9%	978
NET DIFFUSIVE OUTFLOW			0.0	0.0%	1548.5	2.2%	
***TOTAL OUTFLOW			81.3	108.0%	81088.6	113.8%	998
***EVAPORATION			4.0	5.3%	0.0	0.0%	
***STORAGE INCREASE			-10.1	-13.4%	-9838.4	-13.8%	978
***RETENTION			-0.0	-0.0%	0.0	0.0%	

Hyd. Residence Time =	0.3246	yrs
Overflow Rate =	3.5	m/yr
Mean Depth =	1.1	m

Component: **TOTAL P** **Segment: 2 Whitewood**

Trib	Type	Location	Flow hm3/yr	Flow %Total	Load kg/yr	Load %Total	Conc mg/m3
8	1	LWT4	0.3	0.4%	163.9	0.4%	512
9	1	LWT3	0.9	1.2%	487.8	1.3%	542
10	1	LWT2	7.8	10.4%	6071.4	15.6%	776
11	1	LWT1	2.6	3.5%	1893.3	4.9%	728
12	4	LWO	26.0	34.6%	13180.9	33.9%	506
PRECIPITATION			11.8	15.7%	603.3	1.6%	51
TRIBUTARY INFLOW			11.6	15.5%	8616.5	22.1%	740

ADVECTIVE INFLOW			51.8	68.9%	29691.2	76.3%	573
***TOTAL INFLOW			75.3	100.0%	38911.0	100.0%	517
GAUGED OUTFLOW			26.0	34.6%	13180.9	33.9%	506
ADVECTIVE OUTFLOW			55.2	73.4%	27954.5	71.8%	506
NET DIFFUSIVE OUTFLOW			0.0	0.0%	911.1	2.3%	
***TOTAL OUTFLOW			81.3	108.0%	42046.6	108.1%	517
***EVAPORATION			4.0	5.3%	0.0	0.0%	
***STORAGE INCREASE			-10.1	-13.4%	-5088.1	-13.1%	506
***RETENTION			-0.0	-0.0%	1952.5	5.0%	

Hyd. Residence Time = 0.3246 yrs
Overflow Rate = 3.5 m/yr
Mean Depth = 1.1 m

Component: **TOTAL N** **Segment: 2 Whitewood**

Trib	Type	Location	Flow hm3/yr	Flow %Total	Load kg/yr	Load %Total	Conc mg/m3
8	1	LWT4	0.3	0.4%	1649.7	1.3%	5155
9	1	LWT3	0.9	1.2%	2785.4	2.3%	3095
10	1	LWT2	7.8	10.4%	20924.8	17.1%	2676
11	1	LWT1	2.6	3.5%	7463.0	6.1%	2870
12	4	LWO	26.0	34.6%	21303.9	17.4%	818
PRECIPITATION			11.8	15.7%	20110.0	16.4%	1706
TRIBUTARY INFLOW			11.6	15.5%	32822.9	26.8%	2820
ADVECTIVE INFLOW			51.8	68.9%	61724.8	50.4%	1191
NET DIFFUSIVE INFLOW			0.0	0.0%	7798.2	6.4%	
***TOTAL INFLOW			75.3	100.0%	122455.9	100.0%	1627
GAUGED OUTFLOW			26.0	34.6%	21303.9	17.4%	818
ADVECTIVE OUTFLOW			55.2	73.4%	45182.2	36.9%	818
***TOTAL OUTFLOW			81.3	108.0%	66486.1	54.3%	818
***EVAPORATION			4.0	5.3%	0.0	0.0%	
***STORAGE INCREASE			-10.1	-13.4%	-8223.7	-6.7%	818
***RETENTION			-0.0	-0.0%	64193.5	52.4%	

Hyd. Residence Time = 0.3246 yrs
Overflow Rate = 3.5 m/yr
Mean Depth = 1.1 m

Component: **CONSERVATIVE SUBST.** **Segment: 3 Henry**

Trib	Type	Location	Flow hm3/yr	Flow %Total	Load kg/yr	Load %Total	Conc mg/m3
13	4	LHO	15.5	141.1%	10759.8	194.3%	696
PRECIPITATION			8.8	80.2%	118.5	2.1%	13
ADVECTIVE INFLOW			2.2	19.8%	1537.6	27.8%	710
NET DIFFUSIVE INFLOW			0.0	0.0%	3882.5	70.1%	
***TOTAL INFLOW			11.0	100.0%	5538.6	100.0%	506
GAUGED OUTFLOW			15.5	141.1%	10759.8	194.3%	696
***TOTAL OUTFLOW			15.5	141.1%	10759.8	194.3%	696
***EVAPORATION			3.0	27.4%	0.0	0.0%	
***STORAGE INCREASE			-7.5	-68.5%	-5221.2	-94.3%	696
***RETENTION			0.0	0.0%	0.0	0.0%	

Hyd. Residence Time = 5.6561 yrs
Overflow Rate = 0.5 m/yr
Mean Depth = 3.0 m

Component: **TOTAL P** **Segment:** **3** **Henry**

Trib	Type	Location	Flow hm3/yr	Flow %Total	Load kg/yr	Load %Total	Conc mg/m3
13	4	LHO	15.5	141.1%	4897.9	128.5%	317
PRECIPITATION			8.8	80.2%	450.0	11.8%	51
ADVECTIVE INFLOW			2.2	19.8%	707.0	18.6%	327
NET DIFFUSIVE INFLOW			0.0	0.0%	2653.8	69.6%	
***TOTAL INFLOW			11.0	100.0%	3810.8	100.0%	348
GAUGED OUTFLOW			15.5	141.1%	4897.9	128.5%	317
***TOTAL OUTFLOW			15.5	141.1%	4897.9	128.5%	317
***EVAPORATION			3.0	27.4%	0.0	0.0%	
***STORAGE INCREASE			-7.5	-68.5%	-2376.7	-62.4%	317
***RETENTION			0.0	0.0%	1289.6	33.8%	

Hyd. Residence Time = 5.6561 yrs
Overflow Rate = 0.5 m/yr
Mean Depth = 3.0 m

Component: **TOTAL N** **Segment:** **3** **Henry**

Trib	Type	Location	Flow hm3/yr	Flow %Total	Load kg/yr	Load %Total	Conc mg/m3
13	4	LHO	15.5	141.1%	4945.0	22.8%	320

PRECIPITATION			8.8	80.2%	15000.0	69.3%	1706
ADVECTIVE INFLOW			2.2	19.8%	739.5	3.4%	342
NET DIFFUSIVE INFLOW			0.0	0.0%	5920.7	27.3%	
***TOTAL INFLOW			11.0	100.0%	21660.2	100.0%	1977
GAUGED OUTFLOW			15.5	141.1%	4945.0	22.8%	320
***TOTAL OUTFLOW			15.5	141.1%	4945.0	22.8%	320
***EVAPORATION			3.0	27.4%	0.0	0.0%	
***STORAGE INCREASE			-7.5	-68.5%	-2399.6	-11.1%	320
***RETENTION			0.0	0.0%	19114.7	88.2%	

