



Maryland
Department of
the Environment

Informational Meeting
on the
Surface Discharge Permit Renewal
for

Back River Wastewater Treatment Plant (WWTP)
(State Application No. 22-DP-0581, NPDES No. MD0021555)

Wednesday, November 8, 2023



MEETING AGENDA

- ▶ **Introduction:** **5:30 pm – 5:40 pm**
 - ▶ *Opening Statement & House Keeping*

- ▶ **Presentations:** **5:40 pm – 6:30 pm**
 - ▶ *Maryland Department of the Environment (MDE)*

 - ▶ *City of Baltimore – Department of Public Works (DPW)*

- ▶ **Q & A Session:** **6:30 pm – 7:30 pm**

- ▶ **Closing Statement & Adjourn:** **7:30 pm**

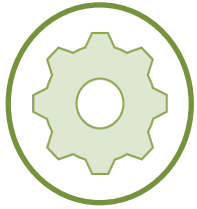


PRESENTATION

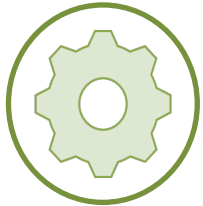
Maryland Department of the Environment
(MDE)



PURPOSE OF THE MEETING



Provide
information



Answer
questions

Back River WWTP
discharge permit
renewal application
(22-DP-0581)



PERMIT PROCESS FLOWCHART





PERMIT RENEWAL STATUS (22-DP-0581)

ACTIVITY	DATE
Permit renewal application received	11/10/2021 <i>(Latest revision received on 08/08/2023)</i>
Notice of Application Received published in the newspaper "The Sun"	08/16/2023 08/23/2023
Request for Informational Meeting received from the public	08/30/2023
Notice of Informational Meeting published in the newspaper "The Sun"	10/13/2023 10/20/2023
Informational Hearing held	11/08/2023

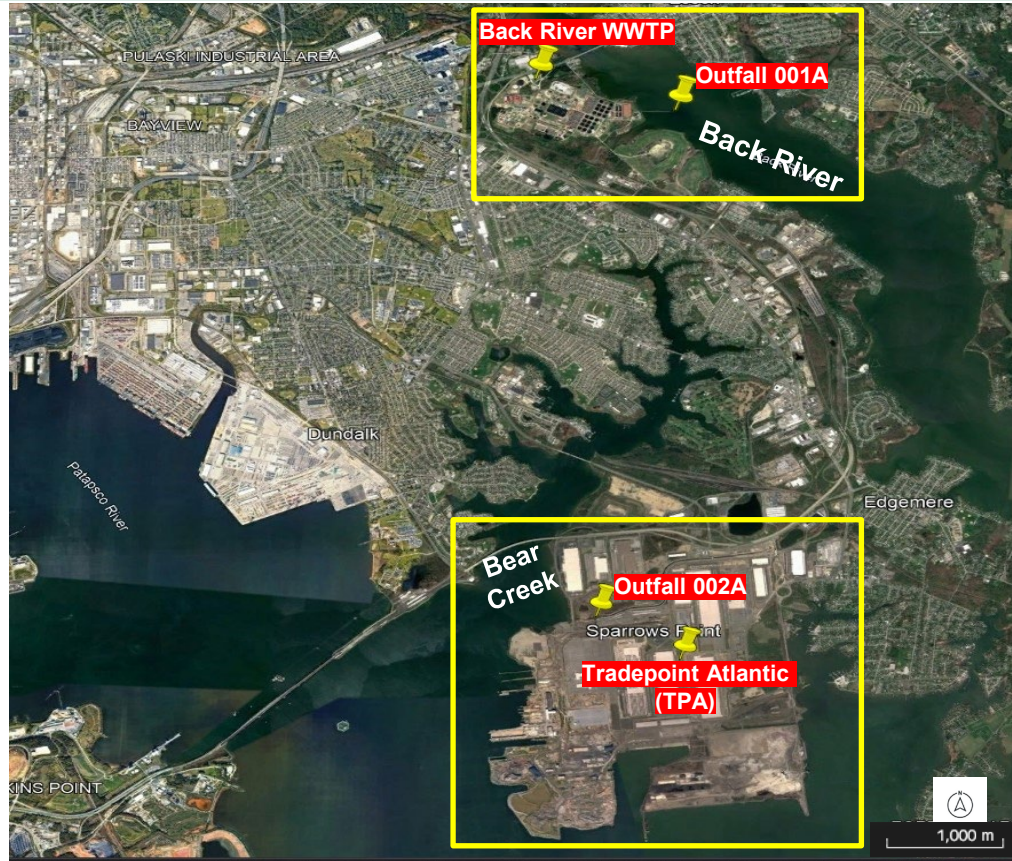


APPLICANT & FACILITY INFORMATION

- Facility Name:** Back River WWTP
- Applicant:** Mayor and City Council of Baltimore, City Hall
- Mailing Address:** 100 North Holliday Street, Baltimore, MD 21202
- Brief Description:** The WWTP is a tertiary Enhanced Nutrient Removal (ENR) treatment system with a 180 MGD design capacity and serves Baltimore City & Baltimore County with a population of approximately 976,000. The ENR upgrade was completed and made operational on 09/01/2017.
- Facility Location:** 8201 Eastern Avenue, Baltimore, MD 21224



