

Refuge Total Phosphorus Compliance Status

Orange highlighted and bolded months' geomeans were higher than interim levels.
 Yellow highlighted and bolded months' geomeans were higher than long term levels.
 Green highlighted and italicized months' levels were not applicable (N/A) because the average stages were less than 15.42 feet.

Month-Year	TP Geomean (ppb)	Long-Term Level (ppb) (Effective 12/31/2006)	Average Stage (feet, NGVD29)	TP Sample Data (n)	Stage Data (n)
Jan-2007	6.9	9.3	16.57	14	3
Feb-2007	6.2	10.4	16.34	13	3
Mar-2007	7.3	11.8	16.10	10	3
<i>Apr-2007</i>	<i>8.0</i>	<i>N/A</i>	<i>15.30</i>	<i>3</i>	<i>3</i>
<i>May-2007</i>	<i>no data</i>	<i>N/A</i>	<i>14.68</i>	<i>0</i>	<i>3</i>
<i>Jun-2007</i>	<i>13.6</i>	<i>N/A</i>	<i>15.37</i>	<i>4</i>	<i>3</i>
Jul-2007	10.4	13.5	15.86	13	3
Aug-2007	10.1	10.5	16.33	13	3
Sep-2007	8.5	9.2	16.59	14	3
Oct-2007	8.4	7.2	17.26	14	3
Nov-2007	7.0	7.1	17.19	14	3
Dec-2007	7.9	8.2	16.84	14	3
Jan-2008	6.3	8.9	16.68	14	3
Feb-2008	7.6	9.4	16.55	14	3
Mar-2008	6.7	9.4	16.54	14	3
Apr-2008	5.8	10.3	16.36	14	3
May-2008	9.1	14.3	15.76	9	3
Jun-2008	8.9	14.9	15.68	8	3
Jul-2008	9.2	10.3	16.37	14	3
Aug-2008	8.6	10.2	16.39	14	3
Sep-2008	7.7	8.3	16.81	14	3
Oct-2008	7.2	7.2	17.42	14	3
Nov-2008	7.4	7.2	17.22	14	3
Dec-2008	6.3	7.8	16.96	14	3
Jan-2009	7.0	8.8	16.68	14	3
Feb-2009	4.7	10.4	16.35	12	3
Mar-2009	7.5	13.5	15.86	9	3
Apr-2009	9.7	14.9	15.69	8	3
<i>May-2009</i>	<i>11.0</i>	<i>N/A</i>	<i>15.01</i>	<i>1</i>	<i>3</i>
Jun-2009	13.2	12.1	16.05	12	3
Jul-2009	7.4	9.8	16.47	14	3
Aug-2009	8.8	11.5	16.16	14	3
Sep-2009	8.1	8.9	16.68	14	3
Oct-2009	7.0	8.2	16.86	14	3
Nov-2009	6.9	9.4	16.55	14	3
Dec-2009	5.8	10.4	16.36	12	3
Jan-2010	5.2	8.9	16.68	14	3

Refuge Monthly Inflow Load

TP loads are calculated using "no ratio-adjustment" and "14 day maximum for auto sampler composite concentration" algorithm.

Month-Year	Inflow (kac-ft)	TP loads (metric tons)	Inflow FWMC (ppb)
Jan-2007	4	0.2	34
Feb-2007	1	0.05	31
Mar-2007	1	0.03	44
<i>Apr-2007</i>	<i>0.03</i>	<i>0.002</i>	<i>53</i>
<i>May-2007</i>	<i>0.03</i>	<i>0.003</i>	<i>80</i>
<i>Jun-2007</i>	<i>1</i>	<i>0.1</i>	<i>69</i>
Jul-2007	15	0.7	36
Aug-2007	35	2.0	46
Sep-2007	45	2.2	40
Oct-2007	64	3.1	39
Nov-2007	8	0.3	28
Dec-2007	5	0.2	32
Jan-2008	1	0.02	20
Feb-2008	24	1.0	33
Mar-2008	31	0.9	24
Apr-2008	15	0.4	22
May-2008	0.4	0.01	23
Jun-2008	30	0.8	21
Jul-2008	57	1.4	19
Aug-2008	127	4.7	30
Sep-2008	70	3.2	37
Oct-2008	43	1.9	36
Nov-2008	2	0.04	19
Dec-2008	4	0.1	15
Jan-2009	1	0.02	15
Feb-2009	0.3	0.01	16
Mar-2009*	0.0	0.00	304
Apr-2009	0.3	0.01	24
<i>May-2009</i>	<i>42</i>	<i>3.0</i>	<i>59</i>
Jun-2009	71	5.5	63
Jul-2009	44	2.2	41
Aug-2009	25	1.6	52
Sep-2009	36	1.9	43
Oct-2009	6	0.3	41
Nov-2009	1	0.05	38
Dec-2009	12	0.4	29
Jan-2010	4	0.2	36