Hyd. Residence Time = 5.6561 yrs
Overflow Rate = 0.5 m/yr
Mean Depth = 3.0 m

Component: **CONSERVATIVE SUBST.** **Segment:** **4** **Thompson**

Trib	Type	Location	Flow hm3/yr	Flow %Total	Load kg/yr	Load %Total	Conc mg/m3
14	4	LTO	49.8	53.1%	35360.4	61.7%	710
PRECIPITATION			38.5	41.1%	519.0	0.9%	13
ADVECTIVE INFLOW			55.2	58.9%	54053.3	94.4%	978
NET DIFFUSIVE INFLOW			0.0	0.0%	2692.6	4.7%	
***TOTAL INFLOW			93.8	100.0%	57264.9	100.0%	611
GAUGED OUTFLOW			49.8	53.1%	35360.4	61.7%	710
ADVECTIVE OUTFLOW			63.7	67.9%	45240.8	79.0%	710
***TOTAL OUTFLOW			113.5	121.0%	80601.3	140.8%	710
***EVAPORATION			13.1	14.0%	0.0	0.0%	
***STORAGE INCREASE			-32.8	-35.0%	-23336.4	-40.8%	710
***RETENTION			0.0	0.0%	0.0	0.0%	

Hyd. Residence Time = 2.2821 yrs
Overflow Rate = 1.2 m/yr
Mean Depth = 2.8 m

Component: **TOTAL P** **Segment:** **4** **Thompson**

Trib	Type	Location	Flow hm3/yr	Flow %Total	Load kg/yr	Load %Total	Conc mg/m3
14	4	LTO	49.8	53.1%	16258.0	51.3%	327
PRECIPITATION			38.5	41.1%	1971.0	6.2%	51
ADVECTIVE INFLOW			55.2	58.9%	27954.5	88.3%	506

NET DIFFUSIVE INFLOW			0.0	0.0%	1746.5	5.5%	
***TOTAL INFLOW			93.8	100.0%	31672.0	100.0%	338
GAUGED OUTFLOW			49.8	53.1%	16258.0	51.3%	327
ADVECTIVE OUTFLOW			63.7	67.9%	20800.8	65.7%	327
***TOTAL OUTFLOW			113.5	121.0%	37058.9	117.0%	327
***EVAPORATION			13.1	14.0%	0.0	0.0%	
***STORAGE INCREASE			-32.8	-35.0%	-10729.6	-33.9%	327
***RETENTION			0.0	0.0%	5342.8	16.9%	

Hyd. Residence Time = 2.2821 yrs
Overflow Rate = 1.2 m/yr
Mean Depth = 2.8 m

Component:		**TOTAL N**		**Segment:**	**4**	**Thompson**	
			Flow	**Flow**	**Load**	**Load**	**Conc**
Trib	**Type**	**Location**	**hm3/yr**	**%Total**	**kg/yr**	**%Total**	**mg/m3**
14	4	LTO	49.8	53.1%	17005.8	14.6%	342
PRECIPITATION			38.5	41.1%	65700.0	56.3%	1706
ADVECTIVE INFLOW			55.2	58.9%	45182.2	38.7%	818
NET DIFFUSIVE INFLOW			0.0	0.0%	5760.2	4.9%	
***TOTAL INFLOW			93.8	100.0%	116642.4	100.0%	1244
GAUGED OUTFLOW			49.8	53.1%	17005.8	14.6%	342
ADVECTIVE OUTFLOW			63.7	67.9%	21757.6	18.7%	342
***TOTAL OUTFLOW			113.5	121.0%	38763.4	33.2%	342
***EVAPORATION			13.1	14.0%	0.0	0.0%	
***STORAGE INCREASE			-32.8	-35.0%	-11223.1	-9.6%	342
***RETENTION			0.0	0.0%	89102.2	76.4%	

Hyd. Residence Time = 2.2821 yrs
Overflow Rate = 1.2 m/yr
Mean Depth = 2.8 m

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Water Balance Terms (hm3/yr) | **Averaging Period =** **1.00 Years**

			Inflows		**Storage**	**Outflows----->**		**Downstr**	
Seg	**Name**	**External**	**Precip**	**Advect**	**Increase**	**Advect**	**Disch.**	**Exchange**	**Evap**
1	Preston	55	12	0	-11	52	22	52	4
2	Whitewood	12	12	52	-10	55	26	25	4
3	Henry	0	9	2	-8	0	15	273	3
4	Thompson	0	39	55	-33	64	50	0	13
Net		67	71	0	-61	64	114	0	24

Mass Balance Terms (kg/yr) Based Upon | **Predicted** **Reservoir & Outflow Concentrations** | **Component:** **CONSERVATIVE SUBST.**

		Inflows-->			**Storage**	**Outflows---->**		**Net**	**Net**
Seg	**Name**	**External**	**Atmos**	**Advect**	**Increase**	**Advect**	**Disch.**	**Exchange**	**Retention**
1	Preston	73235	167	0	-11360	55704	24030	5027	0
2	Whitewood	15387	159	55704	-9838	54053	25487	1548	0
3	Henry	0	119	1538	-5221	0	10760	-3883	0
4	Thompson	0	519	54053	-23336	45241	35360	-2693	0
Net		88622	963	0	-49756	45241	95637	0	0

Mass Balance Terms (kg/yr) Based Upon | **Predicted** **Reservoir & Outflow Concentrations** | **Component:** **TOTAL P**

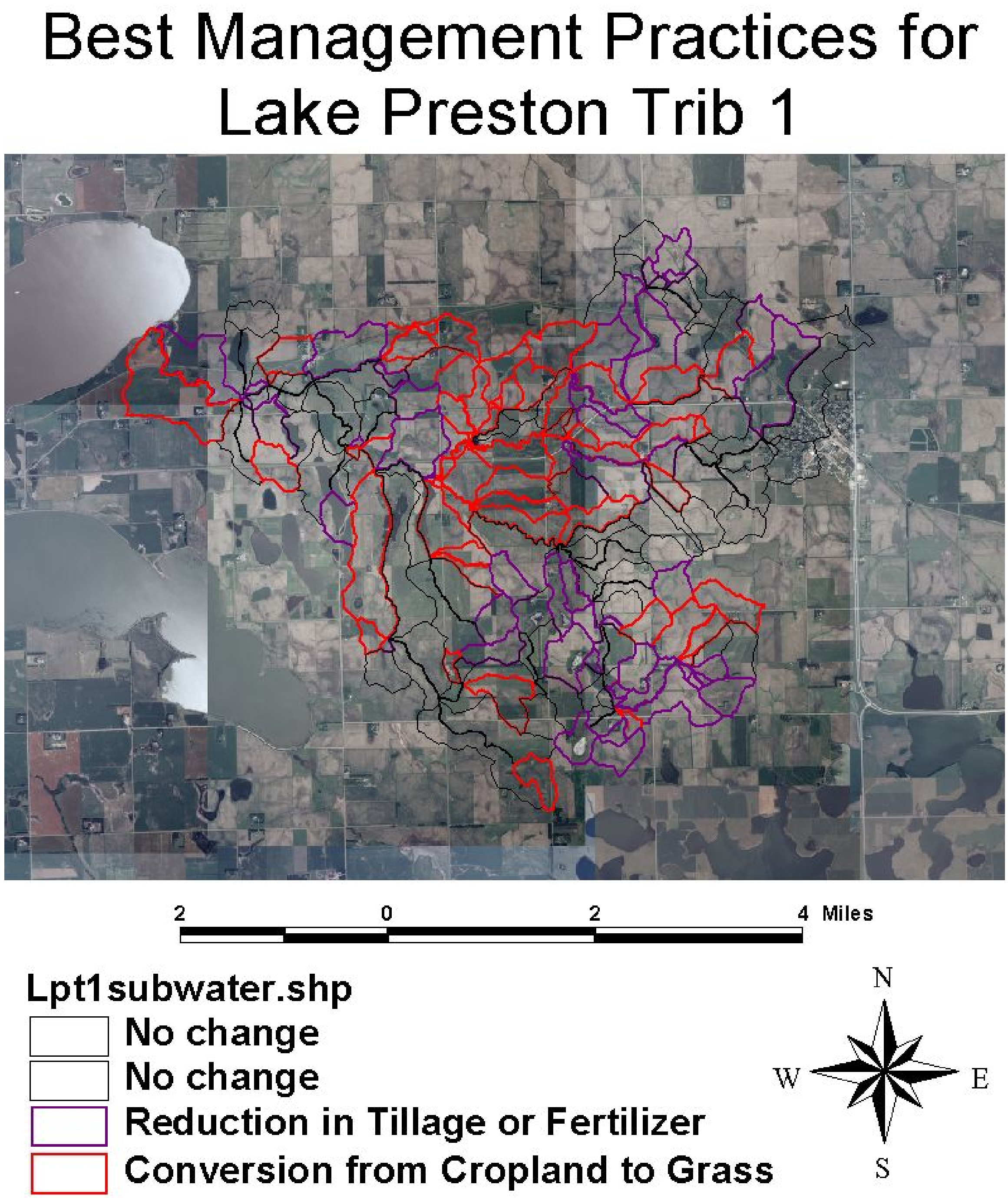
		Inflows-			**Storage**	**Outflows-**		**Net**	**Net**