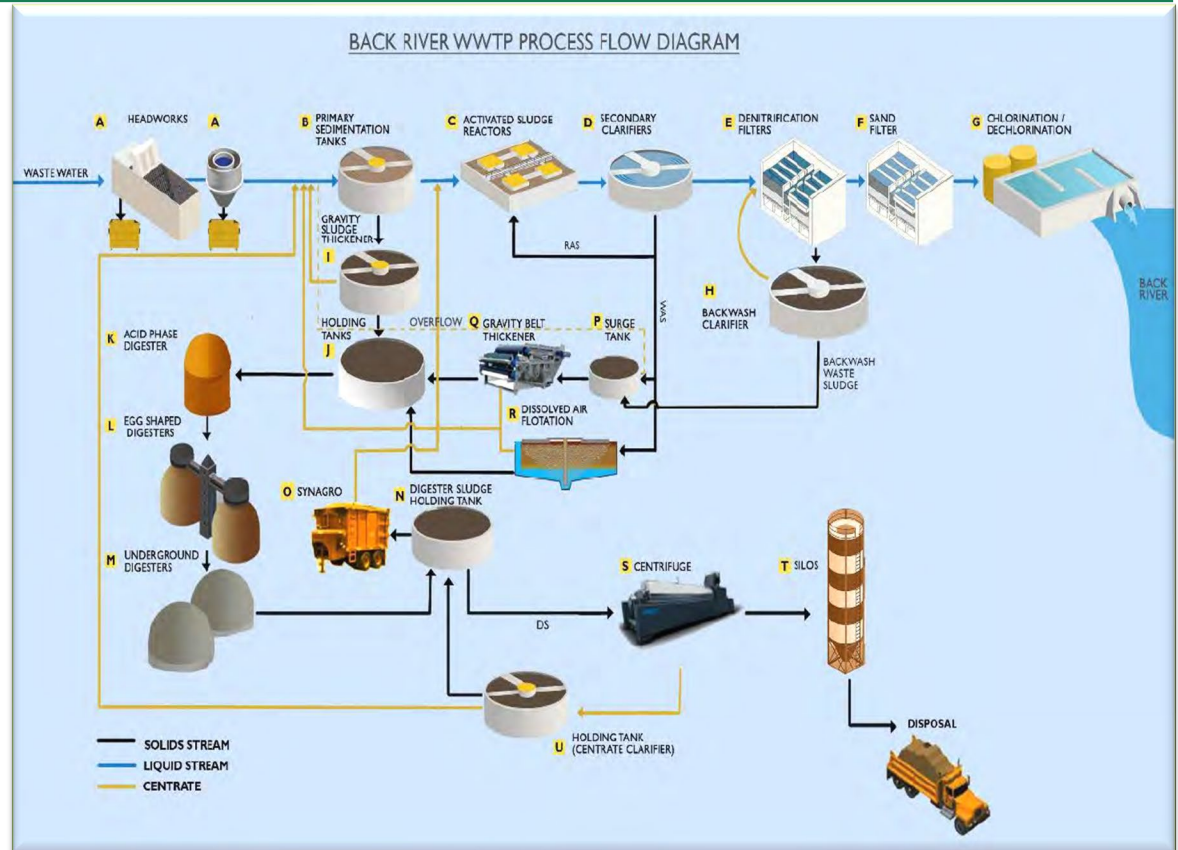
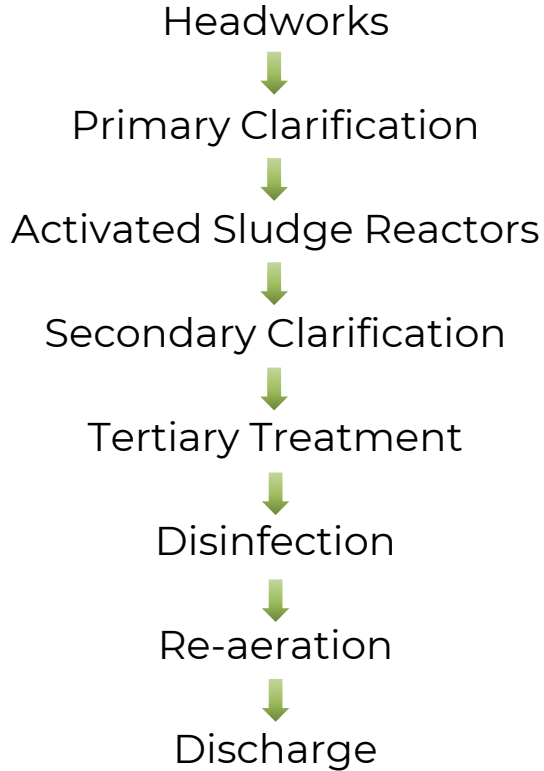
FACILITY & OUTFALL LOCATION



Approximate distance between Outfall 001A & 002A is 4.58 miles.



