

WHITEMOUTH RIVER WATER QUALITY TESTING 2001 - 2006

EXECUTIVE SUMMARY

The Whitemouth River runs through an agricultural area that has a large amount of livestock and field crop production (Appendix 4). Considerable livestock production in the area means there is significant manure to put on the land. The most productive land is adjacent to the river and it drains naturally towards the river. Cattle are also pastured and watered close to the river. There was a desire to determine if agricultural production and residential development were having a negative impact on the quality of the river water. Sampling projects were undertaken to sample the river. The tests were considered adequate to measure any impact of agricultural and residential activity, and to provide an indication of suitability of the river for aquatic biota including fish. Those results indicate that the river has very good water quality.

DATA SOURCES AND SAMPLING

The Whitemouth-Reynolds Soil and Water Conservation Association began sampling water quality in the Whitemouth River April 24, 2001 and continued this program through 2006. Four sites were monitored in 2001. A site on Kellner Creek, which flows into the Whitemouth, was added in 2002, and a fifth site on the Whitemouth at PR 408, downstream from Whitemouth, was added in 2003

Whitemouth River sites were sampled 13 times in 2001 and 13 times in 2002. The sampling frequency was reduced to 11 times in 2003 and to nine times in 2004. All sites on the river were sampled 7 times in 2005 and in 2006. Kellner Creek is an intermittent stream. It was sampled, if flowing, on the same dates as the river sites.

The site south of Highway #1 is located on PR 503 a few kilometers upstream of Hadashville. Samples taken at this site measure water quality at a point upstream of most residential development and almost all agricultural development. The Whitemouth River originates at Whitemouth Lake approximately 18 miles from of the US border and flows north through an area of bog and forest between the Lake and the sampling site.

The PR 506 site is located at a bridge crossing the river about halfway between Hadashville and Elma at a point upstream of the confluence of the Whitemouth and the Birch Rivers. Samples taken here reflect any changes in quality deriving from activities, including agriculture, in the Hadashville – Medika district.

Kellner Creek is monitored separately from the Whitemouth River at a point where it crosses the old road from Elma to Whitemouth (PR 406). Kellner Creek is an intermittent creek which rises south of Highway 15 a few kilometers west of Elma. Kellner Creek flows through an agricultural area and joins the Whitemouth a few kilometers upstream of the Highway 44 sampling site. The stream is intermittent and samples are not always available. Kellner Creek is monitored because it yields concentration levels which are often above those in the mainstem of the Whitemouth.

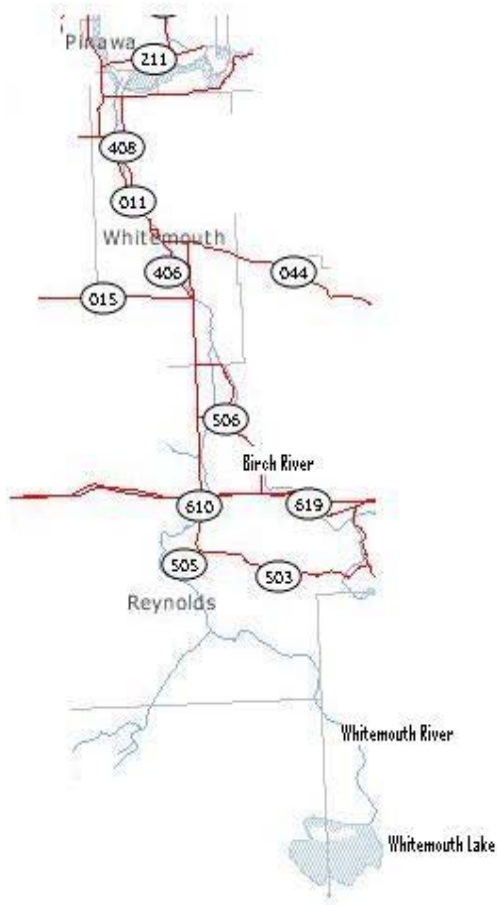
The Highway 44 site is located at the point where the river is crossed by Highway # 44 a few kilometers east, i.e., upstream, of the village of Whitemouth. Between the PR 506 site and the HWY 44 site the Whitemouth River is joined by the Birch River, which originates a short distance south and west of Falcon Lake and which

drains more than 25% of the Whitemouth River watershed. Samples taken at this station therefore reflect changes in water quality caused by activities and land uses in the entire Birch River watershed and in the Elma district, including the Kellner Creek watershed. The Birch River is not monitored separately because a comparison of nutrient concentrations indicate that levels in the Birch are somewhat lower than those found in the Whitemouth.

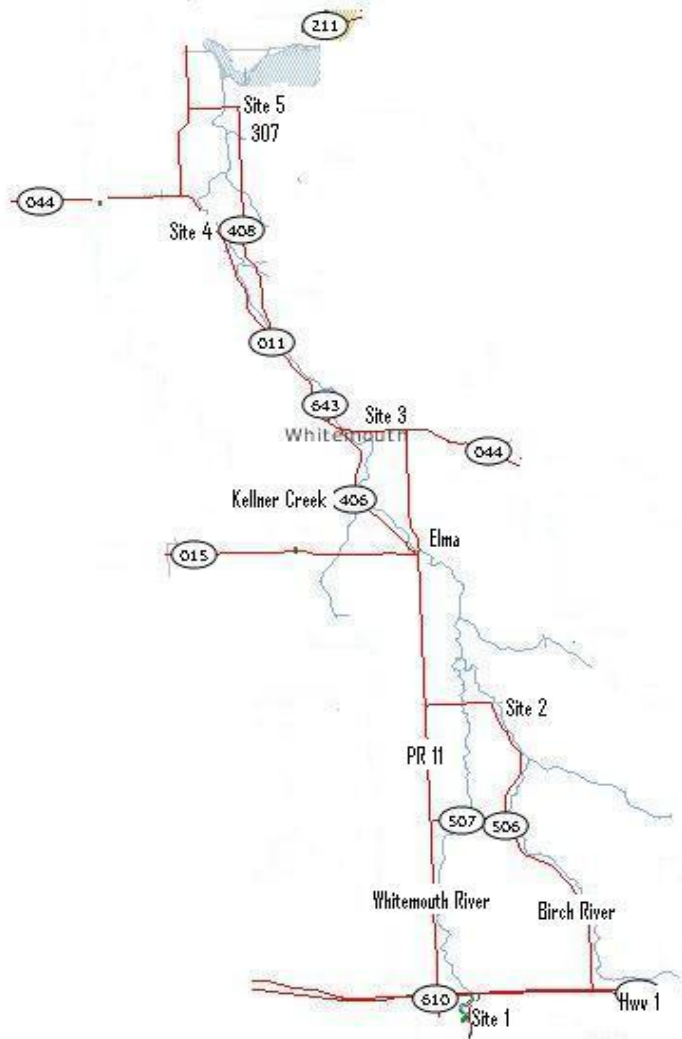
The PR 408 site is located west of the village of Whitemouth and south of River Hills. Samples taken at this site reflect any changes in water quality deriving from activities in the Whitemouth district.

The Seven Sisters site is located close to the point where the Whitemouth River joins the Winnipeg River. Samples taken at this site measure water quality at the point of discharge and reflect any changes in quality caused by activity in the fairly large agricultural district downstream of the PR 408 site.

Whitemouth River Watershed



Sampling Locations 2005 and 2006



Sampling Location Legend

- Site 1 South of Hwy 1 at campground
- Site 2 Bridge on PR 506
- Kellner Creek Site
- Site 3 Hwy 44 at Whitemouth
- Site 4 PR 408
- Site 5 PR 307 in Seven Sisters

WHITEMOUTH RIVER WATER QUALITY TESTING

OVERVIEW

In 2005, standard sample sets were taken at five sites on seven occasions between May 5th and October 3rd. Kellner Creek was sampled on four occasions. In 2006, seven sample sets were taken at five sites between April 24th and October 2nd, and Kellner Creek was sampled 3 times.

No major changes in the key indicators of water quality were noted in either 2005 or 2006 compared to the previous 4 years. Precipitation was heavy and stream flows were high in 2005. During the year, mean nitrogen levels were below the six-year mean levels at all six sampling stations. Stream flows were generally much lower in 2006, and nutrient levels were higher than in 2005. Both nitrogen and phosphorus levels were very close to the six year mean at all stations, and were lower than those measured a few years earlier.

During the six year period 2001-2006 both nitrogen and phosphorus levels have fluctuated within a narrow range with no apparent trend upward or downward over time. It is also noteworthy that nutrient levels at the downstream site at Seven Sisters remain slightly lower than levels upstream. Nutrient levels do not increase as the river flows through portions of the watershed occupied by residences, farms, and small urban centers.

Measurements of *E.coli* remained low during the two year period. Mean levels at some sampling points were slightly above or slightly below the six-year mean, but no major trends were observed.

**TABLE 1
WHITEMOUTH RIVER WATER QUALITY SUMMARY
2005 & 2006**

| | HWY #1 (Site 1) | PR 506 (Site 2) | HWY #44 (Site 3) | PR 408 (Site 4) | 7 SISTERS (Site 5) | KELLNER Creek |
|---------------------------------------|----------------------------|----------------------------|-----------------------------|----------------------------|-------------------------------|--------------------------|
| NITROGEN 05-06 (ppm) | 0.7038 | 0.7237 | 0.7163 | 0.7163 | 0.527 | 0.9439 |
| NITROGEN 06-07 (ppm) | 1.0794 | 1.0061 | 0.9501 | 0.95 | 0.8933 | 1.1149 |
| LONG-TERM MEAN (ppm) | 0.9229 | 1.006 | 0.907 | 0.874 | 0.87 | 1.121 |
| PHOSPHORUS 05-06 (ppm) | 0.0286 | 0.0304 | 0.0393 | 0.0324 | 0.0332 | 0.0286 |
| PHOSPHORUS 06-07 (ppm) | 0.0415 | 0.0398 | 0.0321 | 0.0375 | 0.0539 | 0.069 |
| LONG-TERM MEAN (ppm) | 0.041 | 0.044 | 0.042 | 0.038 | 0.039 | 0.065 |
| <i>E.coli</i> 05-06 | 14 | 19 | 60 | 63 | 67 | 57 |
| <i>E.coli</i> 06-07 | 61 | 19 | 55 | 162 | 59 | 71 |
| <i>E.coli</i> - Long-term mean | 32 | 36 | 41 | 81 | 63 | 78 |

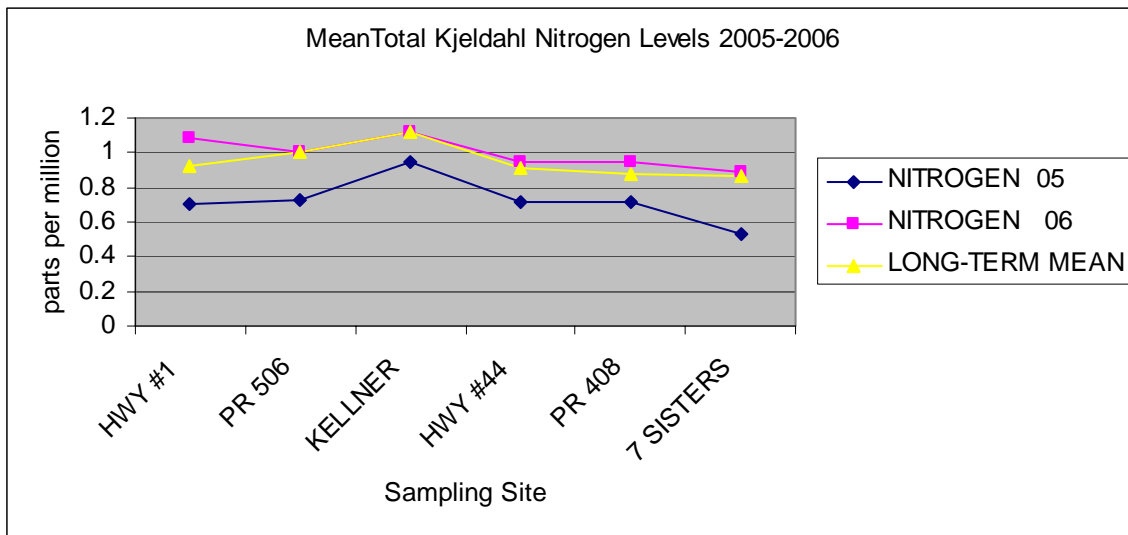
Nitrogen

Mean nitrogen levels, measured as total Kjeldahl nitrogen, have fluctuated over the six-year period at slightly below 1 part per million (ppm). During this period levels at the sampling station near the mouth of the Winnipeg River were lowest at about .87 ppm compared to about .93 at the upstream monitoring station, south of Highway # 1. The mean level increased slightly as the river flowed through the Hadashville reach to the PR 506 sampling station, where the six-year level was about 1.01 ppm. Intermittent flows on Kellner Creek yielded

the highest mean level of nitrogen of 1.121 ppm. Progressively lower levels were recorded at Highway #44 near Whitemouth, at PR 408, downstream from Whitemouth and at Seven Sisters.

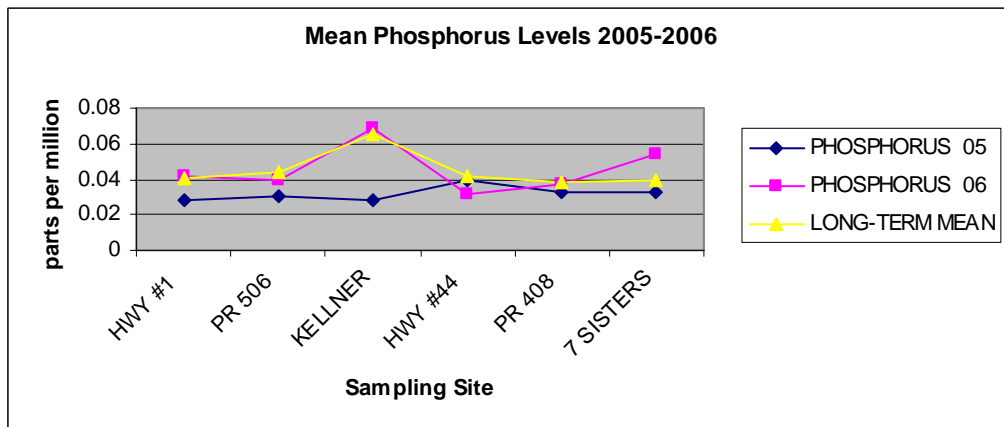
As shown in Figure 1, below, in 2005, total Kjeldahl nitrogen levels in the range of .7 ppm were somewhat below the six year mean at all stations. Levels in 2006 were very close the six-year mean at all sampling stations.