		->				---->			
Seg	Name	External	Atmos	Advect	Increase	Advect	Disch.	Exchange	Retention
1	Preston	41091	634	0	-6055	29691	12809	3489	1791
2	Whitewood	8617	603	29691	-5088	27955	13181	911	1953
3	Henry	0	450	707	-2377	0	4898	-2654	1290
4	Thompson	0	1971	27955	-10730	20801	16258	-1746	5343
Net		49708	3659	0	-24249	20801	47145	0	10376

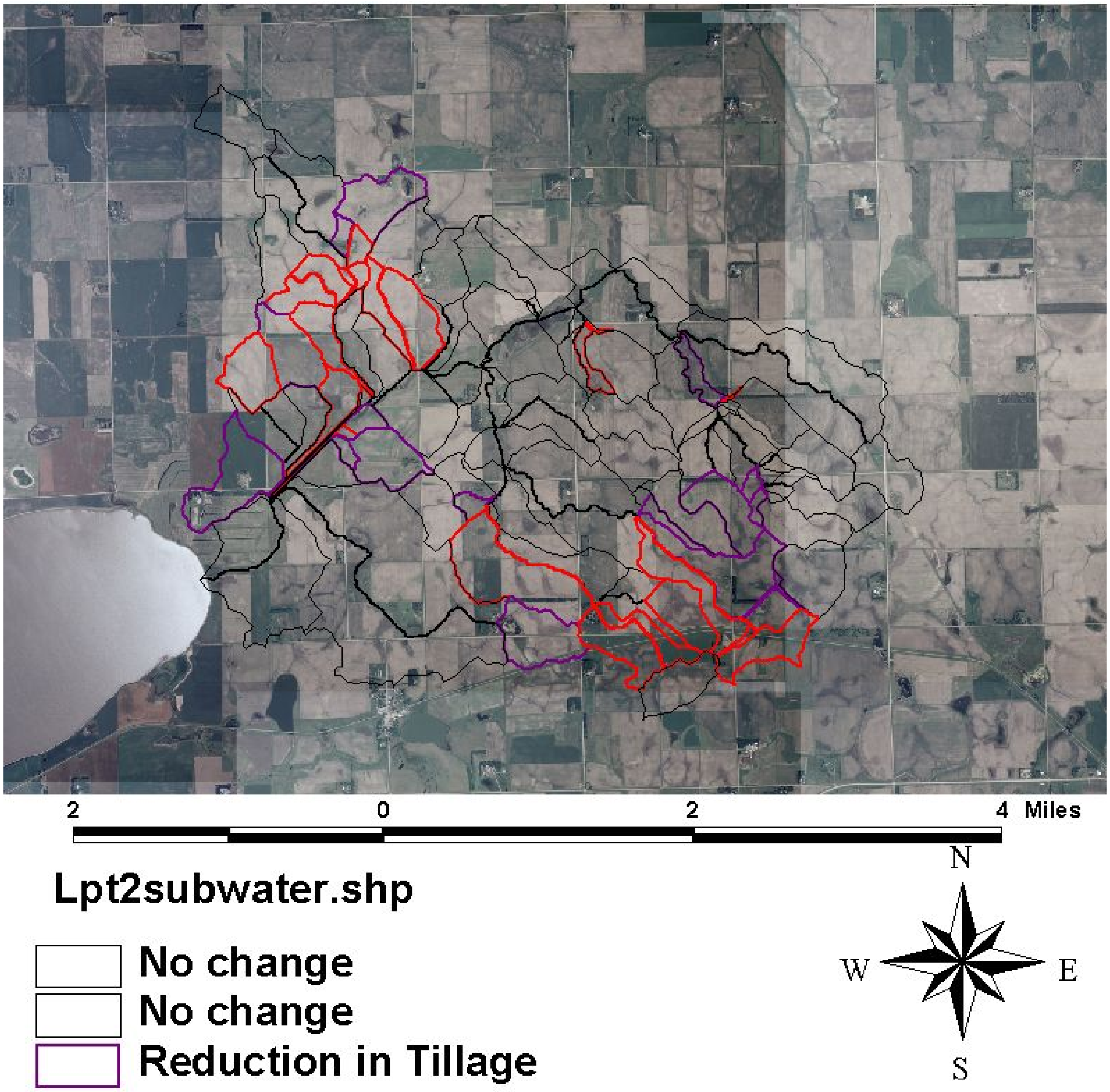
Mass Balance Terms (kg/yr) Based Upon **Predicted Reservoir & Outflow Concentrations** **Component: TOTAL N**

		Inflows-->			Storage	Outflows---->		Net	Net
Seg	Name	External	Atmos	Advect	Increase	Advect	Disch.	Exchange	Retention
1	Preston	167408	21140	0	-12587	61725	26628	19479	93304
2	Whitewood	32823	20110	61725	-8224	45182	21304	-7798	64193
3	Henry	0	15000	739	-2400	0	4945	-5921	19115
4	Thompson	0	65700	45182	-11223	21758	17006	-5760	89102
Net		200231	121950	0	-34434	21758	69882	0	265714