BACK RIVER WWTP PROCESS DESCRIPTION





AERIAL VIEW: BACK RIVER WWTP & OUTFALL 001A





AERIAL VIEW: TRADEPOINT ATLANTIC & OUTFALL 002A



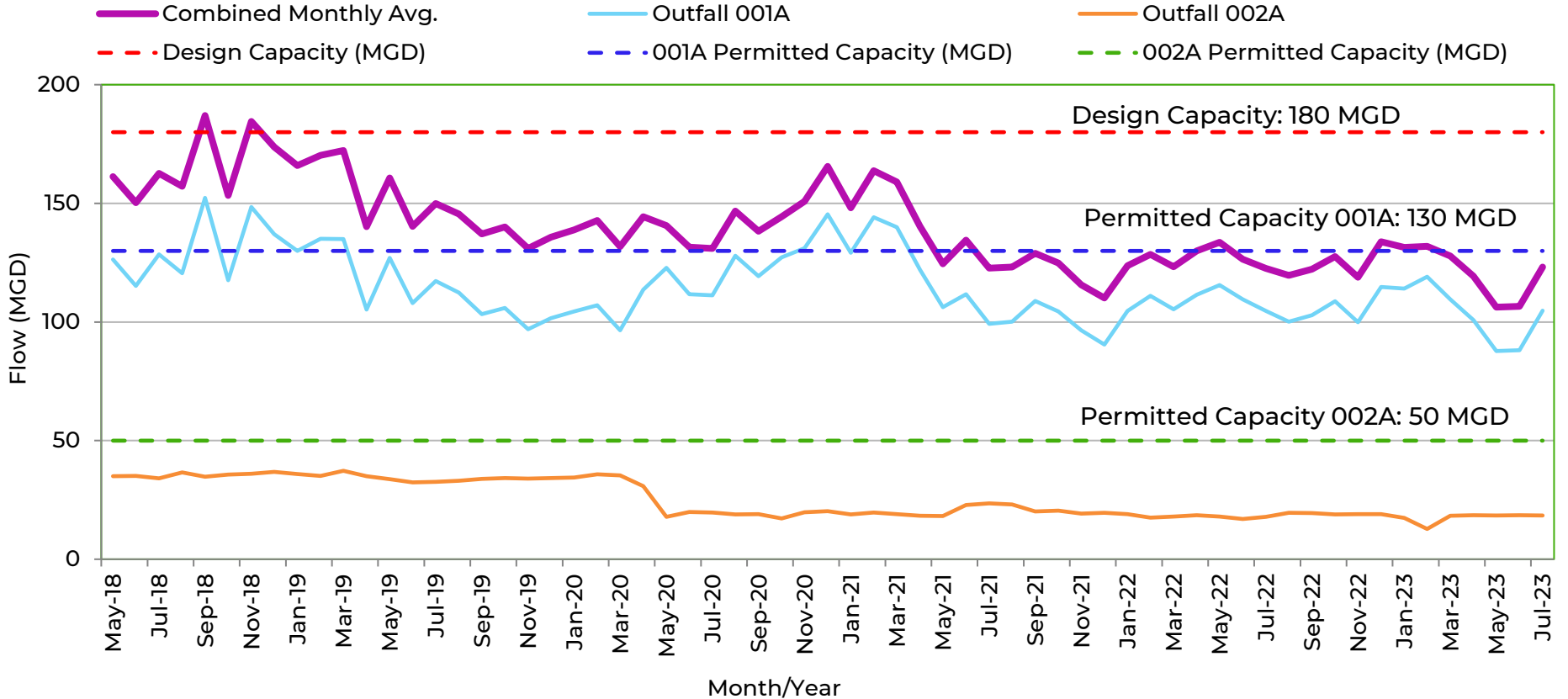


RECEIVING STREAMS INFORMATION

Outfall	001A	002A
Name of Stream	Back River	Bear Creek
Type of Stream	Tidal River	Estuarine
Watershed	Back River (02-13-09-01)	Baltimore Harbor (02-13-09-03)
Chesapeake Bay Model Segment	Back River Oligohaline (BACOH)	Patapsco River Mesohaline (PATMH)
Stream Use Designation	Use II (Non-shellfish harvesting): Water protected for estuary and marine aquatic life	Use II (Non-shellfish harvesting): Water protected for estuary and marine aquatic life



FLOW: MONTHLY AVERAGE DISCHARGE FOR COMBINED 180 MGD AT OUTFALL 001A & 002A (05/2018 - 07/2023)