FIGURE 1



Phosphorus

Figure 2 presents levels of phosphorus concentration at all stations for 2005 and 2006 and the mean levels for the period 2001-2006. Mean levels of concentration of total phosphorus remain constant at about .04 ppm during the six year period at all sampling stations except Kellner Creek. The provincial guideline for P is .05 ppm. Phosphorus levels in 2005, a high water year, were slightly below the six year mean. Levels in 2006 were very close to the six-year mean at all sampling station except Seven Sisters, where levels were slightly above.



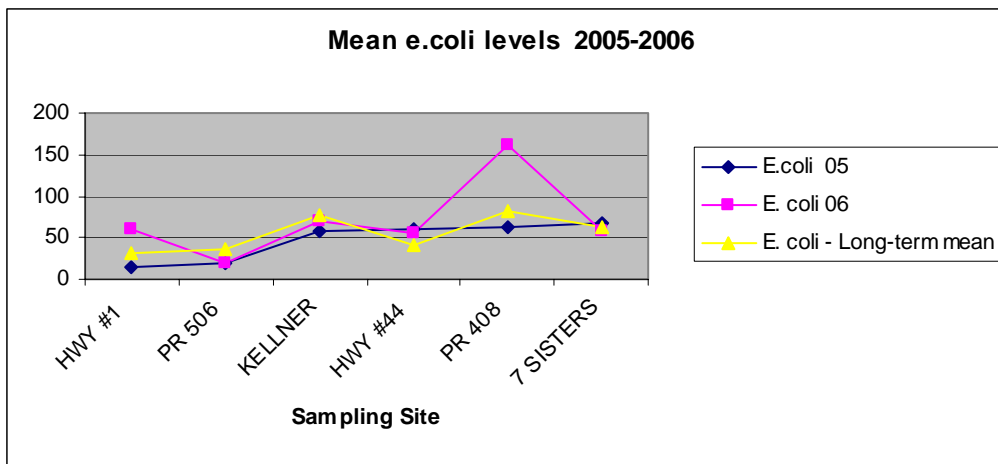
Bacteria

E. coli levels remained very close to the six-year mean at all points on the Whitemouth River in 2005, and levels on Kellner Creek were also at the six-year mean level. As shown in Figure 3 below, the same pattern was observed in 2006. An exception in that year was a slightly elevated level observed at the PR 408 sampling site downstream from the community of Whitemouth.

Throughout the two year period mean *E. coli* levels fluctuated in the range of 30 to 60 CFU/100 ml. A mean level of about 150 CFU/100 ml was recorded at PR 408 in 2006.

During the six-year period, the lowest mean levels have been recorded at the upstream monitoring site, located south of highway #1 and upstream of most residential and agricultural development. Mean levels increase as the river flows through developed areas, rising from 32 to 63. The highest mean level has been recorded at PR 408 (81CFU/100mg.) Levels in Kellner Creek were somewhat higher than those in the mainstem of the Whitemouth, at 78. As a comparison, the provincial guidelines for swimming are 200 CFU/100mg.

Figure 3



OBSERVATIONS AND PERSPECTIVE

A report published by Manitoba conservation in 2002 identified “Enrichment of surface waters with plant nutrients such as phosphorus (P) and nitrogen (N)” as “one of the largest water quality issues facing...Manitoba”. The same report stated,

“Nitrogen and P are essential components of healthy ecosystems and are naturally widespread in the environment. However, virtually all human activities can introduce new sources of nutrients to the aquatic systems, can increase the rate of loss of nutrients from the landscape, or can increase the rate at which nutrients become available to support algal growth.”

The Whitemouth-Reynolds Soil and Water Conservation Association have been monitoring the quality of water in the Whitemouth River watershed since 2001 to determine:

- The levels of nutrients (N and P) and certain bacteria (*E. coli*) in the Whitemouth River.
- Whether these levels change as the river flows from the largely uninhabited upstream reach south of Highway 1, through the agricultural and residential areas downstream to where it empties into the Winnipeg River.
- Whether the nutrient and/or bacteria levels are changing over time.
- Whether there are any points or areas where levels of nutrient or bacteria concentration are significantly above mean levels in the river, or above acceptable levels.

The Association is also concerned with the extent, if any, that the nutrients flowing from this watershed might contribute to excessive nutrient levels and algal growth in Lake Winnipeg.

The levels of nutrients in the Whitemouth River system do not increase as it flows from the bogs and forests of the upstream reaches and passes through the residential and agricultural region downstream. Nitrogen levels at the Seven Sisters sampling site, close to the point where the Whitemouth discharges into the Winnipeg River, are slightly lower than at the site south of Highway 1. Phosphorus levels are more important than nitrogen levels because phosphorus is the key element controlling algal growth. Phosphorus levels remain constant at about .04 ppm/ along the entire course of the river.

Nutrient levels in the river have not changed significantly during the six-year period Levels at all points were slightly lower than the six-year mean in 2005 and slightly higher than the mean in 2006. The 2006 levels were, however, slightly lower than in some earlier years. Throughout the entire period, and along the entire course of the river, N levels have fluctuated around 1 ppm and P levels have been constant around .04 ppm.

COMPARISON WITH OTHER MANITOBA WATER BODIES

It is interesting to compare the nutrient levels in the Whitemouth River to those in other rivers and streams in Manitoba, and to Lake Winnipeg, into which the Whitemouth discharge ultimately flows. Table 2 and Table 3, below, present data drawn from a Manitoba Conservation report and from a recent report by North South Consultants to the Lake Winnipeg Consortium.

**Table 2
Nitrogen Levels in Selected Manitoba Surface Waters**

| Sampling site | Most Recent | Earlier |
|------------------------------------------|----------------------|-----------------------|
| Red River near Selkirk | approx. 3 in 2000 | approx. 2 in 1978 |
| Roseau near Dominion City | approx. 1.5 in 2000 | approx. 1 in 1973 |
| Seine River at Winnipeg Floodway | approx. 1.8 in 2000 | approx. 1 in 1973 |
| Assiniboine east of Portage la Prairie | approx. 1.5 in 2000 | approx. 1.1 in 1970 |
| Brokenhead River near Scanterbury | approx. 1.1 in 2000 | approx. 1.1 in 1970 |
| Lake Winnipeg South Basin | .792 in 2005 | .475 in 1992 |
| Whitemouth River at Seven Sisters | .87 (mean 2001-2006) | no data prior to 2001 |

Nitrogen level data have been selected for sampling sites near the mouths of rivers of various sizes in south-eastern Manitoba. Current levels in the Whitemouth are closely comparable to levels in the Brokenhead, and somewhat lower than in the other streams. The levels of concentration of nitrogen measured at all points in the Whitemouth during the past six years are closely comparable to the levels found in other streams about 30 years ago.

Levels of nitrogen concentration in the Whitemouth have remained static while increases have been noted in some other streams. The period of sampling of the Whitemouth is too short, however, for direct comparison of rates of change. Current levels in the south basin of Lake Winnipeg appear to be slightly lower than those measured in the Whitemouth River at Seven Sisters.

Table 3
Phosphorus Levels in Selected Manitoba Surface Waters

| Sampling site | Most Recent | Earlier |
|------------------------------------------|---------------------------------------------|---------------------|
| Red River near Selkirk | approx. .3 in 2000 | approx. .25 in 1978 |
| Roseau near Dominion City | approx. .09 in 2000 | approx. .06 in 1973 |
| Seine River at Winnipeg Floodway | approx. .28 in 2000 | approx. .1 in 1973 |
| Assiniboine east of Portage la Prairie | approx. .18 in 2000 | approx. .15 in 1970 |
| Brokenhead River near Scanterbury | approx. .06 in 2000 | approx. .06 in 1973 |
| Lake Winnipeg South Basin | .167 in 2005 | .069 in 1992 |
| Whitemouth River at Seven Sisters | .039 (mean 2001-2006) no data prior to 2001 | |

Phosphorous is the most important cause of excessive algal blooms. The rapid increase in phosphorous levels in Lake Winnipeg has drawn attention to sources of phosphorous flowing into the lake. The 2005 mean level was almost .17 ppm, compared to .07 ppm in 1992.

The concentration of phosphorus found in the Whitemouth during the six-year period is consistently lower than levels found in any of the comparable streams in south-eastern Manitoba during the last 30 years.

The mean level of phosphorus concentration in the Whitemouth was considerably lower than that recorded in some other streams. The level in the Seine, for example, was almost seven times higher, and only the Brokenhead was closely comparable.

Levels of concentration of phosphorus in the Whitemouth have remained static during the six-year sampling period. This period is too short, however, for direct comparison to the other streams, where levels of concentration have risen over time.

The mean level of phosphorous concentration in waters discharged from the Whitemouth River during the six-year period 2001-2006 was less than one quarter of the current mean level in the south basin of Lake Winnipeg. The effect of these discharges has been to reduce the rate of increase, and the level of concentration, of phosphorus in Lake Winnipeg during this period.

Matters of Concern

Levels of both phosphorus and nitrogen in Kellner Creek have usually been somewhat higher than those found in the Whitemouth. Attention might be directed to identifying, and perhaps ameliorating, point sources of animal waste along the course of this intermittent stream.

There is evidence of somewhat higher levels of *E. coli* at the PR 408 sampling site downstream from Whitemouth. The source of this minor anomaly might be worthy of some attention.

E.coli levels rise as the river flows north from the forest area. The increase is small, but general and pervasive. Greater public awareness of this situation, and of methods of keeping animal and human waste out of the river, might arrest this trend.

ACKNOWLEDGEMENTS

The Whitemouth-Reynolds Soil and Water Conservation Association gratefully acknowledge the contribution in cash and kind of those who make possible the continued monitoring of the quality of water in the Whitemouth River. The Whitemouth-Reynolds Soil and Water Conservation Association has been the proponent of this project since 2001. Manitoba Agriculture, Food and Rural Initiatives and PFRA have assisted in numerous ways. Financial support has been provided by Covering New Ground (2001-2004), the Rural Municipality of Whitemouth, the Rural Municipality of Reynolds, the Sustainable Development Innovations Fund (2005) and the Water Stewardship Fund (2006). Special thanks to David Young who interpreted the data and prepared this report

Bibliography

- 1: Jones, G and Nicole Armstrong, *LONG-TERM TRENDS IN TOTAL NITROGEN AND TOTAL PHOSPHORUS CONCENTRATIONS IN MANITOBA STREAMS*, Manitoba Conservation Report 2001-07, December 2001.
- 2: Bourne, Alexandra, Nicole Armstrong, and Geoff Jones, *A PRELIMINARY ESTIMATE OF TOTAL NITROGEN AND TOTAL PHOSPHORUS LOADING TO STREAMS IN MANITOBA, CANADA*, Manitoba Conservation Report 2002-04, November 2002.

APPENDIX 1 – TOTAL PHOPHORUS LEVELS 2001-2006

HWY 1

| 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 01-07 |
|----------|----------|----------|----------|----------|----------|----------------------|
| 0.029 | 0.037 | 0.031 | 0.026 | 0.016 | 0.023 | |
| 0.033 | 0.041 | 0.057 | 0.03 | 0.022 | 0.028 | |
| 0.038 | 0.032 | 0.053 | 0.022 | 0.028 | 0.056 | |
| 0.042 | 0.021 | 0.045 | 0.033 | 0.042 | 0.04 | |
| 0.037 | 0.052 | 0.042 | 0.048 | 0.042 | 0.046 | |
| 0.052 | 0.063 | 0.046 | 0.048 | 0.026 | 0.055 | |
| 0.058 | 0.063 | 0.026 | 0.032 | 0.035 | 0.058 | |
| 0.058 | 0.08 | 0.049 | 0.032 | | | |
| 0.065 | 0.061 | 0.037 | 0.028 | | | |
| 0.076 | 0.043 | 0.035 | | | | |
| 0.062 | 0.058 | 0.043 | | | | |
| 0.056 | 0.047 | | | | | |
| 0.056 | 0.055 | | | | | |
| 0.049043 | 0.047701 | 0.041181 | 0.032219 | 0.028644 | 0.041491 | 0.040828572 |

PR 506

| 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 01-07 |
|----------|---------|----------|----------|----------|----------|----------------------|
| 0.034 | 0.034 | 0.033 | 0.036 | 0.016 | 0.03 | |
| 0.036 | 0.046 | 0.064 | 0.039 | 0.026 | 0.031 | |
| 0.043 | 0.037 | 0.056 | 0.027 | 0.038 | 0.058 | |
| 0.041 | 0.032 | 0.055 | 0.038 | 0.055 | 0.034 | |
| 0.048 | 0.056 | 0.049 | 0.05 | 0.027 | 0.034 | |
| 0.057 | 0.069 | 0.049 | 0.047 | 0.032 | 0.045 | |
| 0.056 | 0.065 | 0.025 | 0.034 | 0.032 | 0.057 | |
| 0.07 | 0.082 | 0.062 | 0.036 | | | |
| 0.062 | 0.059 | 0.045 | 0.032 | | | |
| 0.091 | 0.042 | 0.037 | | | | |
| 0.064 | 0.057 | 0.062 | | | | |
| 0.053 | 0.045 | | | | | |
| 0.057 | 0.055 | | | | | |
| 0.052874 | 0.05034 | 0.047046 | 0.037082 | 0.030408 | 0.039863 | 0.044042388 |

KELLNER

| 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 02-07 |
|----------|---------|----------|----------|----------|----------------------|
| 0.037 | 0.063 | 0.027 | 0.016 | 0.038 | |
| 0.042 | 0.166 | 0.047 | 0.022 | 0.063 | |
| 0.069 | 0.139 | 0.071 | 0.028 | 0.137 | |
| 0.07 | 0.146 | 0.106 | 0.042 | | |
| 0.17 | | 0.153 | 0.042 | | |
| 0.167 | | 0.098 | 0.026 | | |
| | | 0.083 | 0.035 | | |
| | 0.083 | 0.124 | | | |
| | | 0.072 | | | |
| 0.077285 | 0.11199 | 0.077939 | 0.028644 | 0.068963 | 0.064641 |

Hwy 44

| 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 01-07 |
|----------|---------|---------|----------|----------|----------|----------------------|
| 0.038 | 0.034 | 0.035 | 0.039 | 0.013 | 0.026 | |
| 0.03 | 0.046 | 0.071 | 0.038 | 0.063 | 0.028 | |
| 0.036 | 0.037 | 0.069 | 0.033 | 0.049 | 0.05 | |
| 0.049 | 0.032 | 0.051 | 0.036 | 0.179 | 0.026 | |
| 0.048 | 0.056 | 0.041 | 0.042 | 0.024 | 0.024 | |
| 0.049 | 0.069 | 0.035 | 0.035 | 0.031 | 0.041 | |
| 0.062 | 0.065 | 0.021 | 0.032 | 0.027 | 0.038 | |
| 0.056 | 0.082 | 0.048 | 0.05 | | | |
| 0.049 | 0.059 | 0.038 | 0.028 | | | |
| 0.064 | 0.042 | 0.029 | | | | |
| 0.051 | 0.057 | 0.052 | | | | |
| 0.045 | 0.045 | | | | | |
| 0.061 | 0.055 | | | | | |
| 0.048015 | 0.05034 | 0.04204 | 0.036534 | 0.039281 | 0.032135 | 0.042356883 |

