This document contains information to assist MS4 permittees in determining an appropriate baseline year for all TMDLs approved prior to August 1, 2013. If a year is listed in the “Defined baseline year” column, the TMDL contains an explicitly defined baseline year that must be used. If not, a set of monitoring years, narrative on appropriate baseline year based on details of the model used to set allocations, or both is provided in the following columns. Use best professional judgement when determining a baseline year from a set of monitoring data. MPCA recommends selecting a midpoint or later.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Project Name** | **Waterbody/AUID** | **Defined baseline year** | **Monitoring years** | **Notes** |
| **Lower MN River Dissolved Oxygen** | Minnesota River | n/a | 1981-1999 | The model used to set WLAs (Hydrologic Simulation Program Fortran or HSPF) was calibrated to various data collected between 1981 and 1999. The year 1988 was considered to be most representative of low flow conditions that result in oxygen depletion in the river. The TMDL report states “Therefore, a two-month critical low flow period of August and September 1988 was selected to represent the meteorological conditions and hydrologic response for this TMDL”. The implementation plan states that the modeling assumed no BMPs in place and that all BMPs would therefore be credited. However, the model was calibrated to 1988 conditions, which therefore reflects BMPs in place in 1988. |
| **Lower Mississippi River Basin - Fecal Coliform** | 07040001-506 | n/a | 1985-1995 |  |
|  | 07040001-507 | n/a | 1983-1993 |  |
|  | 07040002-502 | n/a | 1983-1993 |  |
|  | 07040002-503 | n/a | 1988-1993 |  |
|  | 07040002-504 | n/a | 1989-1993 |  |
|  | 07040002-505 | n/a | 1999-2000 |  |
|  | 07040002-509 | n/a | 1998,2001,2002 |  |
|  | 07040002-512 | n/a | 1997-1998 |  |
|  | 07040002-513 | n/a | 1998 |  |
|  | 07040002-515 | n/a | 1999-2000 |  |
|  | 07040002-516 | n/a | 1999-2000 |  |
|  | 07040002-517 | n/a | 1999-2000 |  |
|  | 07040002-518 | n/a | 1999-2000 |  |
|  | 07040002-519 | n/a | 1999-2000 |  |
|  | 07040002-528 | n/a | 1999-2000 |  |
|  | 07040002-535 | n/a | 2000-2002 |  |
|  | 07040003-505 | n/a | 1983-1993 |  |
|  | 07040003-512 | n/a | 2000-2002 |  |
|  | 07040003-514 | n/a | 2000-2002 |  |
|  | 07040003-536 | n/a | 2000-2002 |  |
|  | 07040003-542 | n/a | 1983-1993 |  |
|  | 07040003-553 | n/a | 2000-2002 |  |
|  | 07040003-554 | n/a | 1985-1993 |  |
|  | 07040003-559 | n/a | 2000-2002 |  |
|  | 07040004-501 | n/a | 2002 |  |
|  | 07040004-502 | n/a | 2002 |  |
|  | 07040004-503 | n/a | 1989-1993 |  |
|  | 07040004-507 | n/a | 1983-1993 |  |
|  | 07040004-533 | n/a | 2001 |  |
|  | 07040004-535 | n/a | 2001 |  |
|  | 07040004-536 | n/a | 2001 |  |
|  | 07040008-501 | n/a | 1983-1993 |  |
|  | 07040008-503 | n/a | 1987-1993 |  |
|  | 07040008-521 | n/a | 2002 |  |
|  | 07040008-555 | n/a | 1999-2002 |  |
|  | 07040008-586 | n/a | 1999-2001 |  |
|  | 07080201-501 | n/a | 1986-1994 |  |
|  | 07080201-502 | n/a | 1986-1994 |  |
|  | 07080202-501 | n/a | 1983-1993 |  |
| **Chippewa River – Fecal Coliform** | 07070005-501 | n/a | 1999 – 2005 |  |
| **Shingle Creek – Chloride** | 07010206-506 | n/a | 2002-2003 | Monitoring of conductivity, chloride and discharge was performed from late November 2002 through August of 2003. |
| **Sunrise River (North Branch) – Fecal Coliform** | 07030005-501 | n/a | 2002-2003 |  |
| **Lake Independence: Excess Nutrients** | Lake Independence | n/a |  | The BATHTUB model was calibrated using storm inflow data collected in 2001. The year 2001 therefore is an appropriate baseline. |
| **Carver-Bevens-Silver Creek TMDL: Fecal Coliform** | Carver, Bevens, and Silver creek | n/a | 1997-2003 | Data utilized for the development of this TMDL were collected between May of 1997 through September 2004.  Although data prior to these dates may exist, the more recent data were believed to better represent current conditions in the watershed. |