FACILITY PERFORMANCE SUMMARY

May 2018 - July 2023



EFFLUENT PARAMETERS & WATER QUALITY CRITERIA

Pollutant	Location	Concentration Limit	Loading Rate Limit	Regulatory Rationale
Biological Oxygen Demand (BOD₅)	001A	Weekly: 15 mg/l Monthly: 10 mg/l	Weekly: 16,000 lb/day Monthly: 11,000 lb/day	40 CFR §133.102, COMAR 26.08.02.03-3C(8), COMAR 26.08.04.04C(1) & COMAR 26.08.01.01B(80)
	002A	Summer Weekly: 30 mg/l Monthly: 20 mg/l	Summer Weekly: 12,520 lb/day Monthly: 8,340 lb/day	
		Winter Weekly: 45 mg/l Monthly: 30 mg/l	Winter Weekly: 18,770 lb/day Monthly: 12,520 lb/day	
Total Suspended Solids (TSS)	001A	Weekly: 15 mg/l Monthly: 10 mg/l	Weekly: 16,000 lb/day Monthly: 11,000 lb/day All-Year: 3,959,228 lb/year	40 CFR §133.102, COMAR 26.08.02.03-3C(5), COMAR 26.08.02.03-3A(5), COMAR 26.08.04.04C(1), COMAR 26.08.01.01B(80), 40 CFR§133.102 - §133.105 & The Chesapeake Bay TMDL
	002A	Weekly: 45 mg/l Monthly: 30 mg/l	Weekly: 18,770 lb/day Monthly: 12,520 lb/day All-Year: 4,589,026 lb/year	
	Facility (CB TMDL)	N/A	8,548,254 lb/year	



EFFLUENT PARAMETERS & WATER QUALITY CRITERIA (Cont'd)

Pollutant	Location	Concentration Limit	Loading Rate Limit	Regulatory Rationale
Total Ammonia (NH₃)	001A	Summer Weekly: 3.0 mg/l Monthly: 2.0 mg/l Winter Monthly: 5.1 mg/l	Summer Weekly: 3,300 lb/day Monthly: 2,200 lb/day Winter Monthly: 5,529 lb/day	COMAR 26.08.02.03-2J, COMAR 26.08.02.03-2K, COMAR 26.08.02.05C & COMAR 26.08.02.05D
	002A	Summer Weekly: 3.0 mg/l Monthly: 2.0 mg/l Winter Monthly: 5.1 mg/l	Summer Weekly: 1,250 lb/day Monthly: 830 lb/day Winter Monthly: 2,130 lb/day	
Total Nitrogen (TN)	001A	N/A	Summer: 99,782 lb/month All-Year: 1,582,055 lb/year	40 CFR §130.7, COMAR 26.08.02.04, COMAR 26.08.03.01C(3), COMAR 26.08.04.04C, Back River TMDL, Baltimore Harbor TMDL & Chesapeake Bay TMDL
	002A	N/A	Summer: 230,294 lb/season All-Year: 610,748 lb/year	
	Facility (CB TMDL)	N/A	2,192,800 lb/year	



EFFLUENT PARAMETERS & WATER QUALITY CRITERIA (Cont'd)

Pollutant	Location	Concentration Limit	Loading Rate Limit	Regulatory Rationale
Total Phosphorus (TP)	001A	Weekly: 0.30 mg/l Monthly: 0.20 mg/l	Weekly: 330 lb/day Monthly: 220 lb/day Summer: 6,652 lb/month All-Year: 79,277 lb/year	40 CFR §130.7, COMAR 26.08.02.04, COMAR 26.08.03.01C(3), COMAR 26.08.04.04C, Back River TMDL, Baltimore Harbor TMDL & Chesapeake Bay TMDL
	002A	Weekly: 0.30 mg/l Monthly: 0.20 mg/l	Weekly: 125 lb/day Monthly: 83 lb/day Summer: 15,353 lb/season All-Year: 30,363 lb/year	
	Facility (CB TMDL)	N/A	109,600 lb/year	



EFFLUENT PARAMETERS & WATER QUALITY CRITERIA (Cont'd)

Pollutant	Location	Concentration Limit	Regulatory Rationale
<p style="text-align: center;">E. Coli</p>	001A	<p style="text-align: center;">Max: 126 MPN / 100ml</p>	<p style="text-align: center;">COMAR 26.08.02.03-3A(1)</p>
	002A		
<p style="text-align: center;">pH</p>	001A	<p style="text-align: center;">Max: 8.5 SU Min: 6.5 SU</p>	<p style="text-align: center;">COMAR 26.08.02.03-3C(4) & COMAR 26.08.02.03-3A(4)</p>
	002A		
<p style="text-align: center;">Dissolved Oxygen (DO)</p>	001A	<p style="text-align: center;">All-Year Min: 5.0 mg/l anytime 2/1 – 5/31 Min: 6.0 mg/l weekly avg.</p>	<p style="text-align: center;">COMAR 26.08.02.03-3C(8) & COMAR 26.08.02.08</p>
	002A		



EFFLUENT PARAMETERS & WATER QUALITY CRITERIA (Cont'd)

Pollutant	Location	Concentration Limit	Waste Load Allocation (WLA)	Regulatory Rationale
Total Residual Chlorine (TRC)	001A	0.011 mg/l	N/A	COMAR 26.08.02.03-2G(1), COMAR 26.08.02.05C, COMAR 26.08.02.05D, COMAR 26.08.03.06C(5), COMAR 26.08.03.06D, COMAR 26.08.03.06F
Polychlorinated Biphenyls (tPCBs)	001A	N/A	48.5 g/year	Back River TMDL Baltimore Harbor TMDL
	002A		18.66 g/year	
Whole Effluent Toxicity (WET)	001A	TU _a < 1.00 TU _c < 1.02	N/A	COMAR 26.08.03.07