PR 408

| 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 03-07 |
|---------|----------|----------|----------|----------------------|
| 0.034 | 0.025 | 0.014 | 0.028 | |
| 0.057 | 0.054 | 0.036 | 0.03 | |
| 0.058 | 0.032 | 0.062 | 0.053 | |
| 0.057 | 0.037 | 0.051 | 0.029 | |
| 0.044 | 0.044 | 0.027 | 0.037 | |
| 0.033 | 0.039 | 0.031 | 0.052 | |
| 0.021 | 0.04 | 0.028 | 0.042 | |
| 0.046 | 0.053 | | | |
| 0.055 | 0.027 | | | |
| 0.03 | | | | |
| 0.047 | | | | |
| 0.04189 | 0.037785 | 0.032384 | 0.037502 | 0.037787 |

SEVEN SISTERS

| 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 01-07 |
|----------|----------|---------|----------|----------|----------|----------------------|
| 0.044 | 0.017 | 0.039 | 0.051 | 0.015 | 0.035 | |
| 0.033 | 0.019 | 0.063 | 0.048 | 0.04 | 0.029 | |
| 0.041 | 0.012 | 0.084 | 0.037 | 0.06 | 0.317 | |
| 0.051 | 0.02 | 0.055 | 0.037 | 0.067 | 0.04 | |
| 0.053 | 0.04 | 0.042 | 0.043 | 0.035 | 0.035 | |
| 0.403 | 0.019 | 0.036 | 0.037 | 0.033 | 0.067 | |
| 0.074 | 0.018 | 0.031 | 0.039 | 0.016 | 0.044 | |
| 0.063 | 0.025 | 0.043 | 0.057 | | | |
| 0.053 | 0.025 | 0.071 | 0.03 | | | |
| 0.062 | 0.013 | 0.033 | | | | |
| 0.048 | 0.014 | 0.058 | | | | |
| 0.04 | 0.025 | | | | | |
| 0.061 | 0.025 | | | | | |
| 0.059469 | 0.019873 | 0.04799 | 0.041378 | 0.033212 | 0.053937 | 0.039444124 |

APPENDIX 2: NITROGEN LEVELS 2001 – 2006

HWY 1

| 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 01-07 |
|----------|----------|----------|---------|----------|----------|----------------------|
| 0.6 | 0.8 | 0.6 | 0.7 | 0.4 | 0.7 | |
| 0.9 | 0.7 | 1 | 0.7 | 0.5 | 0.8 | |
| 0.9 | 0.8 | 1 | 0.7 | 0.6 | 1.2 | |
| 0.8 | 0.8 | 0.09 | 0.9 | 0.8 | 1.1 | |
| 0.8 | 1.1 | 1 | 1.2 | 1.1 | 1.1 | |
| 1.1 | 1 | 0.9 | 0.9 | 0.9 | 1.4 | |
| 1 | 1.4 | 1 | 0.8 | 0.9 | 1.5 | |
| 1 | 1.8 | 1.1 | 0.8 | | | |
| 1 | 1.2 | 1 | 0.8 | | | |
| 1 | 1.1 | 0.09 | | | | |
| 1.5 | 1.7 | 2.1 | | | | |
| 1.6 | 2.7 | | | | | |
| 2.1 | 3.1 | | | | | |
| 1.042805 | 1.252455 | 0.658552 | 0.82166 | 0.703801 | 1.079434 | 0.922883 |

PR 506

| 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 01-07 |
|---------|----------|----------|----------|---------|----------|----------------------|
| 0.7 | 0.6 | 0.7 | 0.7 | 0.5 | 0.7 | |
| 0.8 | 0.7 | 0.9 | 0.9 | 0.5 | 0.8 | |
| 1 | 1.2 | 1.1 | 0.7 | 0.6 | 1.1 | |
| 0.8 | 1 | 0.9 | 1 | 0.9 | 1 | |
| 0.9 | 1.1 | 0.9 | 1.1 | 1.1 | 1.1 | |
| 1.1 | 1 | 0.9 | 0.7 | 0.7 | 1.1 | |
| 1 | 1.3 | 1 | 0.9 | 1 | 1.4 | |
| 1.1 | 1.6 | 1.1 | 0.8 | | | |
| 0.9 | 1.1 | 1.1 | 1 | | | |
| 1.1 | 1.1 | 0.9 | | | | |
| 1.3 | 1.7 | 2.3 | | | | |
| 1.5 | 2.6 | | | | | |
| 2.6 | 2.9 | | | | | |
| 1.07132 | 1.248376 | 1.021627 | 0.855124 | 0.72368 | 1.006102 | 1.006439 |

KELLNER

| 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 02-07 |
|----------|----------|----------|----------|----------|----------------------|
| 0.8 | 1.2 | 1 | 0.7 | 0.9 | |
| 0.9 | 1.3 | 1.1 | 0.9 | 1.1 | |
| 1.1 | 1.4 | 1.1 | 0.9 | 1.4 | |
| 1.2 | 1.3 | 1.2 | 1.4 | | |
| 1.5 | | 1.3 | | | |
| 1.3 | | 1 | | | |
| | | 1.2 | | | |
| | 1 | 1.1 | | | |
| | | 1.5 | | | |
| 1.108299 | 1.232081 | 1.157762 | 0.943904 | 1.114947 | 1.120602 |

HWY 44

| 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 01-07 |
|----------|----------|----------|---------|----------|----------|----------------------|
| 0.7 | 0.7 | 0.6 | 0.7 | 0.4 | 0.7 | |
| 0.7 | 0.7 | 1 | 1 | 0.6 | 0.8 | |
| 0.9 | 0.8 | 1 | 0.08 | 0.7 | 1 | |
| 1 | 0.8 | 0.9 | 0.9 | 0.8 | 1.2 | |
| 1 | 1 | 0.9 | 1.1 | 1 | 0.8 | |
| 1 | 0.8 | 0.8 | 0.8 | 0.8 | 1 | |
| 1 | 1.2 | 0.9 | 0.8 | 0.9 | 1.3 | |
| 1 | 1.3 | 1 | 0.8 | | | |
| 0.9 | 0.9 | 1 | 0.8 | | | |
| 1 | 1 | 0.8 | | | | |
| 1 | 1.5 | 1.8 | | | | |
| 1.4 | 2.4 | | | | | |
| 1.8 | 3 | | | | | |
| 1.000014 | 1.108243 | 0.939592 | 0.65668 | 0.716316 | 0.950105 | 0.907437 |

PR 408

| 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 03-07 |
|----------|----------|----------|---------|----------------------|
| 0.7 | 0.8 | 0.4 | 0.7 | |
| 1 | 0.8 | 0.6 | 0.7 | |
| 1.1 | 0.7 | 0.7 | 1 | |
| 1 | 0.8 | 0.8 | 1.1 | |
| 0.9 | 1.4 | 1 | 0.9 | |
| 0.8 | 0.7 | 0.8 | 1.2 | |
| 0.9 | 0.9 | 0.9 | 1.2 | |
| 1 | 0.9 | | | |
| 1 | 0.8 | | | |
| 0.8 | | | | |
| 1.7 | | | | |
| 0.965365 | 0.848349 | 0.716316 | 0.95004 | 0.874433 |

SEVEN SISTERS

| 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 01-07 |
|----------|----------|----------|----------|----------|----------|----------------------|
| 0.7 | 0.6 | 0.6 | 0.8 | 0.4 | 0.7 | |
| 0.8 | 0.8 | 0.9 | 1 | 0.7 | 0.7 | |
| 0.9 | 0.8 | 1 | 0.08 | 0.7 | 0.9 | |
| 1 | 0.8 | 0.8 | 1.2 | 0.8 | 0.9 | |
| 0.9 | 1.1 | 0.7 | 0.9 | 0.9 | 0.8 | |
| 1.7 | 0.8 | 0.8 | 0.7 | 1 | 1.3 | |
| 1.1 | 1 | 0.9 | 0.8 | 0.08 | 1.1 | |
| 1.1 | 1.1 | 0.9 | 0.9 | | | |
| 0.9 | 0.9 | 1.1 | 0.8 | | | |
| 1 | 1 | 0.8 | | | | |
| 1 | 1.3 | 1.9 | | | | |
| 1.2 | 2.4 | | | | | |
| 1.9 | 3.1 | | | | | |
| 1.051233 | 1.075904 | 0.903535 | 0.671794 | 0.527001 | 0.893337 | 0.869809 |

APPENDIX 3: *E.coli* LEVELS 2001 -2006

HWY 1

| 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 01-07 |
|----------|----------|----------|----------|----------|----------|----------------------|
| < 10 | 10 | < 10 | <10 | 4 | 10 | |
| 93 | <10 | 20 | 30 | 38 | 30 | |
| 3 | <10 | 20 | 40 | 23 | 30 | |
| 70 | 130 | 160 | 10 | 4 | 43 | |
| 20 | 10 | 40 | 40 | 10 | 210 | |
| 30 | 20 | 20 | 75 | 30 | 430 | |
| > 2000 | 10 | < 10 | 1570 | 20 | 93 | |
| 40 | 30 | 70 | 20 | | | |
| 20 | 10 | 180 | <10 | | | |
| 70 | 40 | 20 | | | | |
| 40 | 40 | 10 | | | | |
| 40 | 20 | | | | | |
| 70 | 20 | | | | | |
| 34.14258 | 21.68736 | 36.97024 | 52.70967 | 13.55093 | 61.29311 | 31.8534 |

PR 506

| 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 01-07 |
|----------|----------|----------|---------|----------|----------|----------------------|
| 2 | <10 | 10 | <10 | <3 | <3 | |
| 43 | <10 | 70 | 70 | 7 | 7 | |
| 4 | 20 | 40 | <10 | 23 | 23 | |
| 50 | 150 | 70 | 20 | 4 | 4 | |
| 30 | 10 | 70 | 20 | 30 | 30 | |
| 50 | 40 | 110 | 93 | 140 | 140 | |
| 130 | <10 | 150 | 2480 | 20 | 20 | |
| 10 | 30 | 160 | 60 | | | |
| 30 | 80 | 150 | 40 | | | |
| 40 | 90 | 50 | | | | |
| 40 | 30 | 10 | | | | |
| 40 | 70 | | | | | |
| < 10 | 20 | | | | | |
| 25.16163 | 40.15027 | 58.44253 | 76.6177 | 19.44737 | 19.44737 | 36.01383 |

Kellner

| 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 02-07 |
|----------|----------|----------|----------|----------|----------------------|
| <10 | 30 | <10 | 23 | 20 | |
| <10 | 40 | <10 | 240 | 100 | |
| 160 | 40 | 20 | 43 | 180 | |
| 20 | 20 | 80 | 43 | | |
| 20 | | 120 | | | |
| 30 | | 9300 | | | |
| | | 1630 | | | |
| | 220 | 90 | | | |
| | | 80 | | | |
| 37.22419 | 46.23158 | 214.5927 | 56.52219 | 71.13787 | 77.81517 |

HWY 44

| 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 01-07 |
|----------|---------|----------|----------|----------|---------|----------------------|
| 2 | 30 | < 10 | 30 | 15 | <10 | |
| 75 | 20 | 100 | 30 | 21 | 40 | |
| 1 | 10 | 10 | 20 | 93 | 30 | |
| 40 | 150 | 20 | 20 | 230 | 93 | |
| 30 | 10 | 40 | 80 | 40 | 60 | |
| 90 | 20 | 40 | 210 | 200 | 93 | |
| 70 | 10 | 30 | 2050 | 50 | 43 | |
| 50 | 60 | 160 | 40 | | | |
| 80 | 80 | 110 | 20 | | | |
| 60 | 160 | 30 | | | | |
| 80 | 70 | 10 | | | | |
| 10 | <10 | | | | | |
| < 10 | <10 | | | | | |
| 27.85006 | 35.0072 | 37.19551 | 59.89409 | 59.67567 | 54.6967 | 41.31055 |

PR 408

| 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 03-07 |
|----------|----------|----------|---------|----------------------|
| 20 | <10 | 15 | <10 | |
| 110 | 30 | 43 | 20 | |
| 80 | 60 | 93 | 40 | |
| 30 | 20 | 43 | 93 | |
| 60 | 230 | 70 | 380 | |
| 50 | 430 | 460 | 1500 | |
| 60 | 180 | 50 | 430 | |
| 340 | 40 | | | |
| 200 | 60 | | | |
| 80 | | | | |
| 20 | | | | |
| 65.99381 | 79.13577 | 63.47746 | 162.238 | 81.05393 |

SEVEN SISTERS

| 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | Geometric Mean 01-07 |
|----------|----------|---------|----------|----------|----------|----------------------|
| 10 | <10 | < 10 | <10 | 9 | 20 | |
| 93 | <10 | 130 | 20 | 93 | 10 | |
| 0 | 10 | 80 | 20 | 38 | 30 | |
| 80 | 60 | 70 | 30 | 43 | 93 | |
| 10 | 30 | 130 | 80 | 110 | 100 | |
| >2000 | 70 | 30 | 930 | 350 | 210 | |
| 110 | 60 | 70 | 2290 | 110 | 210 | |
| 10 | 100 | 60 | 80 | | | |
| 40 | 190 | 190 | 100 | | | |
| 130 | 300 | 10 | | | | |
| 50 | 80 | 10 | | | | |
| 60 | 10 | | | | | |
| <10 | <10 | | | | | |
| 50.78704 | 56.72162 | 54.3901 | 106.3433 | 66.56739 | 58.90515 | 63.46355 |

Appendix 4

POPULATION AND AREA 2001

* Extracted from "Statistical Information" from Municipalities of the Province of Manitoba

** Extracted from Census of Agriculture, Statistics Canada.

| R.M. | Population* 2001 Census | Area* (Sq Km) | RM Area in Acres (sq km X 247.10538) | Total Area** of Farms - Farms Rep. | Total Area** of Farms - Acres | Average Size of Farms - Acres | Total Area of Farms as a % of RM Area |
|------------|-------------------------------|------------------|-----------------------------------------------|---------------------------------------------------|-------------------------------------------|----------------------------------------|------------------------------------------------------|
| | | | | | | | |
| Whitemouth | 1,617 | 702.91 | 173,693 | 127 | 64,647 | 509 | 37 |

Source: Statistics Canada

All Livestock by Rural Municipality, May 15, 2001

| Variable name | Dairy cows | | Cattle and Calves | | Total pigs | | Total sheep and lambs | | Total hens and chickens | |
|-----------------------|------------|--------|-------------------|--------|------------|--------|-----------------------|--------|-------------------------|-----------------|
| | Farms | Number | Farms | Number | Farms | Number | Farms | Number | Farms | Number of birds |
| Reynolds ¹ | 2 | x | 23 | 1,926 | 9 | 14,265 | 2 | x | 7 | 1,128 |
| Whitemouth | 16 | 986 | 54 | 5,924 | 26 | 29,916 | 5 | 237 | 30 | 352,269 |

Source: Statistics Canada

1. Due to confidentiality constraints, the data for one or more adjacent geographic areas having very few farms have been combined with the data from this census consolidated subdivision or census division.