APPENDIX XXIII – Maps of BMP Implementation Simulation Sites



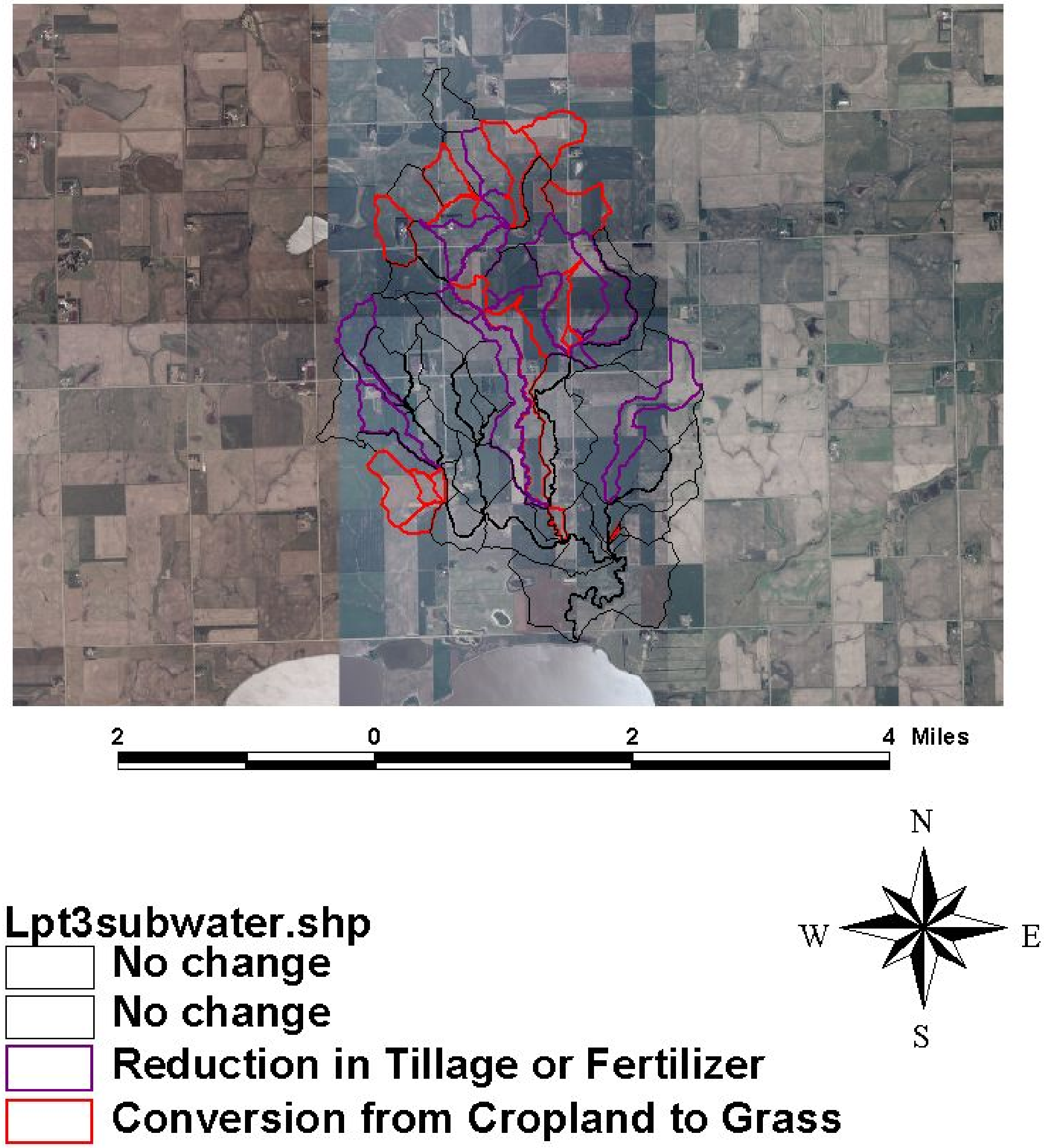
Best Management Practices for Lake Preston Trib 2



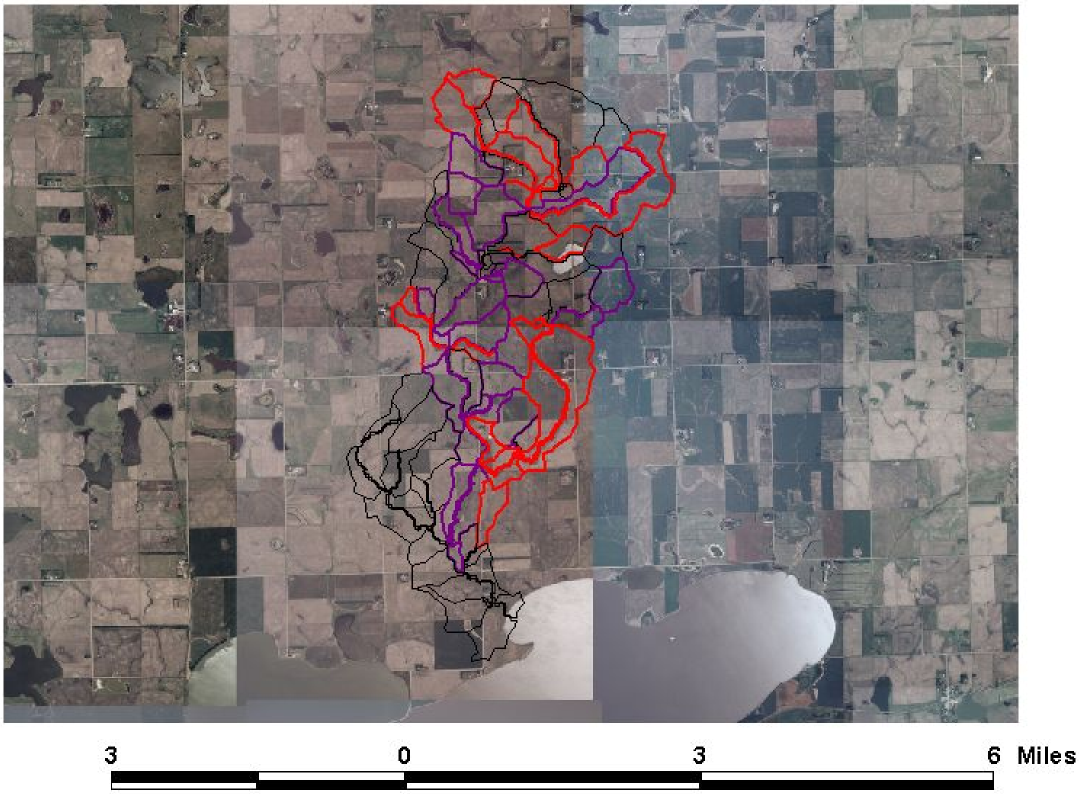
Lpt2subwater.shp

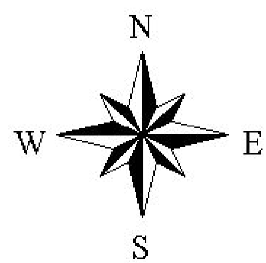
- No change
- No change
- Reduction in Tillage
- Conversion from Cropland to Grass