EFFLUENT LIMIT EXCEEDANCE SUMMARY (5/2018 – 7/2023)

Pollutant	Location	2018 (May – Dec)	2019	2020	2021	2022	2023 (Jan – July)
BOD₅	001A	0	5	0	16	7	0
	002A	0	0	0	0	0	0
	Facility	N/A	N/A	N/A	N/A	N/A	N/A
	Total	0	5	0	16	7	0
TSS	001A	0	0	1	25	12	0
	002A	0	0	0	5	1	0
	Facility (CB TMDL)	0	0	0	0	0	0
	Total	0	0	1	30	13	0
Total Ammonia	001A	0	0	0	8	0	0
	002A	0	0	0	4	0	0
	Facility	N/A	N/A	N/A	N/A	N/A	N/A
	Total	0	0	0	12	0	0



EFFLUENT LIMIT EXCEEDANCE SUMMARY (Cont'd) (5/2018 – 7/2023)

Pollutant	Location	2018 (5/31 – 12/31)	2019	2020	2021	2022	2023 (1/1 – 7/31)
TN	001A	3	1	3	7	1	0
	002A	0	0	0	0	0	0
	Facility (CB TMDL)	0	0	0	1	0	0
	Total	3	1	3	8	1	0
TP	001A	0	4	3	34	22	0
	002A	1	4	1	32	18	1
	Facility (CB TMDL)	0	0	0	1	1	0
	Total	1	8	4	67	41	1
E.Coli	001A	1	0	0	1	0	0
	002A	0	1	0	2	0	0
	Total	1	1	0	3	0	0



EFFLUENT LIMIT EXCEEDANCE SUMMARY (Cont'd)

(5/2018 – 7/2023)

Pollutant	Location	2018 (5/31 – 12/31)	2019	2020	2021	2022	2023 (1/1 – 7/31)
pH	001A	0	0	0	0	1	0
	002A	0	0	0	0	1	0
	Facility	N/A	N/A	N/A	N/A	N/A	N/A
	Total	0	0	0	0	2	0
DO	001A	0	0	0	0	0	0
	002A	0	0	0	0	0	0
	Facility	N/A	N/A	N/A	N/A	N/A	N/A
	Total	0	0	0	0	0	0
WET	Total	1	1	2	2	0	0