Whitemouth River Site #1

| Sample Date | Fecal coliform bacteria (org/100ml) | E. coli bacteria (org/100ml) | Ammonia (mg/L) | Conductivity (µmhos/cm) | Nitrite/nitrate Nitrogen (mg/L) | Nitrogen Total Kjeldahl (mg/L) | pH (pH units) | Dissolved phosphorus (mg/L) | Total phosphorus (mg/L) | Total dissolved solids (mg/L) | Total suspended solids (mg/L) | Water Temp (Celsius) |
|-------------|-------------------------------------------|------------------------------------|-------------------|----------------------------|---------------------------------------|--------------------------------------|------------------|-----------------------------------|-------------------------------|-------------------------------------|-------------------------------------|----------------------------|
| APR 24-01 | 12 | 10 | 0.02 | 140 | 0.03 | 0.7 | 7.69 | 0.016 | 0.044 | 88 | 35 | 6 |
| MAY 15-01 | 9 | 93 | 0.01 | 162 | < .01 | 0.8 | 7.77 | 0.01 | 0.033 | 120 | 20 | 10 |
| JUN 5-01 | < 10 | 1 | 0.02 | 163 | < .01 | 0.9 | 7.95 | 0.014 | 0.041 | 140 | 21 | 12 |
| JUN 19-01 | 80 | 80 | 0.14 | 187 | 0.01 | 1 | 7.86 | 0.015 | 0.051 | 88 | 12 | 11 |
| JUL 4-01 | 60 | 10 | 0.02 | 166 | 0.03 | 0.9 | 7.92 | 0.028 | 0.053 | 130 | 21 | 15 |
| JUL 17-01 | > 2000 | > 2000 | 0.03 | 134 | 0.72 | 1.7 | 7.46 | 0.257 | 0.403 | 120 | 170 | 19 |
| JUL 31-01 | 90 | 110 | 0.02 | 204 | 0.02 | 1.1 | 7.64 | 0.042 | 0.074 | 180 | 34 | 20 |
| AUG 14-01 | 20 | 10 | 0.02 | 224 | 0.03 | 1.1 | 7.75 | 0.041 | 0.063 | 180 | 12 | 16 |
| AUG 28-01 | 20 | 40 | 0.02 | 232 | < .01 | 0.9 | 8.06 | 0.028 | 0.053 | 180 | 13 | 17 |
| SEP 11-01 | 120 | 130 | 0.01 | 240 | < .01 | 1 | 8.17 | 0.021 | 0.062 | 180 | 16 | 10 |
| OCT 19-01 | 80 | 50 | 0.02 | 246 | < .01 | 1 | 8.09 | 0.016 | 0.048 | 190 | 11 | 5 |
| JAN 11-02 | 70 | 60 | 0.13 | 350 | 0.22 | 1.2 | 7.44 | 0.016 | 0.04 | 250 | 12 | -5 |
| FEB 13-02 | < 10 | <10 | 0.2 | 456 | 0.39 | 1.9 | 7.42 | 0.034 | 0.061 | 330 | 18 | -5 |

Whitemouth River Site #2

| Sample Date | Fecal coliform bacteria (org/100ml) | E. coli bacteria (org/100ml) | Ammonia (mg/L) | Conductivity (µmhos/cm) | Nitrite/nitrate Nitrogen (mg/L) | Nitrogen Total Kjeldahl (mg/L) | pH (pH units) | Dissolved phosphorus (mg/L) | Total phosphorus (mg/L) | Total dissolved solids (mg/L) | Total suspended solids (mg/L) | Water Temp (Celsius) |
|-------------|-------------------------------------------|------------------------------------|-------------------|----------------------------|---------------------------------------|--------------------------------------|------------------|-----------------------------------|-------------------------------|-------------------------------------|-------------------------------------|----------------------------|
| APR 24-01 | 2 | 2 | 0.02 | 144 | 0.05 | 0.7 | 7.72 | 0.016 | 0.038 | 88 | 23 | 5 |
| MAY 15-01 | 9 | 75 | 0.01 | 163 | 0.01 | 0.7 | 7.8 | 0.011 | 0.03 | 120 | 15 | 11 |
| JUN 5-01 | < 10 | 1 | 0.01 | 163 | < .01 | 0.9 | 8 | 0.011 | 0.036 | 130 | 14 | 12 |
| JUN 19-01 | 70 | 40 | 0.08 | 195 | 0.01 | 1 | 7.99 | 0.015 | 0.049 | 66 | 23 | 11 |
| JUL 4-01 | 60 | 30 | 0.01 | 165 | 0.03 | 1 | 7.86 | 0.034 | 0.048 | 130 | 17 | 15 |
| JUL 17-01 | 110 | 90 | 0.01 | 187 | 0.02 | 1 | 7.8 | 0.022 | 0.049 | 160 | 24 | 21 |
| JUL 31-01 | 120 | 70 | 0.02 | 205 | 0.01 | 1 | 7.73 | 0.034 | 0.062 | 160 | 22 | 20 |
| AUG 14-01 | 50 | 50 | 0.02 | 224 | 0.03 | 1 | 7.84 | 0.039 | 0.056 | 180 | 8 | 16 |
| AUG 28-01 | 20 | 80 | 0.02 | 235 | < .01 | 0.9 | 8.08 | 0.028 | 0.049 | 180 | 10 | 17 |
| SEP 11-01 | 100 | 60 | 0.01 | 246 | < .01 | 1 | 8.18 | 0.022 | 0.064 | 180 | 13 | 10 |
| OCT 19-01 | 80 | 80 | 0.02 | 260 | < .01 | 1 | 8.11 | 0.017 | 0.051 | 200 | 18 | 5 |
| JAN 11-02 | 10 | 10 | 0.16 | 359 | 0.17 | 1.4 | 7.55 | 0.018 | 0.045 | 250 | 13 | -5 |
| FEB 13-02 | < 10 | < 10 | 0.22 | 450 | 0.29 | 1.8 | 7.45 | 0.017 | 0.061 | 330 | 20 | -5 |

Whitemouth River Site #3

| Sample Date | Fecal coliform bacteria (org/100ml) | E. coli bacteria (org/100ml) | Ammonia (mg/L) | Conductivity (µmhos/cm) | Nitrite/nitrate Nitrogen (mg/L) | Nitrogen Total Kjeldahl (mg/L) | pH (pH units) | Dissolved phosphorus (mg/L) | Total phosphorus (mg/L) | Total dissolved solids (mg/L) | Total suspended solids (mg/L) | Water Temp (Celsius) |
|-------------|-------------------------------------------|------------------------------------|-------------------|----------------------------|---------------------------------------|--------------------------------------|------------------|-----------------------------------|-------------------------------|-------------------------------------|-------------------------------------|----------------------------|
| APR 24-01 | 2 | 2 | 0.02 | 144 | 0.02 | 0.7 | 7.74 | 0.014 | 0.034 | 82 | 27 | 5 |
| MAY 15-01 | 3 | 43 | 0.01 | 178 | 0.01 | 0.8 | 7.83 | 0.012 | 0.036 | 130 | 17 | 13 |
| JUN 5-01 | < 10 | 4 | 0.01 | 179 | < .01 | 1 | 7.96 | 0.013 | 0.043 | 140 | 14 | 14 |
| JUN 19-01 | 50 | 50 | 0.06 | 169 | 0.02 | 0.8 | 8 | 0.014 | 0.041 | 62 | 11 | 12 |
| JUL 4-01 | 30 | 30 | 0.01 | 169 | 0.02 | 0.9 | 7.74 | 0.028 | 0.048 | 130 | 15 | 15 |
| JUL 17-01 | 70 | 50 | 0.02 | 198 | 0.01 | 1.1 | 7.72 | 0.021 | 0.057 | 180 | 29 | 21 |
| JUL 31-01 | 240 | 130 | 0.02 | 212 | < .01 | 1 | 7.65 | 0.031 | 0.056 | 160 | 23 | 20 |
| AUG 14-01 | 20 | 10 | 0.02 | 246 | 0.03 | 1.1 | 7.72 | 0.04 | 0.07 | 190 | 14 | 15 |
| AUG 28-01 | < 10 | 30 | 0.02 | 246 | 0.01 | 0.9 | 7.93 | 0.037 | 0.062 | 190 | 21 | 15 |
| SEP 11-01 | 20 | 40 | 0.02 | 261 | < .01 | 1.1 | 8.12 | 0.023 | 0.091 | 200 | 21 | 10 |
| OCT 19-01 | < 10 | 40 | 0.02 | 260 | 0.02 | 1.3 | 8.08 | 0.016 | 0.064 | 200 | 22 | 5 |
| JAN 11-02 | 50 | 40 | 0.24 | 363 | 0.12 | 1.5 | 7.37 | 0.015 | 0.053 | 270 | 19 | -5 |
| FEB 13-02 | < 10 | < 10 | 0.35 | 452 | 0.2 | 2.6 | 7.47 | 0.038 | 0.057 | 330 | 21 | -5 |

Whitemouth River Site #4

| Sample Date | Fecal coliform bacteria (org/100ml) | E. coli bacteria (org/100ml) | Ammonia (mg/L) | Conductivity (µmhos/cm) | Nitrite/nitrate Nitrogen (mg/L) | Nitrogen Total Kjeldahl (mg/L) | pH (pH units) | Dissolved phosphorus (mg/L) | Total phosphorus (mg/L) | Total dissolved solids (mg/L) | Total suspended solids (mg/L) | Water Temp (Celsius) |
|-------------|-------------------------------------------|------------------------------------|-------------------|----------------------------|---------------------------------------|--------------------------------------|------------------|-----------------------------------|-------------------------------|-------------------------------------|-------------------------------------|----------------------------|
| APR 24-01 | 14 | < 10 | 0.01 | 125 | < .01 | 0.6 | 7.52 | 0.015 | 0.029 | 72 | 18 | 5 |
| MAY 15-01 | 15 | 93 | < .01 | 168 | < .01 | 0.9 | 7.7 | 0.012 | 0.033 | 120 | 12 | 12 |
| JUN 5-01 | 9 | 3 | 0.01 | 169 | < .01 | 0.9 | 7.87 | 0.015 | 0.038 | 140 | 9 | 13 |
| JUN 19-01 | 170 | 70 | 0.05 | 171 | 0.01 | 0.8 | 7.99 | 0.013 | 0.042 | 92 | 13 | 11 |
| JUL 4-01 | 20 | 20 | 0.01 | 153 | 0.01 | 0.8 | 7.41 | 0.023 | 0.037 | 120 | 11 | 15 |
| JUL 17-01 | 60 | 30 | 0.01 | 186 | 0.02 | 1.1 | 7.6 | 0.023 | 0.052 | 170 | 12 | 20 |
| JUL 31-01 | > 2000 | > 2000 | 0.01 | 192 | < .01 | 1 | 7.54 | 0.03 | 0.058 | 150 | 31 | 20 |
| AUG 14-01 | 60 | 40 | 0.02 | 230 | 0.02 | 1 | 7.61 | 0.042 | 0.058 | 180 | 6 | 15 |
| AUG 28-01 | 20 | 20 | 0.02 | 236 | 0.01 | 1 | 7.67 | 0.034 | 0.065 | 180 | 9 | 14 |
| SEP 11-01 | 20 | 70 | 0.02 | 253 | < .01 | 1 | 7.91 | 0.022 | 0.076 | 200 | 19 | 10 |
| OCT 19-01 | 30 | 40 | 0.03 | 245 | 0.04 | 1.5 | 7.96 | 0.017 | 0.062 | 190 | 21 | 5 |
| JAN 11-02 | 40 | 40 | 0.27 | 349 | 0.08 | 1.6 | 7.54 | 0.016 | 0.056 | 270 | 21 | -5 |
| FEB 13-02 | 30 | 70 | 0.36 | 441 | 0.15 | 2.1 | 7.53 | 0.029 | 0.056 | 320 | 23 | -5 |

Whitemouth River Site #1 Seven Sisters

| Sample Date | Fecal coliform bacteria (org/100ml) | E. coli bacteria (org/100ml) | Ammonia (mg/L) | Conductivity (µmhos/cm) | Nitrite/nitrate Nitrogen (mg/L) | Nitrogen Total Kjeldahl (mg/L) | Oxygen Dissolved mg/L | pH (pH units) | Dissolved phosphorus (mg/L) | Total phosphorus (mg/L) | Total dissolved solids (mg/L) | Total suspended solids (mg/L) | Water Temp (Celsius) |
|----------------|-------------------------------------------|------------------------------------|-------------------|----------------------------|---------------------------------------|--------------------------------------|-----------------------------|------------------|-----------------------------------|-------------------------------|-------------------------------------|-------------------------------------|----------------------------|
| MAY 1-2002 | <10 | <10 | 0.04 | 182 | 0.06 | 0.6 | 9.2 | 8.01 | 0.017 | 0.039 | 130 | 9 | 0 |
| MAY 15-2002 | <10 | <10 | 0.03 | 181 | 0.15 | 0.8 | 10.2 | 7.87 | 0.019 | 0.046 | 130 | 21 | 3 |
| JUNE 5-2002 | <10 | 10 | 0.02 | 173 | 0.01 | 0.8 | 8.1 | 7.91 | 0.012 | 0.034 | 140 | 20 | 10.8 |
| JUNE 18-2002 | 150 | 60 | 0.04 | 176 | 0.06 | 0.8 | 8.5 | 7.82 | 0.02 | 0.058 | 160 | 71 | 14 |
| JULY 4-2002 | <10 | 30 | 0.04 | 189 | 0.05 | 1.1 | 8.4 | 7.91 | 0.04 | 0.052 | 150 | 33 | 15 |
| JULY 17-2002 | 70 | 70 | 0.02 | 203 | 0.01 | 0.8 | 7.4 | 8.04 | 0.019 | 0.05 | 160 | 21 | 20 |
| JULY 31-2002 | 50 | 60 | 0.02 | 263 | <0.01 | 1 | 7.1 | 8.01 | 0.018 | 0.049 | 210 | 13 | 20 |
| AUGUST 12-2002 | 160 | 100 | 0.02 | 273 | <0.01 | 1.1 | 6.9 | 8.02 | 0.025 | 0.051 | 210 | 17 | 17 |
| AUGUST 27-2002 | 460 | 190 | 0.02 | 211 | <0.01 | 0.9 | 8.1 | 7.98 | 0.025 | 0.051 | 180 | 19 | 16 |
| SEPT 10-2002 | 380 | 300 | 0.03 | 225 | 0.02 | 1 | 8.3 | 7.95 | 0.013 | 0.042 | 160 | 22 | 15 |
| OCT 11-2002 | 80 | 80 | 0.02 | 251 | 0.07 | 1.3 | 12.1 | 7.99 | 0.014 | 0.052 | 180 | 20 | |
| JAN.2/2003 | 180 | 10 | 0.62 | 406 | 0.27 | 2.4 | 2 | 7.66 | 0.025 | 0.046 | 290 | 13 | |
| FEB 20/2003 | 270 | <10 | 0.91 | 542 | 0.57 | 3.1 | 6.1 | 7.33 | 0.025 | 0.063 | 410 | 19 | |