Best Management Practices for Lake Preston Trib 3



Best Management Practices for Lake Preston Trib 4

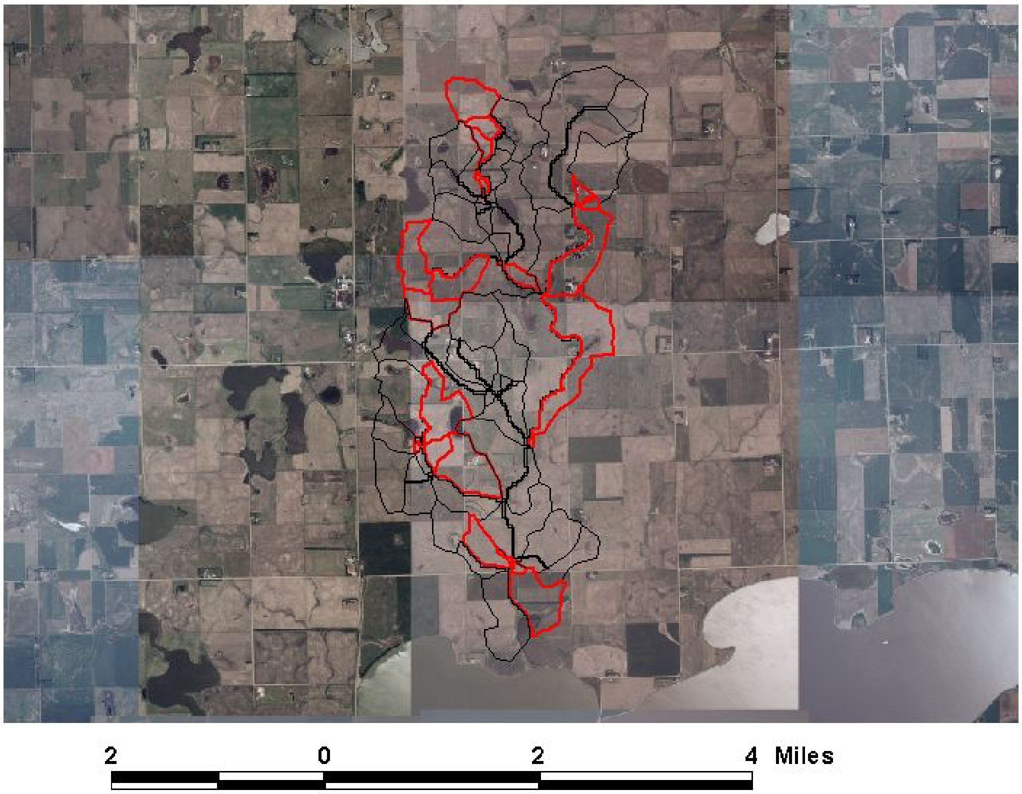


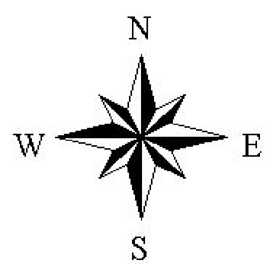


Lpt4subwater.shp

- No change
- No change
- Reduction in Tillage or Fertilizer
- Conversion from Cropland to Grass