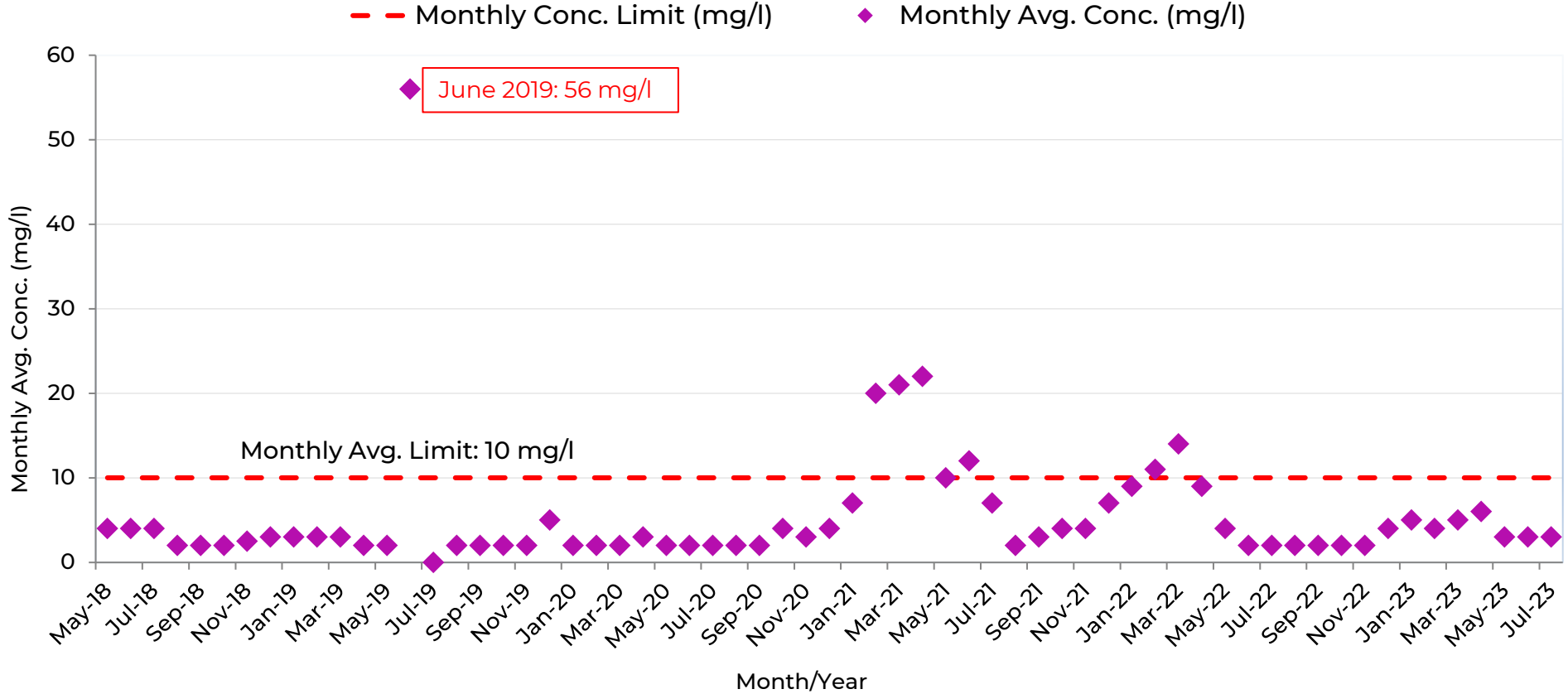
REFERENCES FOR FACILITY PERFORMANCE



BOD₅: MONTHLY AVERAGE CONCENTRATION (mg/l)

OUTFALL 001A (130 MGD)

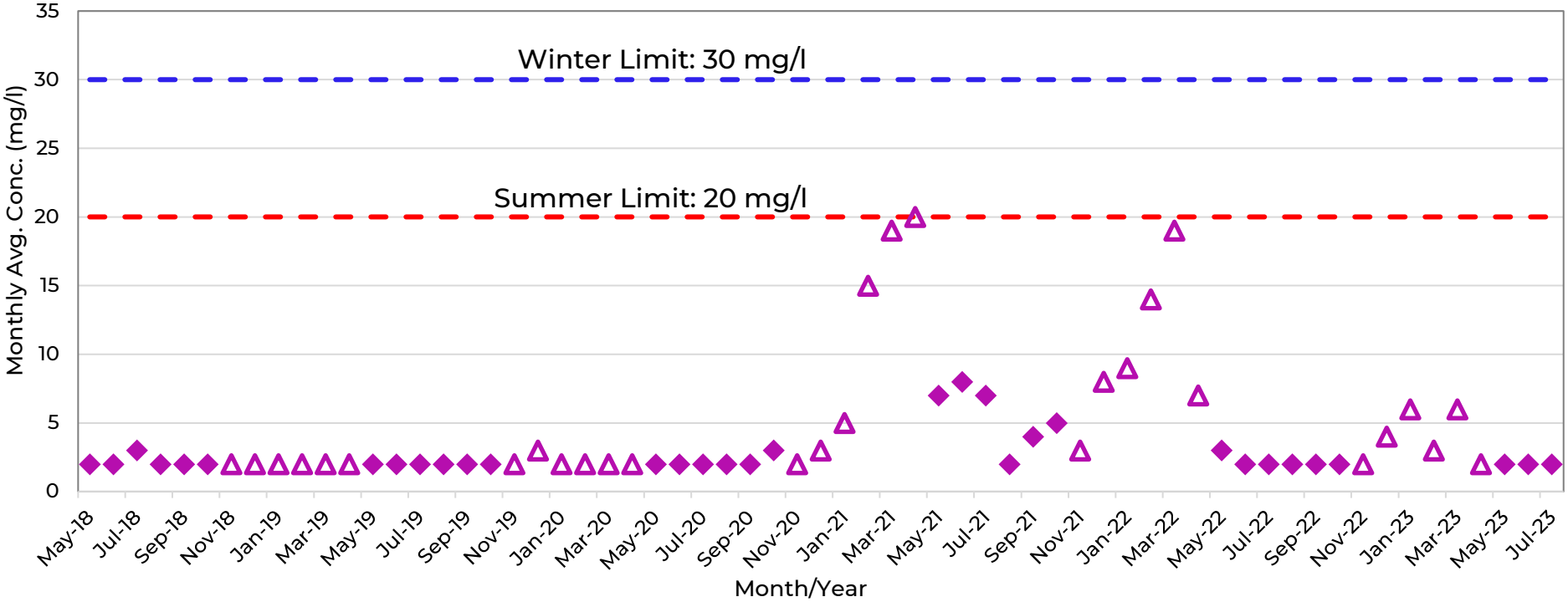
(05/2018 - 07/2023)