Whitemouth River Site #2 Hwy 44 at Whitemouth

| Sample Date | Fecal coliform bacteria (org/100ml) | E. coli bacteria (org/100ml) | Ammonia (mg/L) | Conductivity (µmhos/cm) | Nitrite/nitrate Nitrogen (mg/L) | Nitrogen Total Kjeldahl (mg/L) | Oxygen Dissolved mg/L | pH (pH units) | Dissolved phosphorus (mg/L) | Total phosphorus (mg/L) | Total dissolved solids (mg/L) | Total suspended solids (mg/L) | Water Temp (Celsius) |
|----------------|-------------------------------------------|------------------------------------|-------------------|----------------------------|---------------------------------------|--------------------------------------|-----------------------------|------------------|-----------------------------------|-------------------------------|-------------------------------------|-------------------------------------|----------------------------|
| MAY 1-2002 | 20 | 30 | 0.05 | 183 | 0.06 | 0.7 | 8.7 | 8.02 | 0.017 | 0.033 | 130 | 8 | 0 |
| MAY 15-2002 | <10 | 20 | 0.02 | 170 | 0.11 | 0.7 | 9.2 | 7.84 | 0.02 | 0.043 | 140 | 24 | 4 |
| JUNE 5-2002 | 30 | 10 | 0.01 | 176 | 0.01 | 0.8 | 8.9 | 7.94 | 0.011 | 0.029 | 140 | 15 | 11 |
| JUNE 18-2002 | 180 | 150 | 0.03 | 177 | 0.06 | 0.8 | 9 | 7.84 | 0.018 | 0.044 | 160 | 42 | 14 |
| JULY 4-2002 | <10 | 10 | 0.03 | 192 | 0.05 | 1 | 7.5 | 7.92 | 0.047 | 0.051 | 150 | 34 | 15 |
| JULY 17-2002 | 20 | 20 | 0.02 | 209 | <0.01 | 0.8 | 7.7 | 8.07 | 0.016 | 0.054 | 170 | 17 | 20 |
| JULY 31-2002 | <10 | 10 | 0.03 | 269 | <0.01 | 1.2 | 8.6 | 8.19 | 0.021 | 0.052 | 220 | 18 | 20 |
| AUGUST 12-2002 | 30 | 60 | 0.03 | 276 | <0.01 | 1.3 | 7.5 | 8.14 | 0.029 | 0.06 | 210 | 21 | 16 |
| AUGUST 27-2002 | 60 | 80 | 0.02 | 220 | <0.01 | 0.9 | 8.5 | 8.01 | 0.025 | 0.049 | 180 | 12 | 15 |
| SEPT 10-2002 | 190 | 160 | 0.02 | 233 | 0.05 | 1 | 8.7 | 8.01 | 0.013 | 0.04 | 190 | 20 | 15 |
| OCT 11-2002 | 100 | 70 | 0.02 | 253 | 0.08 | 1.5 | 11.3 | 8.02 | 0.013 | 0.055 | 190 | 19 | |
| JAN.2/2003 | 110 | <10 | 0.66 | 401 | 0.23 | 2.4 | 3.2 | 7.67 | 0.02 | 0.045 | 290 | 15 | |
| FEB 20/2003 | 280 | <10 | 0.96 | 512 | 0.33 | 3 | 4.3 | 7.4 | 0.025 | 0.057 | 390 | 20 | |

Whitemouth River Site #3 Bridge on 506

| Sample Date | Fecal coliform bacteria (org/100ml) | E. coli bacteria (org/100ml) | Ammonia (mg/L) | Conductivity (µmhos/cm) | Nitrite/nitrate Nitrogen (mg/L) | Nitrogen Total Kjeldahl (mg/L) | Oxygen Dissolved mg/L | pH (pH units) | Dissolved phosphorus (mg/L) | Total phosphorus (mg/L) | Total dissolved solids (mg/L) | Total suspended solids (mg/L) | Water Temp (Celsius) |
|----------------|-------------------------------------------|------------------------------------|-------------------|----------------------------|---------------------------------------|--------------------------------------|-----------------------------|------------------|-----------------------------------|-------------------------------|-------------------------------------|-------------------------------------|----------------------------|
| MAY 1-2002 | <10 | <10 | 0.05 | 188 | 0.06 | 0.6 | 9.4 | 7.91 | 0.014 | 0.034 | 120 | 14 | 0 |
| MAY 15-2002 | <10 | <10 | 0.02 | 163 | 0.07 | 0.7 | 12.1 | 7.84 | 0.019 | 0.046 | 98 | 25 | 3 |
| JUNE 5-2002 | 10 | 20 | 0.02 | 202 | 0.02 | 1.2 | 9.2 | 7.97 | 0.017 | 0.037 | 150 | 20 | 11 |
| JUNE 18-2002 | 90 | 150 | 0.02 | 180 | 0.05 | 1 | 7.6 | 7.74 | 0.015 | 0.032 | 150 | 17 | 14 |
| JULY 4-2002 | 40 | 10 | 0.03 | 213 | 0.06 | 1.1 | 7.3 | 7.86 | 0.04 | 0.056 | 160 | 31 | 16 |
| JULY 17-2002 | 40 | 40 | 0.02 | 228 | 0.01 | 1 | 7.8 | 7.96 | 0.029 | 0.069 | 180 | 24 | 20 |
| JULY 31-2002 | 10 | <10 | 0.03 | 273 | 0.01 | 1.3 | 3 | 8.08 | 0.024 | 0.065 | 220 | 21 | 20 |
| AUGUST 12-2002 | 10 | 30 | 0.04 | 283 | <0.01 | 1.6 | 7.5 | 8.08 | 0.035 | 0.082 | 220 | 44 | 16 |
| AUGUST 27-2002 | 80 | 80 | 0.02 | 250 | 0.02 | 1.1 | 7.6 | 8.01 | 0.031 | 0.059 | 210 | 18 | 15 |
| SEPT 10-2002 | 40 | 90 | 0.02 | 251 | 0.06 | 1.1 | 9 | 7.99 | 0.013 | 0.042 | 200 | 20 | 15 |
| OCT 11-2002 | 80 | 30 | 0.03 | 259 | 0.09 | 1.7 | 11.7 | 7.98 | 0.014 | 0.057 | 180 | 22 | |
| JAN. 02/2003 | 2230 | 70 | 0.72 | 401 | 0.2 | 2.6 | 2.1 | 7.62 | 0.023 | 0.045 | 300 | 13 | |
| FEB 20/2003 | 470 | 20 | 1.03 | 494 | 0.22 | 2.9 | 1.3 | 7.42 | 0.021 | 0.055 | 390 | 19 | |

Whitemouth River Site #4 South of Hwy 1

| Sample Date | Fecal coliform bacteria (org/100ml) | E. coli bacteria (org/100ml) | Ammonia (mg/L) | Conductivity (µmhos/cm) | Nitrite/nitrate Nitrogen (mg/L) | Nitrogen Total Kjeldahl (mg/L) | Oxygen Dissolved mg/L | pH (pH units) | Dissolved phosphorus (mg/L) | Total phosphorus (mg/L) | Total dissolved solids (mg/L) | Total suspended solids (mg/L) | Water Temp (Celsius) |
|----------------|-------------------------------------------|------------------------------------|-------------------|----------------------------|---------------------------------------|--------------------------------------|-----------------------------|------------------|-----------------------------------|-------------------------------|-------------------------------------|-------------------------------------|----------------------------|
| MAY 1-2002 | <10 | 10 | 0.05 | 172 | 0.05 | 0.8 | 5.6 | 7.82 | 0.016 | 0.037 | 110 | 12 | 0 |
| MAY 15-2002 | <10 | <10 | 0.02 | 138 | 0.03 | 0.7 | 11.9 | 7.72 | 0.018 | 0.041 | 98 | 21 | 2.5 |
| JUNE 5-2002 | <10 | <10 | 0.02 | 191 | <0.01 | 0.8 | 10.1 | 7.85 | 0.014 | 0.032 | 140 | 16 | 11 |
| JUNE 18-2002 | 30 | 130 | 0.02 | 162 | 0.05 | 0.8 | 7 | 7.62 | 0.007 | 0.021 | 140 | 21 | 15 |
| JULY 4-2002 | <10 | 10 | 0.03 | 204 | 0.04 | 1.1 | 8.1 | 7.78 | 0.032 | 0.052 | 160 | 20 | 16 |
| JULY 17-2002 | 30 | 20 | 0.02 | 219 | <0.01 | 1 | 7.3 | 7.94 | 0.023 | 0.063 | 170 | 22 | 20 |
| JULY 31-2002 | 10 | 10 | 0.03 | 253 | 0.01 | 1.4 | 8.2 | 8.04 | 0.025 | 0.063 | 210 | 40 | 20 |
| AUGUST 12-2002 | 40 | 30 | 0.03 | 264 | 0.01 | 1.8 | 5.9 | 8.03 | 0.029 | 0.08 | 210 | 32 | 16 |
| AUGUST 27-2002 | 10 | 10 | 0.02 | 244 | 0.02 | 1.2 | 8.6 | 7.95 | 0.029 | 0.061 | 200 | 18 | 15 |
| SEPT 10-2002 | 30 | 40 | 0.02 | 250 | 0.07 | 1.1 | 8.3 | 7.82 | 0.017 | 0.043 | 230 | 15 | 15 |
| OCT 11-2002 | 20 | 40 | 0.07 | 250 | 0.08 | 1.7 | 10.8 | 7.93 | 0.019 | 0.058 | 220 | 25 | |
| JAN.2/2003 | 380 | 20 | 0.78 | 391 | 0.17 | 2.7 | 1.2 | 7.66 | 0.039 | 0.047 | 290 | 14 | |
| FEB 20/2003 | 300 | 20 | 1.12 | 490 | 0.16 | 3.1 | 3.6 | 7.49 | 0.021 | 0.055 | 400 | 16 | |

Whitemouth River Site #1 Seven Sisters

| Sample Date | Fecal coliform bacteria (org/100ml) | E. coli bacteria (org/100ml) | Ammonia (mg/L) | Conductivity (µmhos/cm) | Nitrite/nitrate Nitrogen (mg/L) | Nitrogen Total Kjeldahl (mg/L) | Oxygen Dissolved mg/L | pH (pH units) | Dissolved phosphorus (mg/L) | Total phosphorus (mg/L) | Total dissolved solids (mg/L) | Total suspended solids (mg/L) | Water Temp (Celsius) |
|-------------|-------------------------------------------|------------------------------------|-------------------|----------------------------|---------------------------------------|--------------------------------------|-----------------------------|------------------|-----------------------------------|-------------------------------|-------------------------------------|-------------------------------------|----------------------------|
| 30-Apr-03 | 10 | < 10 | 0.02 | 227 | 0.06 | 0.6 | n/a | 8.43 | 0.03 | 0.039 | 160 | 11 | 9 |
| 22/May/03 | 170 | 130 | 0.03 | 215 | 0.16 | 0.9 | n/a | 7.9 | 0.018 | 0.063 | 150 | 24 | 14 |
| 18/Jun/03 | 110 | 80 | 0.02 | 189 | 0.02 | 1 | n/a | 8.07 | 0.014 | 0.084 | 130 | 35 | 21 |
| 4/Jul/03 | 110 | 70 | 0.02 | 173 | 0.03 | 0.8 | n/a | 8.09 | 0.019 | 0.055 | 150 | 33 | 22 |
| 17/Jul/03 | 130 | 130 | 0.03 | 186 | 0.02 | 0.7 | n/a | 8.09 | 0.018 | 0.042 | 140 | 18 | 22 |
| 30/Jul/03 | 20 | 30 | 0.03 | 210 | 0.02 | 0.8 | n/a | 8 | 0.031 | 0.036 | 150 | 9 | 25 |
| 12/Aug/03 | 90 | 70 | 0.03 | 236 | < 0.01 | 0.9 | n/a | 8.05 | 0.01 | 0.031 | 170 | 14 | 26 |
| 9-Sept.-03 | 4 | 60 | 0.03 | 205 | < 0.01 | 0.9 | n/a | 8.05 | 0.017 | 0.043 | 150 | 15 | 21 |
| 23-Sept.-03 | 310 | 190 | 0.03 | 163 | 0.04 | 1.1 | n/a | 7.99 | 0.015 | 0.071 | 150 | 34 | 11 |
| 22/Oct/03 | 60 | 10 | 0.01 | 168 | < 0.01 | 0.8 | n/a | 7.99 | 0.016 | 0.033 | 140 | 16 | 9 |
| 27/Feb/04 | 10 | 10 | 0.17 | 403 | 0.31 | 1.9 | 0.5 | 7.58 | 0.027 | 0.058 | 320 | 14 | |