Refuge Total Phosphorus Compliance Status

Orange highlighted and bolded months' geomeans were higher than interim levels.
 Yellow highlighted and bolded months' geomeans were higher than long term levels.
 Green highlighted and italicized months' levels were not applicable (N/A) because the average stages were less than 15.42 feet.

Feb-2010	6.7	9.1	16.62	14	3
Mar-2010	5.9	9.0	16.65	14	3
Apr-2010	7.2	9.6	16.51	14	3
May-2010	7.8	10.4	16.35	14	3
Jun-2010	7.3	10.9	16.26	14	3
Jul-2010	6.9	10.7	16.29	14	3
Aug-2010	6.1	11.6	16.15	10	3
Sep-2010	6.5	8.5	16.76	14	3
Oct-2010	6.2	7.7	16.99	14	3
Nov-2010	6.6	8.2	16.83	14	3
Dec-2010	4.0	9.6	16.52	13	3
Jan-2011	5.1	10.7	16.29	10	3
Feb-2011	6.0	11.3	16.20	10	3
Mar-2011	8.1	14.0	15.79	8	3
Apr-2011	11.4	16.3	15.53	7	3
May-2011	<i>no data</i>	<i>N/A</i>	<i>14.87</i>	<i>0</i>	<i>3</i>
Jun-2011	<i>no sampling</i>	<i>N/A</i>	<i>14.30</i>	<i>0</i>	<i>3</i>
Jul-2011	<i>20.2</i>	<i>N/A</i>	<i>15.11</i>	<i>4</i>	<i>3</i>
Aug-2011	11.5	16.4	15.53	8	3
Sep-2011	9.8	13.8	15.83	11	3
Oct-2011	7.4	12.1	16.06	11	3
Nov-2011	7.8	9.2	16.59	14	3
Dec-2011	6.2	9.2	16.59	7	3
Jan-2012	6.0	10.0	16.43	14	3
Feb-2012	7.5	11.1	16.23	13	3
Mar-2012	6.3	12.8	15.96	10	3
Apr-2012	8.1	13.1	15.92	10	3
May-2012	7.2	11.7	16.13	12	3
Jun-2012	7.4	11.6	16.14	14	3
Jul-2012	6.0	12.5	16.00	14	3
Aug-2012	5.5	11.3	16.18	13	3
Sep-2012	7.0	7.2	17.38	14	3
Oct-2012	7.6	7.2	17.20	14	3
Nov-2012	6.1	7.3	17.11	14	3
Dec-2012	6.7	8.3	16.82	14	3
Jan-2013	7.2	9.1	16.62	14	3
Feb-2013	6.7	10.3	16.36	13	3
Mar-2013	5.8	10.0	16.42	14	3
Apr-2013	7.0	11.7	16.12	11	3
May-2013	8.0	11.5	16.15	10	3
Jun-2013	7.8	10.4	16.36	12	3
Jul-2013	6.5	9.8	16.48	14	3

Refuge Monthly Inflow Load

TP loads are calculated using "no ratio-adjustment" and "14 day maximum for auto sampler composite concentration" algorithm.

Feb-2010	5	0.3	49
Mar-2010	53	5.0	76
Apr-2010	10	0.8	59
May-2010	2	0.1	45
Jun-2010	30	1.2	32
Jul-2010	19	0.6	25
Aug-2010	37	1.0	22
Sep-2010	39	1.0	20
Oct-2010	7	0.2	18
Nov-2010	1	0.01	15
Dec-2010	0.3	0.01	19
Jan-2011	7	0.3	32
Feb-2011	3	0.1	23
Mar-2011	3	0.1	31
Apr-2011	4	0.2	32
May-2011	5	0.1	21
Jun-2011	2	0.1	21
Jul-2011	31	1.1	30
Aug-2011	21	0.5	20
Sep-2011	27	0.6	19
Oct-2011	36	0.9	20
Nov-2011	34	0.7	18
Dec-2011	4	0.1	24
Jan-2012	0.5	0.02	31
Feb-2012	1	0.1	30
Mar-2012	6	0.2	31
Apr-2012	3	0.1	28
May-2012	20	0.7	27
Jun-2012	31	0.8	22
Jul-2012	19	0.3	15
Aug-2012	100	9.0	72
Sep-2012	121	9.1	61
Oct-2012	30	1.2	32
Nov-2012	2	0.1	28
Dec-2012	9	0.7	65
Jan-2013	1	0.1	51
Feb-2013	19	1.2	51
Mar-2013	6	0.5	66
Apr-2013	7	0.3	36
May-2013	14	0.5	33
Jun-2013	106	9.0	69
Jul-2013	86	2.4	22