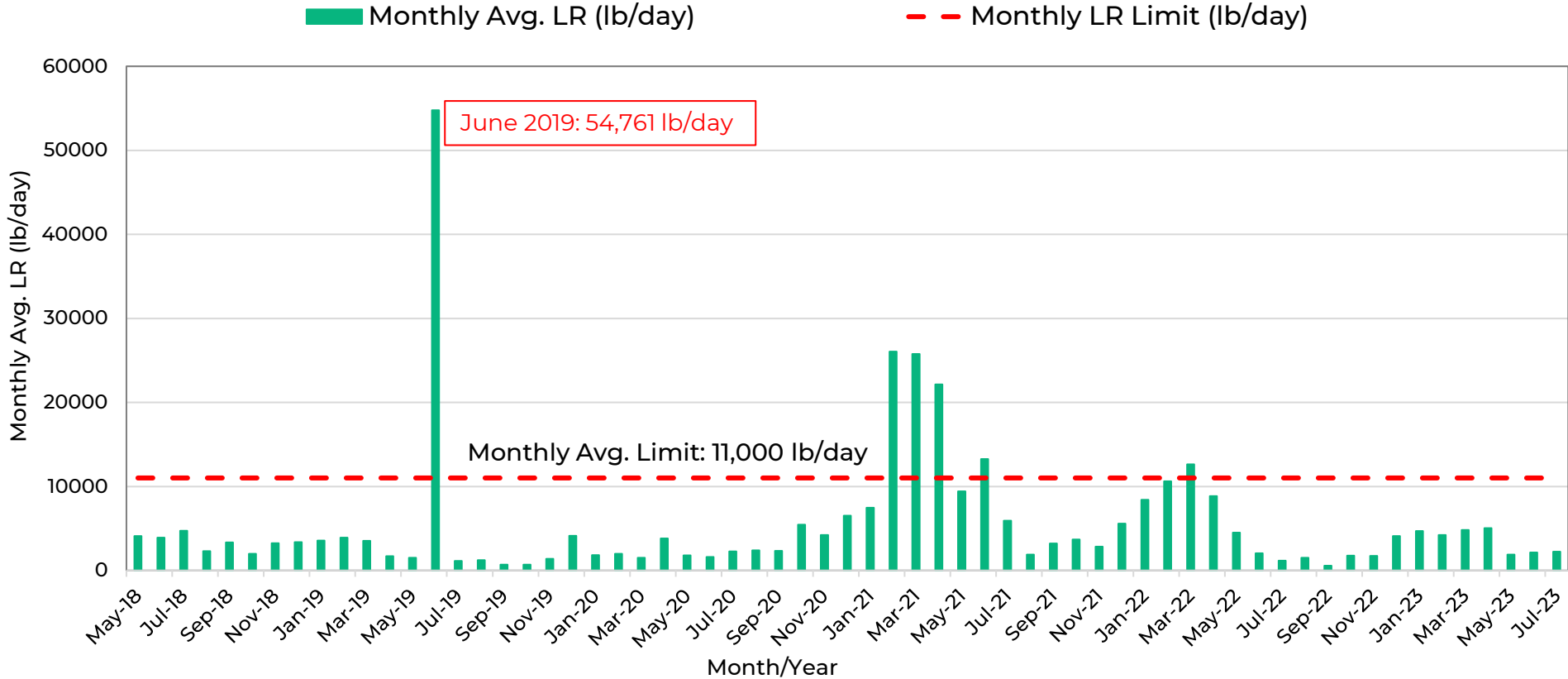
BOD₅: MONTHLY AVERAGE CONCENTRATION (mg/l) OUTFALL 002A (50 MGD) (05/2018 - 07/2023)

- Monthly Conc. Limit, Summer (mg/l)
- Monthly Conc. Limit, Winter (mg/l)
- ◆ Monthly Avg. Conc., Summer (mg/l)
- △ Monthly Avg. Conc., Winter (mg/l)





BOD₅: MONTHLY AVERAGE LOADING RATE (lb/day) OUTFALL 001A (130 MGD) (05/2018 - 07/2023)