Best Management Practices for Lake Preston Trib 5

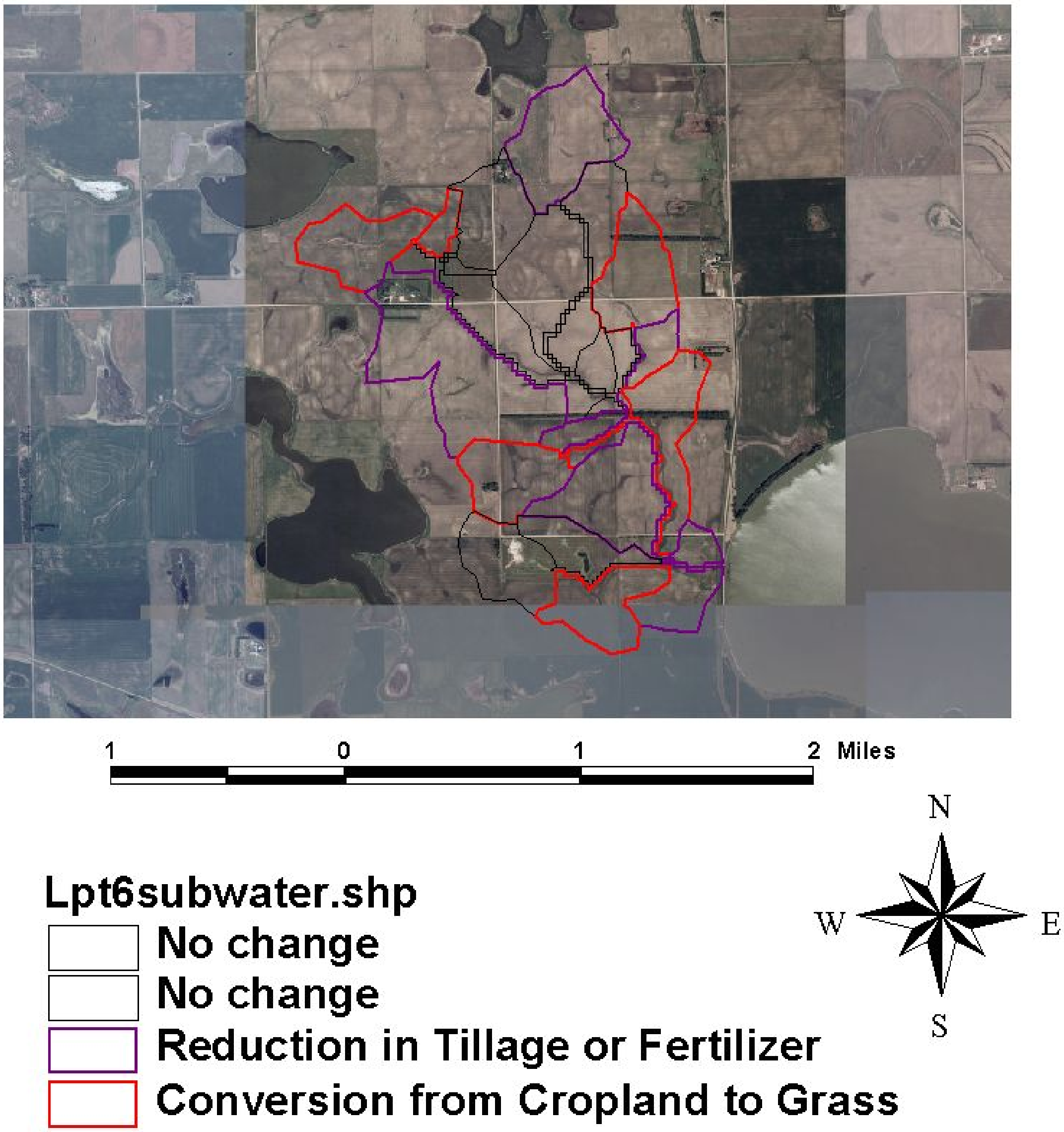




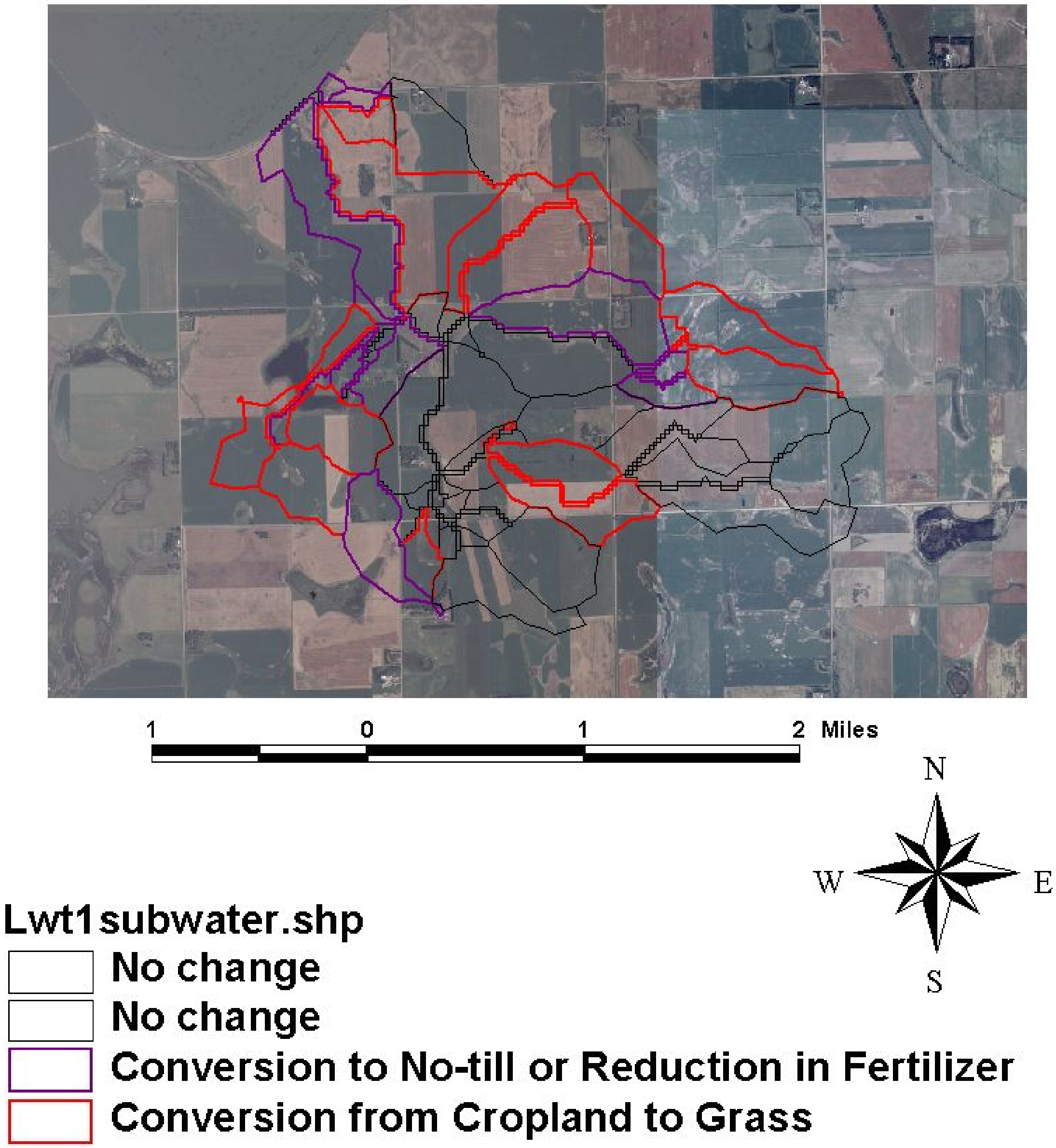
Lpt5subwater.shp

- No change
- No change
- No change
- Conversion from Cropland to Grass

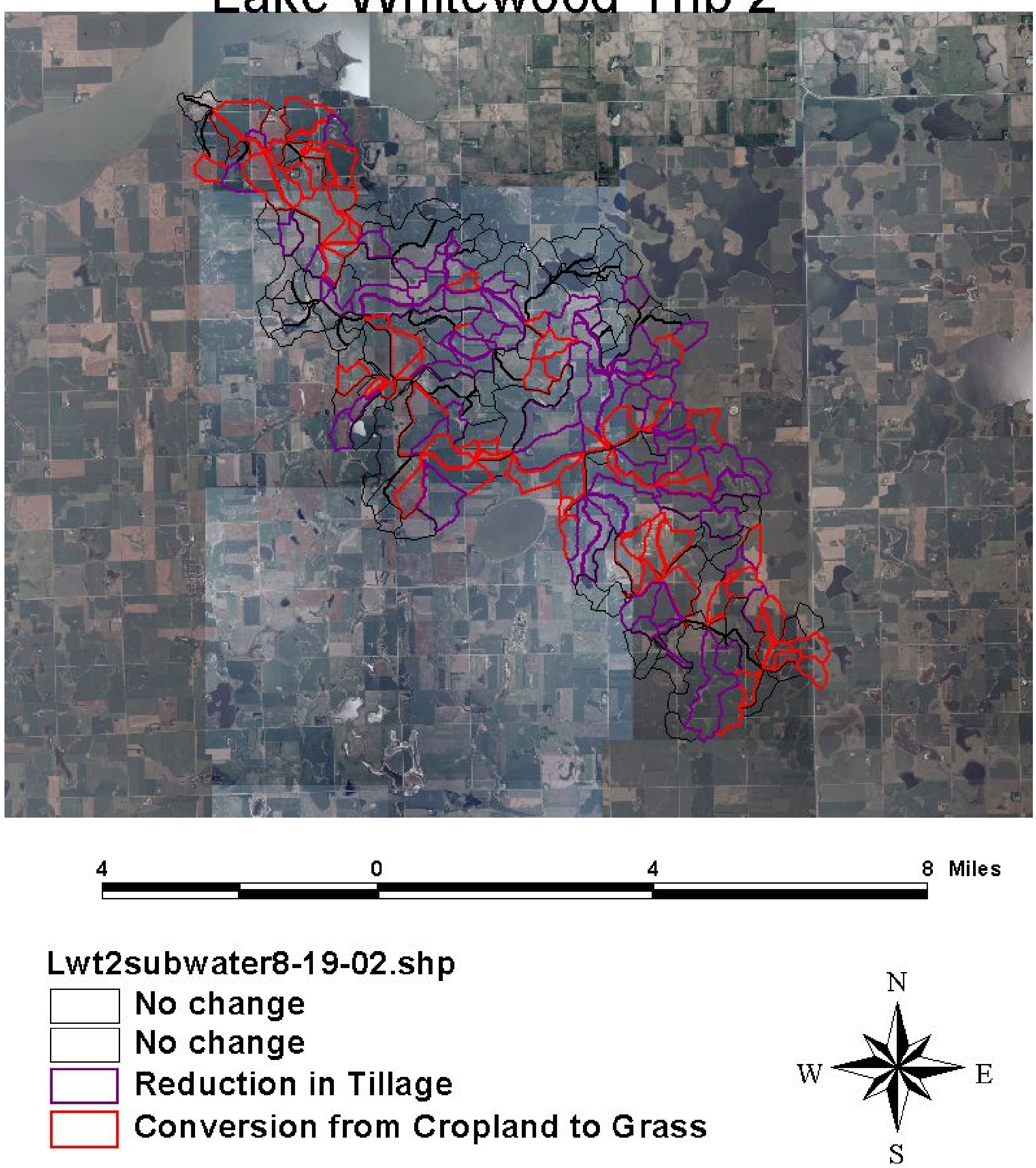
Best Management Practices for Lake Preston Trib 6