Whitemouth River Site #2 Hwy 44 at Whitemouth

| Sample Date | Fecal coliform bacteria (org/100ml) | E. coli bacteria (org/100ml) | Ammonia (mg/L) | Conductivity (µmhos/cm) | Nitrite/nitrate Nitrogen (mg/L) | Nitrogen Total Kjeldahl (mg/L) | Oxygen Dissolved mg/L | pH (pH units) | Dissolved phosphorus (mg/L) | Total phosphorus (mg/L) | Total dissolved solids (mg/L) | Total suspended solids (mg/L) | Water Temp (Celsius) |
|-------------|-------------------------------------------|------------------------------------|-------------------|----------------------------|---------------------------------------|--------------------------------------|-----------------------------|------------------|-----------------------------------|-------------------------------|-------------------------------------|-------------------------------------|----------------------------|
| 30-Apr-03 | < 10 | < 10 | 0.02 | 237 | 0.06 | 0.6 | n/a | 8.33 | 0.033 | 0.035 | 160 | 8 | 10 |
| 22/May/03 | 60 | 100 | 0.01 | 196 | 0.15 | 1 | n/a | 7.9 | 0.016 | 0.071 | 140 | 33 | 13 |
| 18/Jun/03 | 20 | 10 | 0.02 | 192 | 0.02 | 1 | n/a | 8.14 | 0.014 | 0.069 | 140 | 37 | 21 |
| 4/Jul/03 | 40 | 20 | 0.01 | 175 | 0.02 | 0.9 | n/a | 8.14 | 0.015 | 0.051 | 150 | 28 | 22 |
| 17/Jul/03 | 40 | 40 | 0.03 | 189 | 0.01 | 0.9 | n/a | 8.11 | 0.017 | 0.041 | 140 | 25 | 21 |
| 30/Jul/03 | 60 | 40 | 0.02 | 212 | 0.04 | 0.8 | n/a | 8.08 | 0.006 | 0.035 | 160 | < 5 | 23 |
| 12/Aug/03 | 60 | 30 | 0.02 | 237 | 0.02 | 0.9 | n/a | 8.22 | 0.008 | 0.021 | 180 | 9 | 25 |
| 9-Sept.-03 | 220 | 160 | 0.03 | 207 | < 0.01 | 1 | n/a | 8.11 | 0.017 | 0.048 | 150 | 19 | 21 |
| 23-Sept.-03 | 170 | 110 | 0.02 | 156 | 0.02 | 1 | n/a | 7.97 | 0.014 | 0.038 | 150 | 30 | 11 |
| 22/Oct/03 | 70 | 30 | 0.01 | 165 | < 0.01 | 0.8 | n/a | 7.98 | 0.016 | 0.029 | 130 | 12 | 9 |
| 27/Feb/04 | < 10 | 10 | 0.23 | 408 | 0.26 | 1.8 | 1.4 | 7.74 | 0.022 | 0.052 | 310 | 13 | |

Whitemouth River Site #3 Bridge on 506

| Sample Date | Fecal coliform bacteria (org/100ml) | E. coli bacteria (org/100ml) | Ammonia (mg/L) | Conductivity (µmhos/cm) | Nitrite/nitrate Nitrogen (mg/L) | Nitrogen Total Kjeldahl (mg/L) | Oxygen Dissolved mg/L | pH (pH units) | Dissolved phosphorus (mg/L) | Total phosphorus (mg/L) | Total dissolved solids (mg/L) | Total suspended solids (mg/L) | Water Temp (Celsius) |
|-------------|-------------------------------------------|------------------------------------|-------------------|----------------------------|---------------------------------------|--------------------------------------|-----------------------------|------------------|-----------------------------------|-------------------------------|-------------------------------------|-------------------------------------|----------------------------|
| 30-Apr-03 | 10 | 10 | 0.02 | 219 | 0.12 | 0.7 | n/a | 8.21 | 0.014 | 0.033 | 150 | 13 | 10 |
| 22/May/03 | 70 | 70 | 0.22 | 182 | 0.19 | 0.9 | n/a | 7.9 | 0.017 | 0.064 | 120 | 35 | 11 |
| 18/Jun/03 | 70 | 40 | 0.01 | 199 | 0.01 | 1.1 | n/a | 8.08 | 0.015 | 0.056 | 140 | 53 | 21 |
| 4/Jul/03 | 100 | 70 | 0.01 | 200 | < 0.01 | 0.9 | n/a | 8.18 | 0.02 | 0.055 | 160 | 33 | 24 |
| 17/Jul/03 | 100 | 70 | 0.03 | 210 | < 0.01 | 0.9 | n/a | 8.1 | 0.018 | 0.049 | 150 | 34 | 22 |
| 30/Jul/03 | 160 | 110 | 0.04 | 242 | 0.04 | 0.9 | n/a | 8.08 | 0.023 | 0.049 | 300 | 20 | 22 |
| 12/Aug/03 | 90 | 150 | 0.04 | 267 | 0.03 | 1 | n/a | 8.16 | 0.007 | 0.025 | 200 | 11 | 23 |
| 9-Sept.-03 | 210 | 160 | 0.04 | 254 | < 0.01 | 1.1 | n/a | 8.14 | 0.02 | 0.062 | 170 | 30 | 20 |
| 23-Sept.-03 | 180 | 150 | 0.02 | 182 | 0.05 | 1.1 | n/a | 8.02 | 0.016 | 0.045 | 160 | 33 | 10 |
| 22/Oct/03 | 180 | 50 | 0.01 | 194 | < 0.01 | 0.9 | n/a | 8.05 | 0.017 | 0.037 | 160 | 16 | 8 |
| 27/Feb/04 | < 10 | 10 | 0.42 | 572 | 0.3 | 2.3 | 2 | 7.92 | 0.029 | 0.062 | 420 | 24 | |

Whitemouth River Site #4 South of Hwy 1

| Sample Date | Fecal coliform bacteria (org/100ml) | E. coli bacteria (org/100ml) | Ammonia (mg/L) | Conductivity (µmhos/cm) | Nitrite/nitrate Nitrogen (mg/L) | Nitrogen Total Kjeldahl (mg/L) | Oxygen Dissolved mg/L | pH (pH units) | Dissolved phosphorus (mg/L) | Total phosphorus (mg/L) | Total dissolved solids (mg/L) | Total suspended solids (mg/L) | Water Temp (Celsius) |
|-------------|-------------------------------------------|------------------------------------|-------------------|----------------------------|---------------------------------------|--------------------------------------|-----------------------------|------------------|-----------------------------------|-------------------------------|-------------------------------------|-------------------------------------|----------------------------|
| 30/Apr/03 | < 10 | < 10 | 0.02 | 206 | 0.14 | 0.6 | n/a | 8.13 | 0.011 | 0.031 | 140 | 13 | 10 |
| 22/May/03 | 100 | 20 | 0.06 | 166 | 0.16 | 1 | n/a | 7.76 | 0.016 | 0.057 | 130 | 24 | 11 |
| 18/Jun/03 | 120 | 20 | 0.02 | 197 | 0.01 | 1 | n/a | 7.96 | 0.014 | 0.053 | 140 | 33 | 21 |
| 4/Jul/03 | 240 | 160 | 0.01 | 194 | < 0.01 | 0.09 | n/a | 8.06 | 0.017 | 0.045 | 170 | 25 | 23 |
| 17/Jul/03 | 40 | 40 | 0.02 | 195 | < 0.01 | 1 | n/a | 8.01 | 0.02 | 0.042 | 150 | 17 | 20 |
| 30/Jul/03 | 40 | 20 | 0.02 | 231 | < 0.01 | 0.9 | n/a | 8.06 | 0.021 | 0.046 | 180 | 12 | 23 |
| 12/Aug/03 | 50 | < 10 | 0.02 | 252 | < 0.01 | 1 | n/a | 8.1 | 0.006 | 0.026 | 200 | 10 | 23 |
| 9-Sept.-03 | 40 | 70 | 0.02 | 251 | < 0.01 | 1.1 | n/a | 8.07 | 0.19 | 0.049 | 170 | 14 | 20 |
| 23-Sept.-03 | 100 | 180 | < 0.01 | 177 | 0.08 | 1 | n/a | 7.94 | 0.017 | 0.037 | 150 | 15 | 10 |
| 22/Oct/03 | 20 | 20 | 0.01 | 190 | < 0.01 | 0.09 | n/a | 7.94 | 0.019 | 0.035 | 160 | 14 | 8 |
| 27/Feb/04 | 20 | 10 | 0.31 | 396 | 0.12 | 2.1 | 1 | 7.71 | 0.023 | 0.043 | 310 | 9 | |

Whitemouth River Kellner Creek Site #5

| Sample Date | Fecal coliform bacteria (org/100ml) | E. coli bacteria (org/100ml) | Ammonia (mg/L) | Conductivity (µmhos/cm) | Nitrite/nitrate Nitrogen (mg/L) | Nitrogen Total Kjeldahl (mg/L) | Oxygen Dissolved mg/L | pH (pH units) | Dissolved phosphorus (mg/L) | Total phosphorus (mg/L) | Total dissolved solids (mg/L) | Total suspended solids (mg/L) | Water Temp (Celsius) |
|-------------|-------------------------------------------|------------------------------------|-------------------|----------------------------|---------------------------------------|--------------------------------------|-----------------------------|------------------|-----------------------------------|-------------------------------|-------------------------------------|-------------------------------------|----------------------------|
| 30-Apr.03 | no samples | | | | | | | | | | | | |
| 22/May/03 | 40 | 30 | < 0.01 | 280 | 0.06 | 1.2 | n/a | 7.79 | 0.045 | 0.063 | 210 | 24 | 12 |
| 18-Jun-03 | 20 | 40 | 0.02 | 304 | < 0.01 | 1.3 | n/a | 8.06 | 0.155 | 0.166 | 230 | < 5 | 20 |
| 4/Jul/03 | 40 | 40 | 0.01 | 278 | < 0.01 | 1.4 | n/a | 7.9 | 0.13 | 0.139 | 240 | 7 | 22 |
| 17/Jul/03 | 40 | 20 | 0.02 | 300 | < 0.01 | 1.3 | n/a | 8 | 0.135 | 0.146 | 230 | < 5 | 20 |
| 30/Jul/03 | no sample | | | | | | | | | | | | |
| 12/Aug/03 | no sample | | | | | | | | | | | | |
| 9-Sep-03 | no sample | | | | | | | | | | | | |
| 23-Sep-03 | 150 | 220 | 0.02 | 278 | 0.02 | 1 | n/a | 7.9 | 0.076 | 0.083 | 210 | 9 | 11 |
| 22-Oct-03 | no sample | | | | | | | | | | | | |
| 27/Feb/04 | no sample | | | | | | | | | | | | |

Whitemouth River Site # 408

| Sample Date | Fecal coliform bacteria (org/100ml) | E. coli bacteria (org/100ml) | Ammonia (mg/L) | Conductivity (µmhos/cm) | Nitrite/nitrate Nitrogen (mg/L) | Nitrogen Total Kjeldahl (mg/L) | Oxygen Dissolved mg/L | pH (pH units) | Dissolved phosphorus (mg/L) | Total phosphorus (mg/L) | Total dissolved solids (mg/L) | Total suspended solids (mg/L) | Water Temp (Celsius) |
|-------------|-------------------------------------------|------------------------------------|-------------------|----------------------------|---------------------------------------|--------------------------------------|-----------------------------|------------------|-----------------------------------|-------------------------------|-------------------------------------|-------------------------------------|----------------------------|
| 30-Apr-03 | 20 | 20 | 0.01 | 232 | 0.04 | 0.7 | n/a | 8.41 | 0.028 | 0.034 | 160 | 9 | 10 |
| 22-May-03 | 40 | 110 | 0.01 | 200 | 0.13 | 1 | n/a | 7.97 | 0.015 | 0.057 | 140 | 37 | 14 |
| 18-Jun-03 | 80 | 80 | 0.01 | 192 | 0.02 | 1.1 | n/a | 8.14 | 0.013 | 0.058 | 150 | 46 | 21 |
| 4/Jul/03 | 30 | 30 | 0.01 | 175 | 0.03 | 1 | n/a | 8.13 | 0.016 | 0.057 | 150 | 32 | 22 |
| 17/Jul/03 | 70 | 60 | 0.02 | 191 | 0.01 | 0.9 | n/a | 8.14 | 0.017 | 0.044 | 140 | 21 | 20 |
| 30/Jul/03 | 70 | 50 | 0.02 | 215 | 0.03 | 0.8 | n/a | 8.15 | 0.02 | 0.033 | 170 | < 5 | 25 |
| 12/Aug/03 | 110 | 60 | 0.02 | 236 | < 0.01 | 0.9 | n/a | 8.22 | 0.007 | 0.021 | 180 | 9 | 25 |
| 9-Sept.-03 | 380 | 340 | 0.03 | 204 | 0.01 | 1 | n/a | 8.15 | 0.017 | 0.046 | 160 | 14 | 21 |
| 23-Sept.03 | 190 | 200 | 0.03 | 159 | 0.03 | 1 | n/a | 7.98 | 0.014 | 0.055 | 140 | 44 | 11 |
| 22-Oct-03 | 50 | 80 | 0.01 | 166 | < 0.01 | 0.8 | n/a | 8 | 0.015 | 0.03 | 130 | 11 | 8 |
| 27/Feb/04 | < 10 | 20 | 0.16 | 380 | 0.27 | 1.7 | 2.7 | 7.84 | 0.021 | 0.047 | 290 | 15 | |

Whitemouth River Site #1 Seven Sisters

| Sample Date | Ammonia Dissolved (mg/L) | Nitrite/ Nitrate-N (mg/L) | Dissolved Phosphorus (mg/L) | Total Phosphorus (mg/L) | Conductivity (umhos/cm) | E.Coli (CFU/100ml) | Fecal Coliform (CFU/100ml) | Total dissolved Solids (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Total suspended Solids (mg/L) | pH (pH units) |
|-------------|--------------------------------|---------------------------------|-----------------------------------|-------------------------------|----------------------------|-----------------------|----------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|------------------|
| 28-Apr-04 | 0.02 | 0.02 | 0.012 | 0.051 | 133 | <10 | <10 | 92 | 0.8 | 27 | 7.9 |
| 20/May/04 | 0.01 | 0.07 | 0.019 | 0.048 | 159 | 20 | 30 | 120 | 1 | 36 | 7.86 |
| 17/Jun/04 | 0.02 | 0.01 | 0.012 | 0.037 | 167 | 20 | 10 | 140 | 0.08 | 27 | 7.74 |
| 7/Jul/04 | <0.01 | 0.02 | 0.025 | 0.037 | 185 | 30 | n/a | 140 | 1.2 | 14 | 7.94 |
| 22/Jul/04 | <0.01 | <0.01 | n/a | 0.043 | 207 | 80 | 80 | 150 | 0.9 | 14 | 8.13 |
| 19/Aug/04 | 0.01 | 0.02 | 0.023 | 0.037 | 202 | 930 | 210 | 160 | 0.7 | 21 | 8.17 |
| 9/Sep/04 | 0.02 | 0.03 | 0.02 | 0.039 | 218 | 2290 | 120 | 170 | 0.8 | 19 | 8.02 |
| 23/Sep/04 | <0.01 | 0.03 | 0.041 | 0.057 | 210 | 80 | 70 | 160 | 0.9 | 16 | 8.04 |
| 21/Oct/04 | <0.01 | 0.03 | 0.016 | 0.03 | 194 | 100 | 50 | 150 | 0.8 | 7 | 7.99 |