| **Lower Cannon River: Turbidity** | 07040001-511 | n/a | 1991 – 2004 |  |
|  | 07050002-502 | n/a |  |  |
| **Twin and Ryan Lakes – Excess Nutrients** | All | n/a | 1996 and 1999 | The TMDL report states that the P8 model was developed using 1999 conditions. Furthermore, 1999 was considered an average year in terms of precipitation. |
| **Blue Earth River: Fecal Coliform** | 07020009-501 | n/a | 1995 – 2004 |  |
|  | 07020009-526 | n/a | 2000 – 2001 |  |
|  | 07020009-503 | n/a | 2002 – 2004 |  |
|  | 07020009-527 | n/a | 2002 – 2004 |  |
|  | 07020009-525 | n/a | 2000 – 2002 |  |
|  | 07020009-509 | n/a | 2004 |  |
|  | 07020011-501 | n/a | 2004 |  |
| **Pomme de Terre River – Fecal Coliform** | 07020002-501 | n/a | 1970-2005 | The flow monitoring data used in this project was from 1970-2005 at the U.S. Geological Survey gage station #05294000. |
| **Burandt Lake: Excess Nutrients** | Burandt Lake | n/a | 2000-20005 | The TMDL report does not specify a baseline year and condition. Since 2005 was the last year of monitoring data, any BMPs implemented since 2005 will be credited toward meeting the WLA. BMPs implemented prior to 2005 will need to be evaluated to determine if they should receive credit.  The BATHTUB model for Burandt Lake was calibrated and validated using data for the years 2000 to 2005 (Section 5.5.1; pg. 30). The TMDL is based on an average precipitation year which was 2001. |
| **West Fork Des Moines River Watershed: Multiple Impairments** | All | n/a | Fecal coliform data 1994-2003  TSS data 2001-2004 |  |
| **Crystal Lake (Metro): Excess Nutrients** | Crystal Lake | n/a | 1986-2003 |  |
| **Long and Farquar Lakes: Excess Nutrients (Metro)** | Long Lake | n/a |  | The TMDL report does not specify a baseline year. The year 2005 represents a normal precipitation year and was one of the years used to calibrate the model. |
|  | Farquar Lake | n/a |  |  |
| [**Hardwood Creek (Metro): Impaired Biota, Dissolved Oxygen**](#tablecontents) | All | 2002 |  |  |
| **[Schmidt, Pomerleau, and Bass Lakes: Excess Nutrients](#tablecontents)** | Schmidt Lake | n/a | 1994-2007 | 2004 and 2005 were evaluated using Three Rivers Park data. |
|  | Pomerleau Lake | n/a | 1996, 1999, 2001, 2003 | Only two good years of data were available for Pomerleau Lake – 1996 and 1999. Other years had too few observations to develop conclusions. |
|  | Bass Lake | n/a | 1973-1974, 1980, 1994, 1997-2007 |  |
| **Lower Vermillion River Watershed TMDL: Turbidity** | All | n/a | 1990-2002 |  |
| **[Golden Lake: Excess Nutrients](#tablecontents)** | Golden Lake | n/a |  | The model was calibrated to monitoring data for 2004. |
| **[Kohlman Lake (Metro): Excess Nutrients](#tablecontents)** | Kohlman Lake | n/a |  | The P8 model was calibrated to 2002 data. |
| **[Meadow Lake (Metro): Excess Nutrients](#tablecontents)** | Meadow Lake | n/a |  | The WLA for the TMDL was calculated by averaging the watershed load at goal for the ten year period 1996-2005. This ten year period brackets the four years for which actual monitoring data is available: 1996, 1999, 2002, and 2005. |
| **[Cedar Island, Pike and Eagle Lakes: (Excess Nutrients)](#tablecontents)** | All | n/a |  | The report does not provide a specific baseline year. Water quality response modeling used to set the allocations utilized data from 2001 and 2003. This modeling was linked to P8 modeling during the same time period. |
| [**Comfort Lake – Forest Lake: Excess Nutrients**](#tablecontents) | Moody Lake | n/a | 2005-2007 |  |
|  | Bone Lake | n/a | 1997-2007 |  |
|  | School Lake | n/a | 2005-2007 |  |
|  | Little Comfort Lake | n/a | 2006-2007 |  |
|  | Shields Lake | n/a | 1997-2007 |  |
|  | Comfort Lake | n/a | 1997-2007 |  |
| **[Knife River: Turbidity](#tablecontents)** | All | n/a |  | A specific baseline year is not defined in the TMDL report. Of the three years used to develop the Load Duration Curve (2004, 2005, 2006), flows and sediment loads were greatest in 2005. |