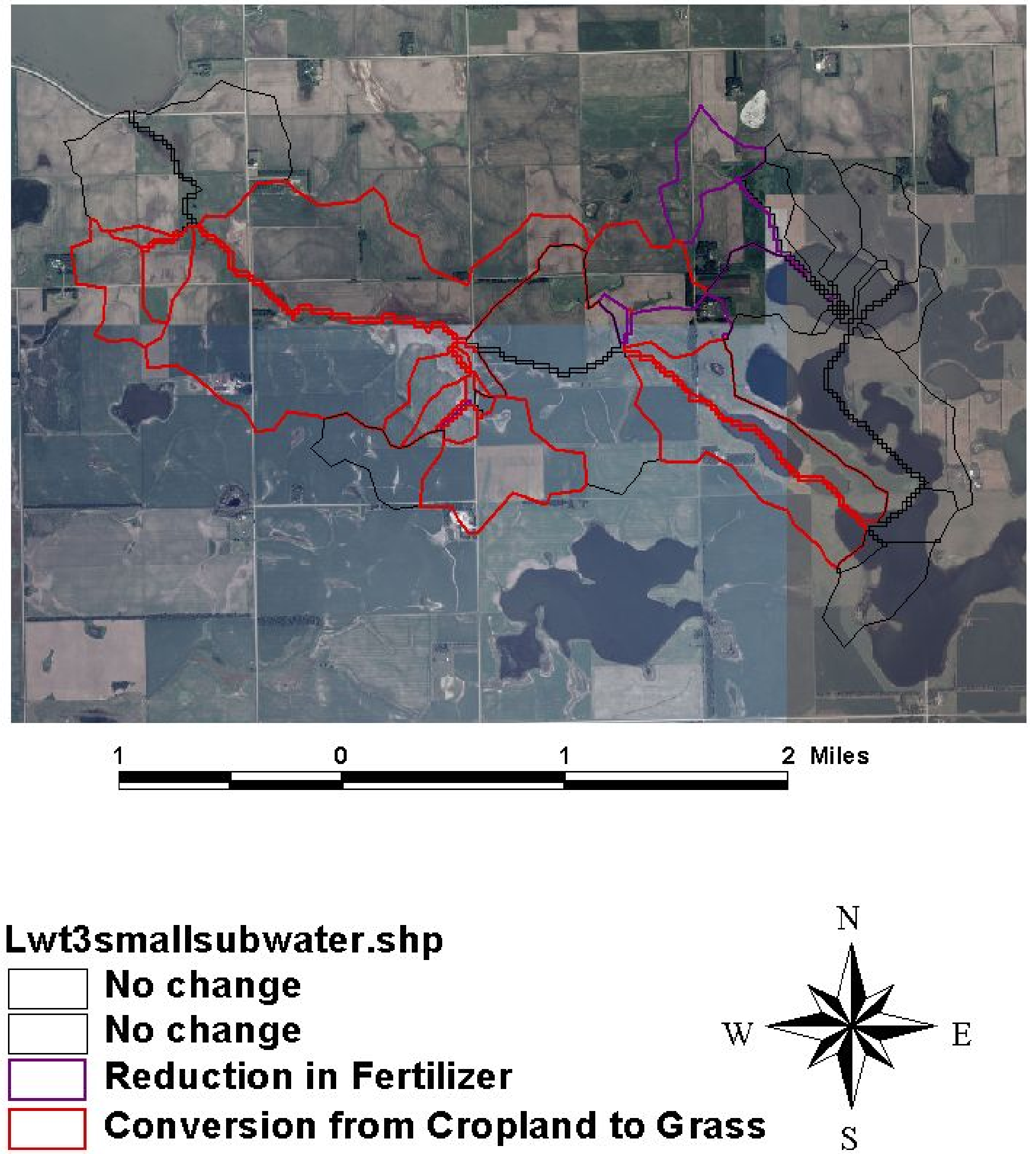
Best Management Practices for Lake Whitewood Trib 1



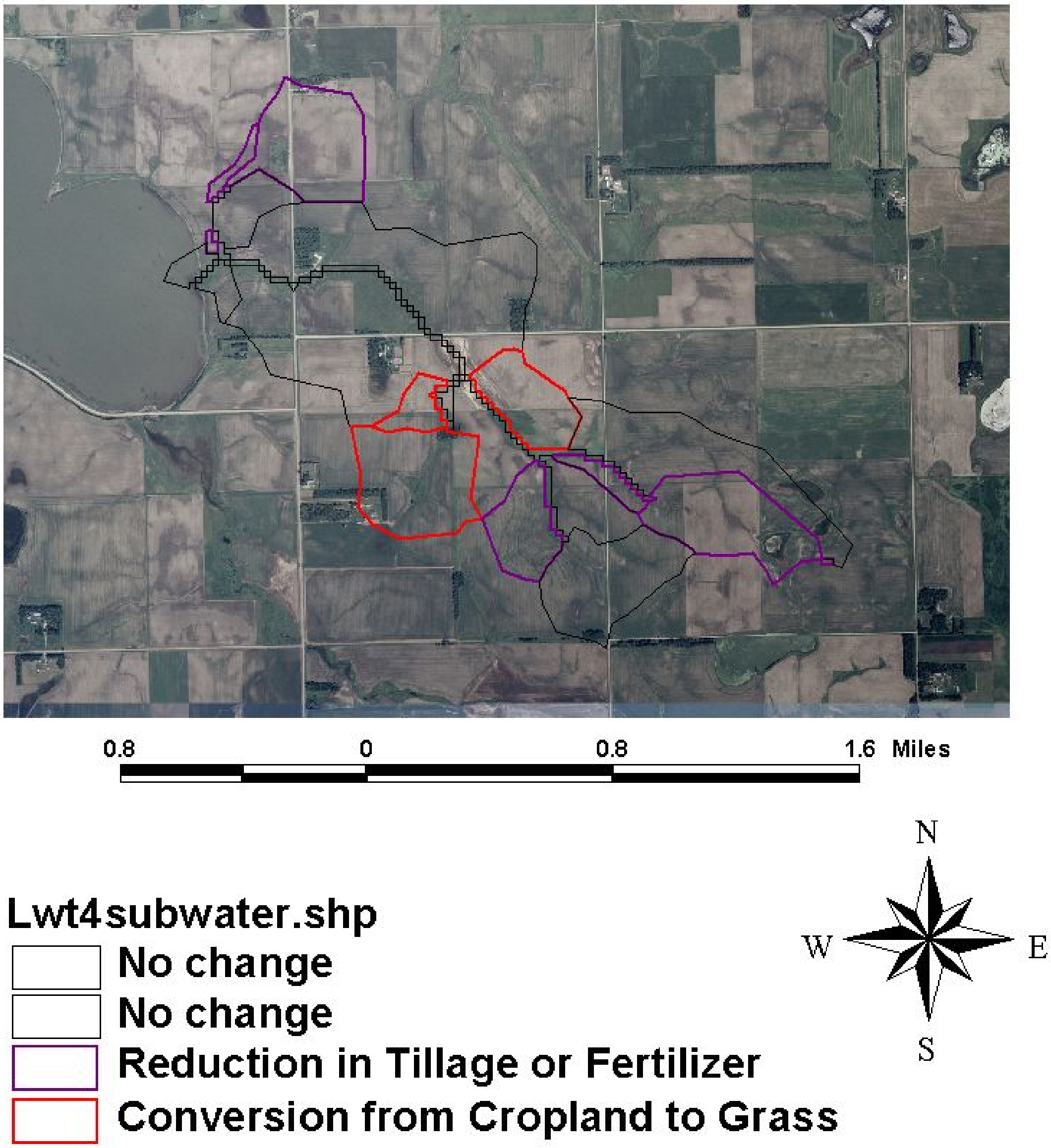
Best Management Practices for Lake Whitewood Trib 2