Whitemouth River Site #2 Hwy 44 at Whitemouth

| Sample Date | Ammonia Dissolved (mg/L) | Nitrite/ Nitrate-N (mg/L) | Dissolved Phosphorus (mg/L) | Total Phosphorus (mg/L) | Conductivity (umhos/cm) | E.Coli (CFU/100ml) | Fecal Coliform (CFU/100ml) | Total dissolved Solids (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Total suspended Solids (mg/L) | pH (pH units) |
|-------------|--------------------------------|---------------------------------|-----------------------------------|-------------------------------|----------------------------|-----------------------|----------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|------------------|
| 28-Apr-04 | 0.02 | 0.01 | 0.012 | 0.039 | 134 | 30 | 10 | 90 | 0.7 | 21 | 7.95 |
| 20/May/04 | <0.01 | 0.05 | 0.015 | 0.038 | 157 | 30 | 60 | 120 | 1 | 35 | 7.9 |
| 17/Jun/04 | 0.02 | 0.01 | 0.013 | 0.033 | 165 | 20 | 30 | 150 | 0.08 | 15 | 7.75 |
| 7/Jul/04 | <0.01 | 0.01 | 0.027 | 0.036 | 185 | 20 | n/a | 140 | 0.9 | 15 | 7.97 |
| 22/Jul/04 | 0.04 | <0.01 | n/a | 0.042 | 207 | 80 | 70 | 150 | 1.1 | 15 | 8.13 |
| 19/Aug/04 | <0.01 | <0.01 | 0.024 | 0.035 | 203 | 210 | 150 | 110 | 0.8 | 15 | 8.28 |
| 9/Sep/04 | 0.02 | 0.03 | 0.017 | 0.032 | 207 | 2050 | 50 | 170 | 0.8 | 17 | 8.07 |
| 23/Sep/04 | 0.01 | 0.02 | 0.032 | 0.05 | 203 | 40 | 40 | 150 | 0.8 | 17 | 8.05 |
| 21/Oct/04 | 0.04 | 0.03 | 0.016 | 0.028 | 199 | 20 | 40 | 150 | 0.8 | 7 | 8.03 |

Whitemouth River Site #3 Bridge on 506

| Sample Date | Ammonia Dissolved (mg/L) | Nitrite/ Nitrate-N (mg/L) | Dissolved Phosphorus (mg/L) | Total Phosphorus (mg/L) | Conductivity (umhos/cm) | E.Coli (CFU/100ml) | Fecal Coliform (CFU/100ml) | Total dissolved Solids (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Total suspended Solids (mg/L) | pH (pH units) |
|-------------|--------------------------------|---------------------------------|-----------------------------------|-------------------------------|----------------------------|-----------------------|----------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|------------------|
| 28-Apr-04 | 0.02 | <0.01 | 0.01 | 0.036 | 142 | <10 | <10 | 100 | 0.7 | 22 | 7.95 |
| 20/May/04 | 0.01 | 0.03 | 0.015 | 0.039 | 155 | 70 | 20 | 120 | 0.9 | 34 | 7.87 |
| 17/Jun/04 | 0.01 | <0.01 | 0.011 | 0.027 | 179 | <10 | 10 | 150 | 0.7 | <5 | 7.7 |
| 7/Jul/04 | <0.01 | <0.01 | 0.021 | 0.038 | 206 | 20 | n/a | 160 | 1 | 14 | 7.94 |
| 22/Jul/04 | <0.01 | <0.01 | n/a | 0.05 | 237 | 20 | 20 | 170 | 1.1 | 22 | 8.1 |
| 19/Aug/04 | <0.01 | <0.01 | 0.023 | 0.047 | 245 | 93 | 43 | 170 | 0.7 | 21 | 8.23 |
| 9/Sep/04 | 0.02 | 0.02 | 0.017 | 0.034 | 217 | 2480 | 20 | 160 | 0.9 | 7 | 8.04 |
| 23/Sep/04 | 0.01 | 0.02 | 0.026 | 0.036 | 219 | 60 | 60 | 160 | 0.8 | 17 | 8.1 |
| 21/Oct/04 | 0.02 | 0.03 | 0.016 | 0.032 | 215 | 40 | 10 | 150 | 1 | 9 | 8.04 |

Whitemouth River Site #4 South of Hwy 1

| Sample Date | Ammonia Dissolved (mg/L) | Nitrite/ Nitrate-N (mg/L) | Dissolved Phosphorus (mg/L) | Total Phosphorus (mg/L) | Conductivity (umhos/cm) | E.Coli (CFU/100ml) | Fecal Coliform (CFU/100ml) | Total dissolved Solids (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Total suspended Solids (mg/L) | pH (pH units) |
|-------------|--------------------------------|---------------------------------|-----------------------------------|-------------------------------|----------------------------|-----------------------|----------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|------------------|
| 28/Apr/04 | 0.01 | <0.01 | 0.011 | 0.026 | 136 | <10 | 10 | 100 | 0.7 | 13 | 7.82 |
| 20/May/04 | 0.01 | 0.01 | 0.016 | 0.03 | 141 | 30 | <10 | 110 | 0.7 | 22 | 7.68 |
| 17/Jun/04 | <0.01 | <0.01 | 0.01 | 0.022 | 168 | 40 | 20 | 140 | 0.7 | 12 | 7.65 |
| 7-Jul-04 | <0.01 | <0.01 | 0.023 | 0.033 | 198 | 10 | n/a | 160 | 0.9 | 7 | 7.83 |
| 22/Jul/04 | <0.01 | <0.01 | n/a | 0.048 | 227 | 40 | 10 | 170 | 1.2 | 15 | 7.97 |
| 19-Aug.-04 | <0.01 | <0.01 | 0.025 | 0.048 | 222 | 75 | 4 | 150 | 0.9 | 11 | 8.2 |
| 9/Sep/04 | 0.01 | 0.01 | 0.017 | 0.032 | 205 | 1570 | <10 | 160 | 0.8 | 16 | 7.95 |
| 23/Sep/04 | <0.01 | <0.01 | 0.023 | 0.032 | 199 | 20 | 20 | 140 | 0.8 | 5 | 7.97 |
| 21/Oct/04 | <0.01 | 0.02 | 0.016 | 0.028 | 196 | <10 | <10 | 150 | 0.8 | 7 | 7.94 |

Whitemouth River Site # 408

| Sample Date | Ammonia Dissolved (mg/L) | Nitrite/ Nitrate-N (mg/L) | Dissolved Phosphorus (mg/L) | Total Phosphorus (mg/L) | Conductivity (umhos/cm) | E.Coli (CFU/100ml) | Fecal Coliform (CFU/100ml) | Total dissolved Solids (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Total suspended Solids (mg/L) | pH (pH units) |
|-------------|--------------------------------|---------------------------------|-----------------------------------|-------------------------------|----------------------------|-----------------------|----------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|------------------|
| 28-Apr-04 | 0.02 | 0.01 | 0.012 | 0.025 | 134 | <10 | <10 | 98 | 0.8 | 25 | 7.96 |
| 20/May/04 | <0.01 | 0.05 | 0.022 | 0.054 | 156 | 30 | 50 | 120 | 0.8 | 36 | 7.93 |
| 17-Jun-04 | 0.02 | 0.01 | 0.013 | 0.032 | 165 | 60 | 20 | 150 | 0.7 | 25 | 7.77 |
| 7/Jul/04 | <0.01 | <0.01 | 0.028 | 0.037 | 184 | 20 | n/a | 140 | 0.8 | 15 | 8 |
| 22/Jul/04 | <0.01 | 0.03 | n/a | 0.044 | 206 | 230 | 290 | 150 | 1.4 | 16 | 8.14 |
| 19/Aug/04 | <0.01 | <0.01 | 0.023 | 0.039 | 202 | 430 | 230 | 180 | 0.7 | 16 | 8.23 |
| 9/Sep/04 | 0.02 | 0.02 | 0.017 | 0.04 | 210 | 180 | 90 | 160 | 0.9 | 19 | 8.12 |
| 23/Sep/04 | <0.01 | 0.03 | 0.034 | 0.053 | 203 | 40 | 30 | 150 | 0.9 | 13 | 8.08 |
| 21-Oct-04 | 0.02 | 0.02 | 0.014 | 0.027 | 193 | 60 | 30 | 150 | 0.8 | 7 | 8.02 |

Whitemouth River Kelner Drain

| Sample Date | Ammonia Dissolved (mg/L) | Nitrite/ Nitrate-N (mg/L) | Dissolved Phosphorus (mg/L) | Total Phosphorus (mg/L) | Conductivity (umhos/cm) | E.Coli (CFU/100ml) | Fecal Coliform (CFU/100ml) | Total dissolved Solids (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Total suspended Solids (mg/L) | pH (pH units) |
|-------------|--------------------------------|---------------------------------|-----------------------------------|-------------------------------|----------------------------|-----------------------|----------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|------------------|
| 28/Apr/04 | 0.01 | <0.01 | 0.017 | 0.027 | 226 | <10 | <10 | 170 | 1 | 5 | 7.89 |
| 20-May-04 | <0.01 | <0.01 | 0.037 | 0.047 | 247 | <10 | 20 | 190 | 1.1 | 6 | 8.11 |
| 17/Jun/04 | <0.01 | <0.01 | 0.057 | 0.071 | 259 | 20 | 20 | 220 | 1.1 | 7 | 7.7 |
| 7/Jul/04 | <0.01 | <0.01 | 0.095 | 0.106 | 278 | 80 | n/a | 210 | 1.2 | 5 | 7.89 |
| 22/Jul/04 | <0.01 | 0.03 | n/a | 0.153 | 303 | 120 | 120 | 240 | 1.3 | <5 | 7.92 |
| 19/Aug/04 | <0.01 | <0.01 | 0.09 | 0.098 | 323 | 9300 | 1500 | 250 | 1 | <5 | 8.34 |
| 9/Sep/04 | 0.01 | <0.01 | 0.071 | 0.083 | 337 | 1630 | 160 | 250 | 1.2 | <5 | 7.97 |
| 23-Sep-04 | <0.01 | 0.02 | 0.12 | 0.124 | 308 | 90 | 90 | 270 | 1.1 | <5 | 7.71 |
| 21-Oct-04 | 0.18 | 0.02 | 0.06 | 0.072 | 314 | 80 | 70 | 230 | 1.5 | 7 | 7.91 |

Whitemouth River Site #1 Seven Sisters

| Sample Date | Total Dissolved Phosphorous (mg/L) | Total Phosphorous (mg/L) | Ammonia Soluble (mg/L) | Conductivity umhos/cm | E.Coli (CFU/100ml) | Fecal Coliform (CFU/100ml) | Nitrate+ Nitrite-N (mg/L) | Total Dissolved Solids (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Total Suspended Solids (mg/L) | PH (pH units) |
|-------------|------------------------------------|--------------------------|------------------------|-----------------------|--------------------|----------------------------|---------------------------|-------------------------------|--------------------------------|-------------------------------|---------------|
| May 5-05 | 0.006 | 0.015 | <0.01 | 124 | 9 | 9 | 0.05 | 92 | 0.4 | 12 | 7.97 |
| May 24-05 | 0.009 | 0.04 | 0.06 | 197 | 93 | 150 | 0.02 | 140 | 0.7 | 21 | 8 |
| June 16-05 | 0.029 | 0.06 | 0.03 | 179 | 38 | 38 | 0.02 | 150 | 0.7 | 31 | 7.88 |
| July 15-05 | 0.04 | 0.067 | 0.01 | 207 | 43 | 43 | 0.04 | 140 | 0.8 | 14 | 7.9 |
| Aug.15-05 | 0.021 | 0.035 | <0.01 | 272 | 110 | <10 | 0.01 | 190 | 0.9 | 8 | 8.18 |
| Sept 12-05 | 0.016 | 0.033 | 0.03 | 230 | 350 | 440 | 0.01 | 170 | 1 | 8 | 8.15 |
| Oct.03-05 | 0.015 | 0.016 | 0.03 | 232 | 110 | 110 | 0.02 | 190 | 0.08 | 14 | 8.12 |

Whitemouth River Site #2 Hwy 44 at Whitemouth

| Sample Date | Total Dissolved Phosphorous (mg/L) | Total Phosphorous (mg/L) | Ammonia Soluble (mg/L) | Conductivity umhos/cm | E. Coli (CFU/100ml) | Fecal Coliform (CFU/100ml) | Nitrate+ Nitrite-N (mg/l) | Total Dissolved Solids (mg/l) | Total Kjeldahl Nitrogen (mg/L) | Total Suspended Solids (mg/L) | PH (pH units) |
|-------------|------------------------------------|--------------------------|------------------------|-----------------------|---------------------|----------------------------|---------------------------|-------------------------------|--------------------------------|-------------------------------|---------------|
| May 05-05 | 0.006 | 0.013 | <0.01 | 125 | 15 | 15 | 0.05 | 86 | 0.4 | 9 | 8.01 |
| May 24-05 | 0.009 | 0.063 | 0.02 | 189 | 21 | 150 | 0.01 | 130 | 0.7 | 21 | 8.01 |
| June 16-05 | 0.025 | 0.049 | 0.03 | 178 | 93 | 93 | 0.02 | 140 | 0.6 | 25 | 7.91 |
| July 15-05 | 0.13 | 0.179 | 0.05 | 206 | 230 | 230 | 0.05 | 140 | 0.9 | 22 | 7.95 |
| Aug.15-05 | 0.018 | 0.024 | 0.02 | 280 | 40 | 50 | 0.02 | 180 | 0.9 | <5 | 8.3 |
| Sept 12-05 | 0.014 | 0.031 | 0.02 | 226 | 200 | 340 | 0.01 | 170 | 0.9 | 8 | 8.07 |
| Oct.03-05 | 0.019 | 0.027 | 0.02 | 241 | 50 | 10 | 0.02 | 180 | 0.9 | 12 | 8.16 |

Whitemouth River Site #3 Bridge on 506

| Sample Date | Total Dissolved Phosphorous (mg/L) | Total Phosphorous (mg/l) | Ammonia Soluble (mg/L) | Conductivity umhos/cm | E. Coli (CFU/100ml) | Fecal Coliform (CFU/100ml) | Nitrate+ Nitrite-N (mg/L) | Total Dissolved Solids (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Total Suspended Solids (mg/L) | PH (pH units) |
|-------------|------------------------------------|--------------------------|------------------------|-----------------------|---------------------|----------------------------|---------------------------|-------------------------------|--------------------------------|-------------------------------|---------------|
| May 5 05 | 0.006 | 0.016 | 0.02 | 160 | <3 | <3 | 0.05 | 110 | 0.5 | 13 | 8.01 |
| May 24-05 | 0.006 | 0.026 | 0.01 | 186 | 7 | 93 | <0.01 | 130 | 0.5 | 19 | 7.98 |
| June 16-05 | 0.017 | 0.038 | <0.01 | 183 | 23 | 23 | <0.01 | 140 | 0.6 | 14 | 7.93 |
| July 15-05 | 0.035 | 0.055 | <0.01 | 224 | 4 | 9 | 0.02 | 150 | 0.9 | 21 | 7.81 |
| Aug.15.-05 | 0.016 | 0.027 | 0.02 | 282 | 30 | <10 | 0.01 | 190 | 1.1 | <5 | 8.24 |
| Sept 12-05 | 0.013 | 0.032 | 0.01 | 230 | 140 | 90 | <0.01 | 170 | 0.7 | 12 | 8.13 |
| Oct.03-05 | 0.019 | 0.032 | 0.02 | 252 | 20 | 40 | 0.01 | 190 | 1 | 19 | 8.14 |