| **[Silver Lake: Excess Nutrients](#tablecontents)** | Silver Lake | n/a |  | P8 modeling was based on watershed conditions in 2007. |
| **[Fish and Schwanz lakes: Excess Nutrients](#tablecontents)** | Fish Lake | n/a |  | The models were used to analyze a range of precipitation conditions, including representative wet (2002), dry (2008), and average (2006) years. |
|  | Schwanz Lake | n/a |  |  |
| [**Reitz Lake: Excess Nutrients**](#tablecontents) | Reitz Lake | n/a |  | Monitoring occurred from the mid-1980’s to present. The year 2004 was used to calibrate the watershed model. No BMPs were assumed in the export coefficient, but this may not accurately reflect watershed conditions since the coefficients used in the model come from a literature review (Reckhow, Kenneth H., Beaulac, Michael N., Simpson, Jonathan T., June 1980. Modeling Phosphorus Loading and Lake Response Under Uncertainty: A Manual and Compilation of Export Coefficients. Department of Resource Development, Michigan State University). |
| **[Carver Creek Lakes: Excess Nutrients](#tablecontents)** | Goose Lake | n/a |  | The WLA is considered to apply to average precipitation conditions. These occurred in 2001 (Winkler) and 2004 (Goose, Hydes, Miller). |
|  | Hydes Lake |  |  |  |
|  | Miller Lake |  |  |  |
|  | Winkler Lake |  |  |  |
| **[Magda Lake: Excess Nutrients](#tablecontents)** | Magda Lake | n/a |  | Monitoring and modeling was conducted over the period 1997 to 2006. The XP-SWMM model was calibrated to 2002 data. The P8 model subsequently used the calibrated SWMM model. The year 2002 therefore represents a reasonable baseline year. |
| **Wirth Lake: Excess Nutrients (Metro)** | Wirth Lake | n/a |  | The allocations presented in this TMDL are based on the management scenarios required to bring the growing season average TP concentration to 40 μg/L (NCHF ecoregion criteria) during the climactic conditions observed during the 2005-06 water year. Also, because it is a year of average precipitation, it serves as a fair baseline to set allocations. It is reasonable to expect that, on average, phosphorus sources in the watershed will have existing watershed TP loads consistent with those modeled during the growing season of 2006. |
| **Nine Mile Creek: Impaired Biota, Turbidity, & Chloride** | Nine Mile Creek | n/a |  | Existing average annual road salt application rates were multiplied by attainable reduction percentages for MnDOT and Hennepin County to set the WLA for each MS4. The remainder of the available loading capacity was assigned to the categorical WLA for remaining MS4s. |
| **Browns Creek: Lack of coldwater assemblage and Impaired Biota** | Browns Creek | 2007 |  |  |
| **Como Lake: Excess Nutrients** | Como Lake | 2000 |  |  |
| [**Medicine Lake: Excess Nutrients**](#tablecontents) | Medicine Lake | n/a |  | The TMDL report indicates required reductions are from watershed conditions in 2007. |
| **Minnehaha Creek Watershed Lakes: Excess Nutrients (Metro)** | All | n/a | Monitoring data from 1998-2007. |  |
| **Lake Sarah: Excess Nutrients (Metro)** | Lake Sarah | n/a |  | Modeling for Lake Sarah was initially based on in-lake data from a ten year period (1999-2008) that corresponds with the 10-year average precipitation data used to generate watershed phosphorus loads. |
| **Sweeney Lake: Phosphorus** | Sweeney Lake | n/a |  | Monitoring data from 2004-2005 and 2007-2008 was used. |
| **Spring Lake-Upper Prior Lake: Excess Nutrients (Metro)** | Spring Lake-Upper Prior Lake | n/a |  | Given that the lake model in this study was calibrated to monitoring data which reflect land use and BMPs in place during the monitored period from 1998-2006, 2006 will be used as the baseline year/ condition from which to gauge phosphorus reductions for determining progress toward the TMDL. (pg. 7-1) |
| **Pomme de Terre River Watershed: Turbidity** | 07020003-501 | n/a | 1997-2007 |  |