Refuge Total Phosphorus Compliance Status

Orange highlighted and bolded months' geomeans were higher than interim levels.
 Yellow highlighted and bolded months' geomeans were higher than long term levels.
 Green highlighted and italicized months' levels were not applicable (N/A) because the average stages were less than 15.42 feet.

Aug-2013	5.8	9.4	16.55	14	3
Sep-2013	7.0	10.3	16.38	14	3
Oct-2013	6.6	8.3	16.83	14	3
Nov-2013	5.6	9.1	16.62	14	3
Dec-2013	4.4	9.1	16.63	13	3
Jan-2014	5.2	10.1	16.41	12	3
Feb-2014	7.4	9.1	16.61	14	3
Mar-2014	6.1	9.7	16.49	14	3
Apr-2014	6.1	11.0	16.23	12	3
May-2014	8.1	14.1	15.79	9	3
Jun-2014	6.6	16.0	15.56	6	3
Jul-2014	7.7	11.3	16.19	12	3
Aug-2014	7.4	9.8	16.48	14	3
Sep-2014	7.2	10.1	16.40	14	3
Oct-2014	7.9	7.2	17.34	14	3
Nov-2014	6.0	7.3	17.10	14	3
Dec-2014	5.6	7.6	17.01	14	3
Jan-2015	8.1	7.9	16.92	14	3
Feb-2015	5.5	8.9	16.67	14	3
Mar-2015	7.0	9.3	16.57	14	3
Apr-2015	7.6	11.0	16.25	12	3
May-2015	8.2	13.1	15.91	10	3
Jun-2015	9.7	15.3	15.65	5	3
<i>Jul-2015</i>	<i>18.0</i>	<i>N/A</i>	<i>15.18</i>	<i>2</i>	<i>3</i>
Aug-2015	12.3	14.1	15.78	8	3
Sep-2015	10.9	11.1	16.23	14	3
Oct-2015	7.4	7.9	16.92	14	3
Nov-2015	6.3	7.7	17.00	14	3
Dec-2015*	6.1 (5.9)	7.7 (7.6)	17.00 (17.02)	12 (14)	3
Jan-2016	6.5	7.2	17.15	14	3
Feb-2016	5.3	7.2	17.30	14	3
Mar-2016	6.0	8.3	16.82	14	3

* December 2015 values for Refuge including resampled data (at LOX14 and LOX15) are presented in parentheses.

Refuge Monthly Inflow Load

TP loads are calculated using "no ratio-adjustment" and "14 day maximum for auto sampler composite concentration" algorithm.

Aug-2013	20	0.9	34
Sep-2013	56	2.3	34
Oct-2013	42	1.3	25
Nov-2013	4	0.2	51
Dec-2013	7	0.4	40
Jan-2014	9	0.5	44
Feb-2014	32	1.6	40
Mar-2014	3	0.2	42
Apr-2014	2	0.1	42
May-2014	4	0.1	27
Jun-2014	41	1.3	26
Jul-2014	29	0.7	20
Aug-2014	58	1.2	17
Sep-2014	37	0.8	17
Oct-2014	33	0.9	21
Nov-2014	7	0.2	19
Dec-2014	25	0.5	16
Jan-2015	1	0.03	20
Feb-2015	3	0.1	22
Mar-2015	6	0.2	30
Apr-2015	1	0.04	24
May-2015	5	0.1	23
Jun-2015	4	0.2	37
<i>Jul-2015</i>	<i>6</i>	<i>0.1</i>	<i>15</i>
Aug-2015	28	0.6	16
Sep-2015	79	1.5	15
Oct-2015	42	0.8	16
Nov-2015	14	0.3	19
Dec-2015	28	0.6	17
Jan-2016	67	3.0	36
Feb-2016	50	3.6	58
Mar-2016	9	0.4	38

* March 2009 inflow was too low to calculate inflow FWMC accurately.