Whitemouth River Site #4 South of Hwy 1

| Sample Date | Total Dissolved Phosphorous (mg/L) | Total Phosphorous (mg/L) | Ammonia Soluble (mg/L) | Conductivity (mg/L) | E.Coli (CFU/100ml) | Fecal Coliform (CFU/100ml) | Nitrate+ Nitrite-N (mg/L) | Total Dissolved Solids (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Total Suspended Solids (mg/L) | PH (pH units) |
|-------------|------------------------------------|--------------------------|------------------------|---------------------|--------------------|----------------------------|---------------------------|-------------------------------|--------------------------------|-------------------------------|---------------|
| May 5 05 | 0.005 | 0.016 | <0.01 | 151 | 4 | 4 | 0.05 | 94 | 0.4 | 9 | 7.91 |
| May 24-05 | 0.007 | 0.022 | <0.01 | 172 | 38 | 38 | <0.01 | 120 | 0.5 | 12 | 7.87 |
| June 16-05 | 0.013 | 0.028 | 0.02 | 156 | 23 | 23 | <0.01 | 130 | 0.6 | 11 | 7.76 |
| July 15-05 | 0.034 | 0.042 | <0.01 | 216 | 4 | 4 | 0.01 | 150 | 0.8 | 10 | 7.81 |
| Aug.15.-05 | 0.02 | 0.042 | 0.02 | 262 | 10 | <10 | <0.01 | 180 | 1.1 | 7 | 8.21 |
| Sept 12-05 | 0.013 | 0.026 | 0.03 | 227 | 30 | 20 | <0.01 | 170 | 0.9 | 6 | 8.08 |
| Oct.03-05 | 0.011 | 0.035 | 0.01 | 242 | 20 | 10 | <0.01 | 200 | 0.9 | 16 | 8.1 |

Whitemouth River #408

| Sample Date | Total Dissolved Phosphorous (mg/L) | Total Phosphorous (mg/L) | Ammonia Soluble (mg/L) | Conductivity umhos/cm | E.Coli (CFU/100ml) | Fecal Coliform (CFU/100ml) | Nitrate+ Nitrite-N (mg/L) | Total Dissolved Solids (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Total Suspended Solids (mg/L) | Ph (pH units) |
|-------------|------------------------------------|--------------------------|------------------------|-----------------------|--------------------|----------------------------|---------------------------|-------------------------------|--------------------------------|-------------------------------|---------------|
| May 5 05 | 0.005 | 0.014 | 0.02 | 125 | 15 | 15 | 0.05 | 90 | 0.4 | 12 | 8.01 |
| May 24-05 | 0.008 | 0.036 | 0.02 | 190 | 43 | 43 | 0.02 | 130 | 0.6 | 18 | 8.03 |
| June 16-05 | 0.025 | 0.062 | 0.02 | 178 | 93 | 93 | 0.02 | 140 | 0.7 | 22 | 7.91 |
| July 15-05 | 0.035 | 0.051 | 0.01 | 206 | 43 | 43 | 0.04 | 140 | 0.8 | 19 | 8.01 |
| Aug. 15-05 | 0.017 | 0.027 | 0.02 | 276 | 70 | 220 | <0.01 | 190 | 1 | <5 | 8.3 |
| Sept 12-05 | 0.014 | 0.031 | 0.03 | 225 | 460 | 340 | 0.01 | 0.014 | 0.8 | 9 | 8.19 |
| Oct. 03-05 | 0.015 | 0.028 | 0.02 | 234 | 50 | 70 | 0.01 | 200 | 0.9 | 11 | 8.16 |

Whitemouth River Kelner Drain

| Sample Date | Total Dissolved Phosphorous (mg/L) | Total Phosphorous (mg/L) | Ammonia Soluble (mg/L) | Conductivity umhos/cm | E. Coli (CFU/100ml) | Fecal Coliform (CFU/100/ml) | Nitrate+ Nitrite-N (mg/L) | Total Dissolved Solids (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Total Suspended (mg/L) | PH (pH units) |
|-------------|------------------------------------|--------------------------|------------------------|-----------------------|---------------------|-----------------------------|---------------------------|-------------------------------|--------------------------------|------------------------|---------------|
| May 5 05 | 0.013 | 0.02 | <0.01 | 222 | 23 | 43 | 0.04 | 150 | 0.7 | 9 | 7.65 |
| May 24-05 | 0.054 | 0.073 | 0.02 | 295 | 240 | 240 | 0.02 | 210 | 0.9 | 8 | 7.81 |
| June 16-05 | 0.1 | 0.122 | <0.01 | 240 | 43 | 43 | 0.03 | 190 | 0.9 | <5 | 7.8 |
| July 15-05 | 0.036 | 0.05 | <0.01 | 295 | 43 | 93 | 0.04 | 220 | 1.4 | 16 | 7.82 |

Whitemouth River Site #1 - 307 Seven Sisters

| Sample Date | Total Dissolved Phosphorous (mg/L) | Total Phosphorous (mg/L) | Ammonia Soluble (mg/L) | Conductivity umhos/cm | E.Coli (CFU/100ml) | Fecal Coliform (CFU/100ml) | Nitrate+Nitrite-N - Soluble (mg/L) | Total Dissolved Solids (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Total Suspended Solids (mg/L) | PH (pH units) |
|-------------|------------------------------------|--------------------------|------------------------|-----------------------|--------------------|----------------------------|------------------------------------|-------------------------------|--------------------------------|-------------------------------|---------------|
| 24-Apr-06 | 0.007 | 0.035 | 0.016 | 157 | 20 | 10 | n/a | 120 | 0.7 | 45 | 8.19 |
| 18-May-06 | 0.012 | 0.029 | 0.011 | 169 | 10 | <10 | 0.011 | 130 | 0.7 | 15 | 8.21 |
| 16-Jun-06 | 0.023 | 0.317 | 0.016 | 219 | 30 | <10 | <0.005 | 150 | 0.9 | 19 | 8.25 |
| 11-Jul-06 | 0.01 | 0.04 | 0.06 | 273 | 93 | 93 | <0.005 | 180 | 0.9 | 12 | 8.31 |
| 16-Aug-06 | 0.017 | 0.035 | 0.007 | 347 | 100 | 140 | <0.005 | 210 | 0.8 | <5 | 8.54 |
| 8-Sep-06 | 0.023 | 0.067 | 0.008 | 331 | 210 | 210 | <0.005 | 250 | 1.3 | 22 | 8.36 |
| 02-Oct-06 | 0.015 | 0.044 | 0.011 | 328 | 210 | 210 | <0.005 | 220 | 1.1 | 9 | 8.34 |

Whitemouth River Site #2 - Hwy 44 at Whitemouth

| Sample Date | Total Dissolved Phosphorous (mg/L) | Total Phosphorous (mg/L) | Ammonia Soluble (mg/L) | Conductivity umhos/cm | E. Coli (CFU/100ml) | Fecal Coliform (CFU/100ml) | Nitrate+Nitrite-N - Soluble (mg/L) | Total Dissolved Solids (mg/l) | Total Kjeldahl Nitrogen (mg/L) | Total Suspended Solids (mg/L) | PH (pH units) |
|-------------|------------------------------------|--------------------------|------------------------|-----------------------|---------------------|----------------------------|------------------------------------|-------------------------------|--------------------------------|-------------------------------|---------------|
| 24-Apr-06 | 0.007 | 0.026 | 0.012 | 158 | <10 | <10 | | 110 | 0.7 | 28 | 8.19 |
| 18-May-06 | 0.012 | 0.028 | 0.015 | 168 | 20 | 40 | 0.009 | 130 | 0.8 | 12 | 8.17 |
| 16-Jun-06 | 0.022 | 0.05 | 0.013 | 223 | 50 | 30 | <0.005 | 160 | 1 | 11 | 8.32 |
| 11-Jul-06 | 0.006 | 0.026 | 0.012 | 268 | 93 | 93 | 0.042 | 190 | 1.2 | 5 | 8.33 |
| 11-Aug-06 | 0.015 | 0.024 | 0.007 | 351 | 30 | 60 | 0.006 | 230 | 0.8 | <5 | 8.51 |
| 8-Sep-06 | 0.019 | 0.041 | 0.008 | 301 | 43 | 93 | <0.05 | 220 | 1 | 9 | 8.46 |
| 02-Oct-06 | 0.014 | 0.038 | 0.01 | 333 | 43 | 43 | <0.005 | 230 | 1.3 | 8 | 8.37 |

Whitemouth River Site #3 Bridge on 506

| Sample Date | Total Dissolved Phosphorous (mg/L) | Total Phosphorous (mg/l) | Ammonia Soluble (mg/L) | Conductivity umhos/cm | E. Coli (CFU/100ml) | Fecal Coliform (CFU/100ml) | Nitrate+Nitrite-N - Soluble (mg/L) | Total Dissolved Solids (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Total Suspended Solids (mg/L) | PH (pH units) |
|-------------|------------------------------------|--------------------------|------------------------|-----------------------|---------------------|----------------------------|------------------------------------|-------------------------------|--------------------------------|-------------------------------|---------------|
| 24-Apr-06 | 0.006 | 0.030 | 0.011 | 175 | 40 | <10 | n/a | 130 | 0.7 | 26 | 8.20 |
| 18-May-06 | 0.014 | 0.031 | 0.015 | 181 | <10 | <10 | 0.007 | 140 | 0.8 | 14 | 8.16 |
| 16-Jun-06 | 0.026 | 0.058 | 0.008 | 244 | 10 | 60 | <0.005 | 170 | 1.1 | 19 | 8.31 |
| 11-Jul-06 | 0.008 | 0.034 | 0.012 | 309 | 93 | 150 | 0.031 | 210 | 1 | 13 | 8.39 |
| 16-Aug-06 | 0.015 | 0.034 | 0.012 | 346 | 200 | 270 | 0.005 | 230 | 1.1 | <5 | 8.44 |
| 8-Sep-06 | 0.019 | 0.045 | <0.003 | 308 | 430 | 430 | 0.036 | 220 | 1.1 | 13 | 8.4 |
| 2-Oct-06 | 0.014 | 0.057 | 0.008 | 330 | 150 | 430 | 0.016 | 240 | 1.4 | 17 | 8.21 |

Whitemouth River Site #4 PTH 1

| Sample Date | Total Dissolved Phosphorous (mg/L) | Total Phosphorous (mg/L) | Ammonia Soluble (mg/L) | Conductivity (mg/L) | E.Coli (CFU/100ml) | Fecal Coliform (CFU/100ml) | Nitrate+Nitrite-N - Soluble (mg/L) | Total Dissolved Solids (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Total Suspended Solids (mg/L) | PH (pH units) |
|-------------|------------------------------------|--------------------------|------------------------|---------------------|--------------------|----------------------------|------------------------------------|-------------------------------|--------------------------------|-------------------------------|---------------|
| 24-Apr-06 | 0.006 | 0.023 | 0.007 | 170 | 10 | <10 | | 130 | 0.7 | 13 | 8.14 |
| 18-May-06 | 0.014 | 0.028 | 0.012 | 175 | 30 | 30 | 0.008 | 120 | 0.8 | 9 | 8.06 |
| 16-Jun-06 | 0.027 | 0.056 | 0.006 | 236 | 30 | 10 | <0.005 | 170 | 1.2 | 13 | 8.32 |
| 11-Jul-06 | 0.008 | 0.04 | 0.006 | 285 | 43 | 93 | <0.005 | 200 | 1.1 | 10 | 8.36 |
| 16-Aug-06 | 0.014 | 0.046 | 0.015 | 325 | 210 | 150 | <0.005 | 220 | 1.1 | 11 | 8.16 |
| 8-Sep-06 | 0.023 | 0.055 | 0.004 | 299 | 430 | 430 | <0.005 | 220 | 1.4 | 17 | 8.21 |
| 02-Oct-6 | 0.014 | 0.058 | 0.013 | 307 | 93 | 93 | 0.038 | 220 | 1.5 | 20 | 8.11 |

Whitemouth River #408

| Sample Date | Total Phosphorous (mg/L) | Total Phosphorous (mg/L) | Ammonia Soluble (mg/L) | Conductivity umhos/cm | E.Coli (CFU/100ml) | Fecal Coliform (CFU/100ml) | Nitrate+Nitrite-N - Soluble (mg/L) | Total Dissolved Solids (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Total Suspended Solids (mg/L) | Ph (pH units) |
|-------------|--------------------------|--------------------------|------------------------|-----------------------|--------------------|----------------------------|------------------------------------|-------------------------------|--------------------------------|-------------------------------|---------------|
| 24-Apr-06 | 0.008 | 0.028 | 0.011 | 156 | <10 | <10 | n/a | 120 | 0.7 | 35 | 8.18 |
| 18-May-06 | 0.012 | 0.03 | 0.01 | 167 | 20 | 30 | 0.009 | 120 | 0.7 | 9 | 8.2 |
| 16-Jun-06 | 0.022 | 0.053 | 0.013 | 222 | 40 | 90 | <0.005 | 160 | 1 | 10 | 8.34 |
| 11-Jul-06 | 0.006 | 0.029 | 0.005 | 266 | 93 | 93 | 0.012 | 140 | 1.1 | 5 | 8.35 |
| 16-Aug-06 | 0.016 | 0.037 | 0.003 | 356 | 380 | 280 | <0.005 | 230 | 0.9 | <5 | 8.51 |
| 08-Sep.-06 | 0.02 | 0.052 | 0.006 | 312 | 1500 | 1500 | <0.005 | 220 | 1.2 | 15 | 8.44 |
| 02-Oct.-6 | 0.016 | 0.042 | 0.009 | 346 | 430 | 430 | <0.005 | | 1.2 | 7 | 8.4 |

Whitemouth River Kelner Drain 406

| Sample Date | Total Dissolved Phosphorous (mg/L) | Total Phosphorous (mg/L) | Ammonia Soluble (mg/L) | Conductivity umhos/cm | E. Coli (CFU/100ml) | Fecal Coliform (CFU100/ml) | Nitrate+Nitrite-N - Soluble (mg/L) | Total Dissolved Solids (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Total Suspended (mg/L) | PH (pH units) |
|-------------|------------------------------------|--------------------------|------------------------|-----------------------|---------------------|----------------------------|------------------------------------|-------------------------------|--------------------------------|------------------------|---------------|
| 24-Apr-06 | 0.016 | 0.038 | 0.012 | 218 | 20 | 20 | n/a | 170 | 0.9 | 20 | 8.14 |
| 18-May-06 | 0.04 | 0.063 | 0.02 | 253 | 100 | 130 | 0.009 | 180 | 1.1 | 20 | 8.03 |
| 16-Jun-06 | 0.139 | 0.137 | 0.021 | 219 | 180 | 210 | <0.005 | 180 | 1.4 | 33 | 8.12 |