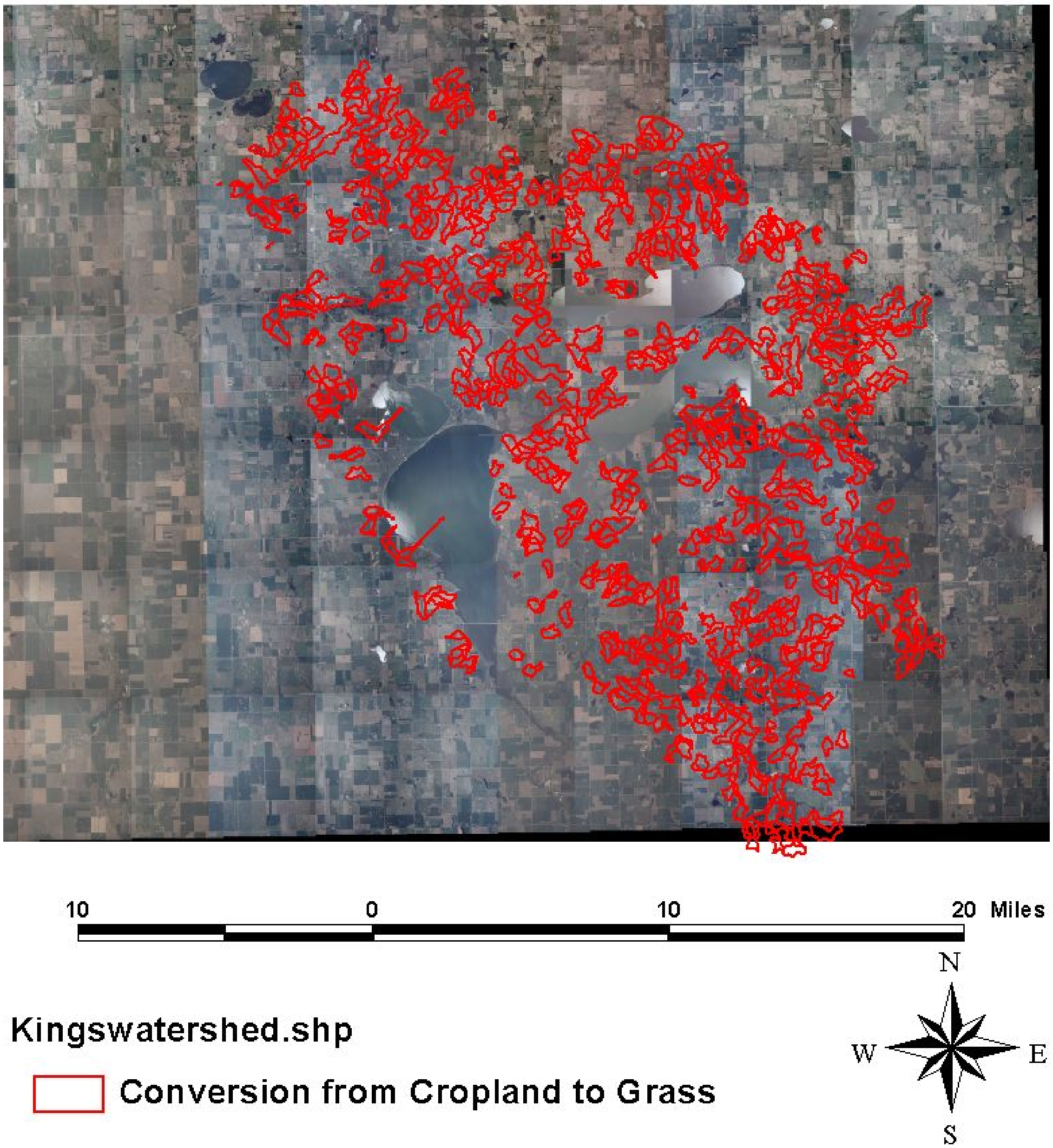
Best Management Practices for Lake Whitewood Trib 3



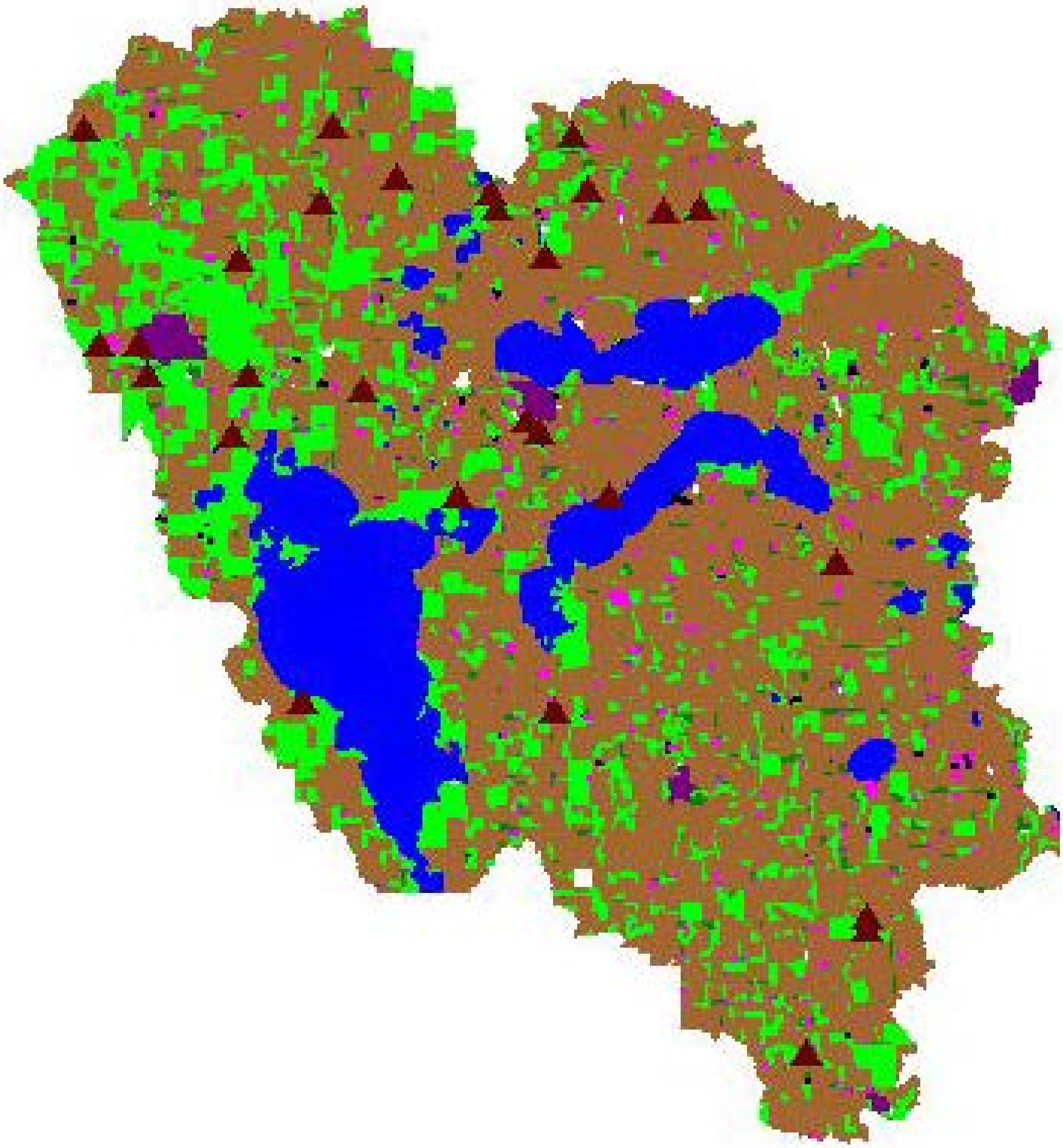
Best Management Practices for Lake Whitewood Trib 4



Best Management Practices for Kingsbury Watershed



Kingsbury Watershed Animal Feeding Areas



▲ **Animal Feeding Areas with an AGNPS 3.65 Rating Over 50**