| **Crystal, Keller, Lee, and Earley Lakes: Excess Nutrients** | Crystal, Keller, and Lee Lakes | n/a |  | Of the three precipitation scenarios evaluated in this study, the critical year (the one resulting in the worst water quality) for Crystal, Keller, and Lee Lakes was the "average" precipitation scenario (the growing season of 2006).  Also, because it is a year of average precipitation, it serves as a fair baseline to set wasteload allocations for municipalities. It is reasonable to expect that, on average, the MS4s in the watersheds will have existing watershed TP loads on the order of those modeled during the 2006 water year. |
| **Shingle and Bass Creeks: Impaired Biota & Dissolved Oxygen (Metro)** |  | n/a |  | The Lower and Upper Shingle Creek models were built using both summer high-flow and fall low-flow synoptic survey data collected on June 9, 2008 and September 17, 2008, respectively. |
| **Little Rock Lake: Excess Nutrients** | Little Rock Lake | n/a |  | Watershed and lake water quality data collected Benton County Soil and Water District in 2006-2008 to support development of TMDLs for the lake and tributaries. (pg. 24) |
| **Zumbro River Watershed: Turbidity** | 07040004-552 | n/a | 2007-2008 |  |
|  | 07040004-553 | n/a | 2000-2005 |  |
|  | 07040004-556 | n/a | 2007-2008 |  |
|  | 07040004-539 | n/a | 2007-2008 |  |
|  | 07040004-540 | n/a | 2007-2008 |  |
|  | 07040004-538 | n/a | 2007-2008 |  |
|  | 07040004-536 | n/a | 2007-2008 |  |
|  | 07040004-639 | n/a | 2007-2008 |  |
|  | 07040004-581 | n/a | 2007-2008 |  |
|  | 07040004-601 | n/a | 2004-2005 |  |
|  | 07040004-507 | n/a | 2007-2008 |  |
|  | 07040004-592 | n/a | 2007-2008 |  |
|  | 07040004-526 | n/a | 2007 |  |
|  | 07040004-525 | n/a | 2008 |  |
|  | 07040004-554 | n/a | 2007-2008 |  |
|  | 07040004-522 | n/a | 2007-2008 |  |
|  | 07040004-501 | n/a | 2007-2008 |  |
| **Bald Eagle Lake: Excess Nutrients (Metro)** | Bald Eagle Lake | n/a | 1998-2008 |  |
| **Elk River Watershed: Multiple Impairments** | Big Elk Lake | n/a |  | Water quality data was available for 2003, 2006, 2007 and 2009. However, 2003 data was not used for the model calibration because only three samples were collected during late summer. |
|  | Mayhew Lake | n/a |  | Water quality data was available for 2003 -2006 and 2009. Each year was modeled utilizing the methods described in the previous section. |
|  | 07010203-579  E. coli | n/a |  | Flow duration curves were developed from data collected in 2009 at the continuous flow monitoring stations at ER 37.3 and ER 16.6 and compared to a 2009 flow duration curve developed from the USGS station. |
|  | 07010203-579  TSS | n/a |  | Section 5.2.3.1 indicates that data from 2009 was used to set calculate the TMDL. |
| **Martin and Typo Lakes: Excess Nutrients** | Martin and Typo Lake | 2007 |  |  |
| **Lake St. Croix: Excess Nutrients** | Lake St. Croix | n/a |  | In this TMDL the decade of the 1990s is considered to be the baseline in general; however, for the WLAs for regulated MS4 permittees, the baseline is specifically taken to be 1992, as 1992 is the year of NLCD land use/land cover data used to develop the MS4 WLAs. |
| **Carnelian Marine St. Croix 10 Lake TMDL: Excess Nutrients** | East Boot | 2008 |  |  |
|  | Fish | 2008 |  |  |
|  | Goose | 2008 |  |  |
|  | Hay | 2008 |  |  |
|  | Jellum’s | 2008 |  |  |
|  | Long | 2008 |  |  |
|  | Loon | 2008 |  |  |
|  | Louise | 2008 |  |  |
|  | Mud | 2010 |  |  |
|  | South Twin | 2008 |  |  |
| **Carver-Bevens Creeks – Fecal Coliform Bacteria** | Carver, Bevens, and Silver Creeks | n/a | 1997-2003 |  |
| **Carver-Bevens Creeks –Turbidity** | Carver Creek | n/a | 1990-2007 |  |
|  | Bevens Creek | n/a | 1989-2007 |  |
| **Carver Creek Lakes: Excess Nutrients (Metro) (Benton Lake)** | Benton Lake | n/a |  | The WLA is considered to apply to average precipitation conditions. 2001 was used to determine the TMDL for the lake. |
| **Bluff Creek: Turbidity and Impaired Fish Biota (Metro)** | Bluff Creek | n/a | 2008-2010 |  |