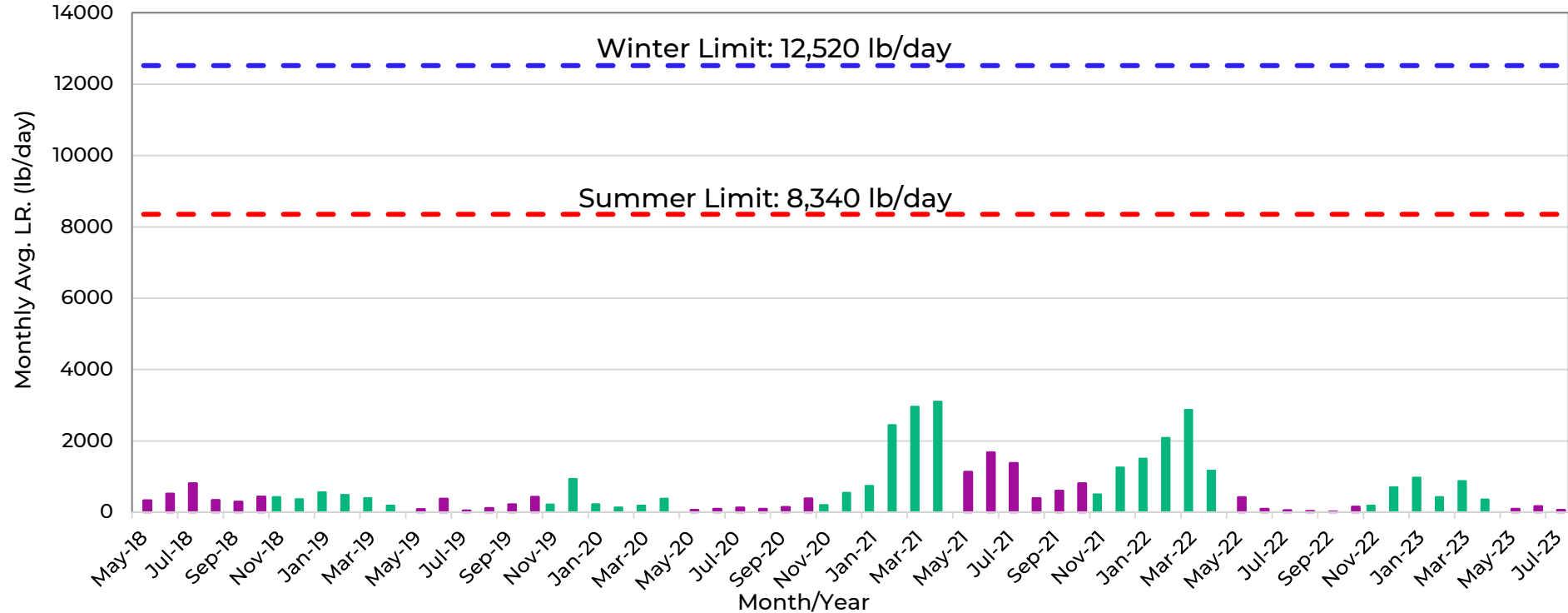


BOD₅: MONTHLY AVERAGE LOADING RATE (lb/day)

OUTFALL 002A (50 MGD)

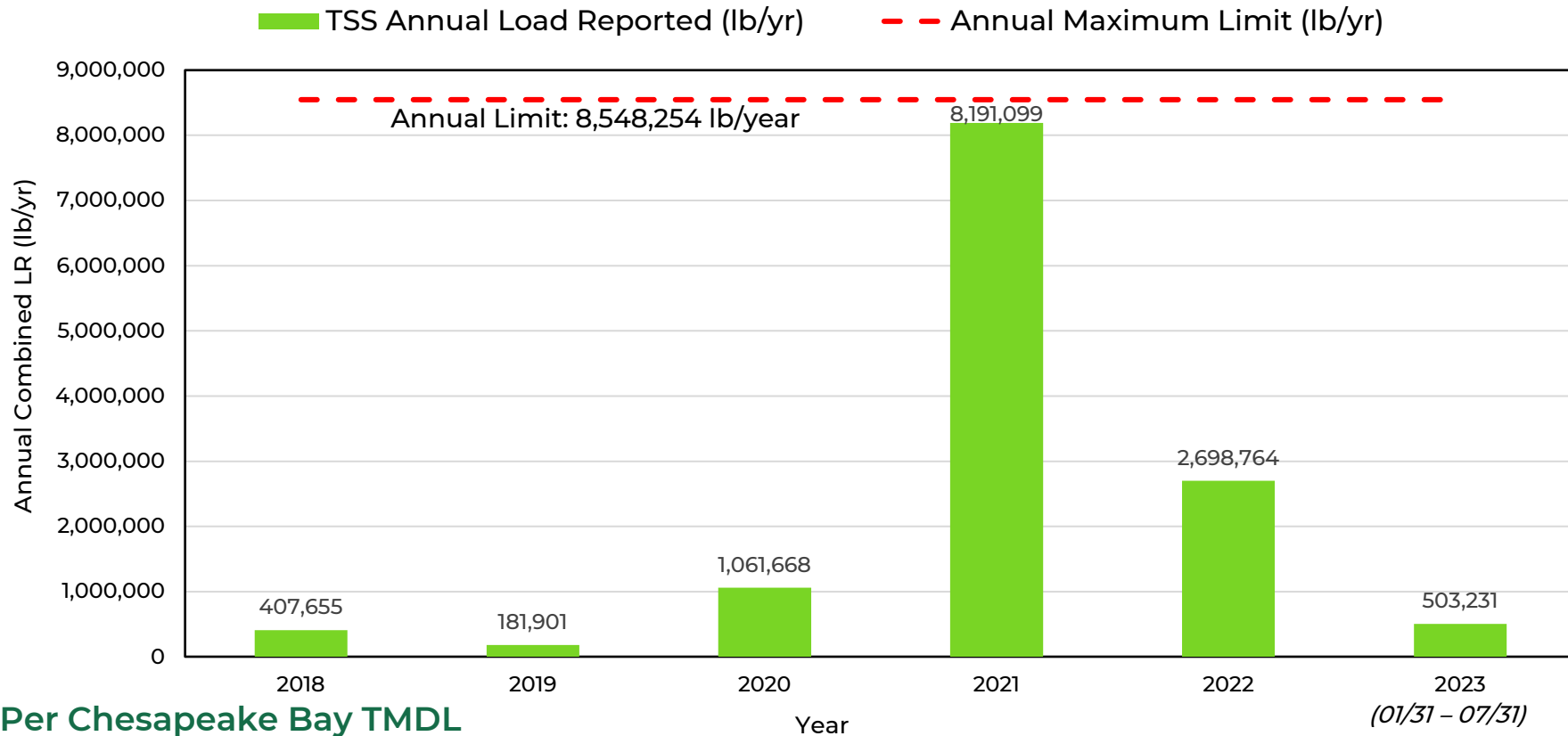
(05/2018 - 07/2023)

- Monthly Avg. LR, Winter (lb/day)
- Monthly Avg. LR, Summer (lb/day)
- - Monthly LR Limit, Summer (lb/day)
- - Monthly LR Limit, Winter (lb/day)





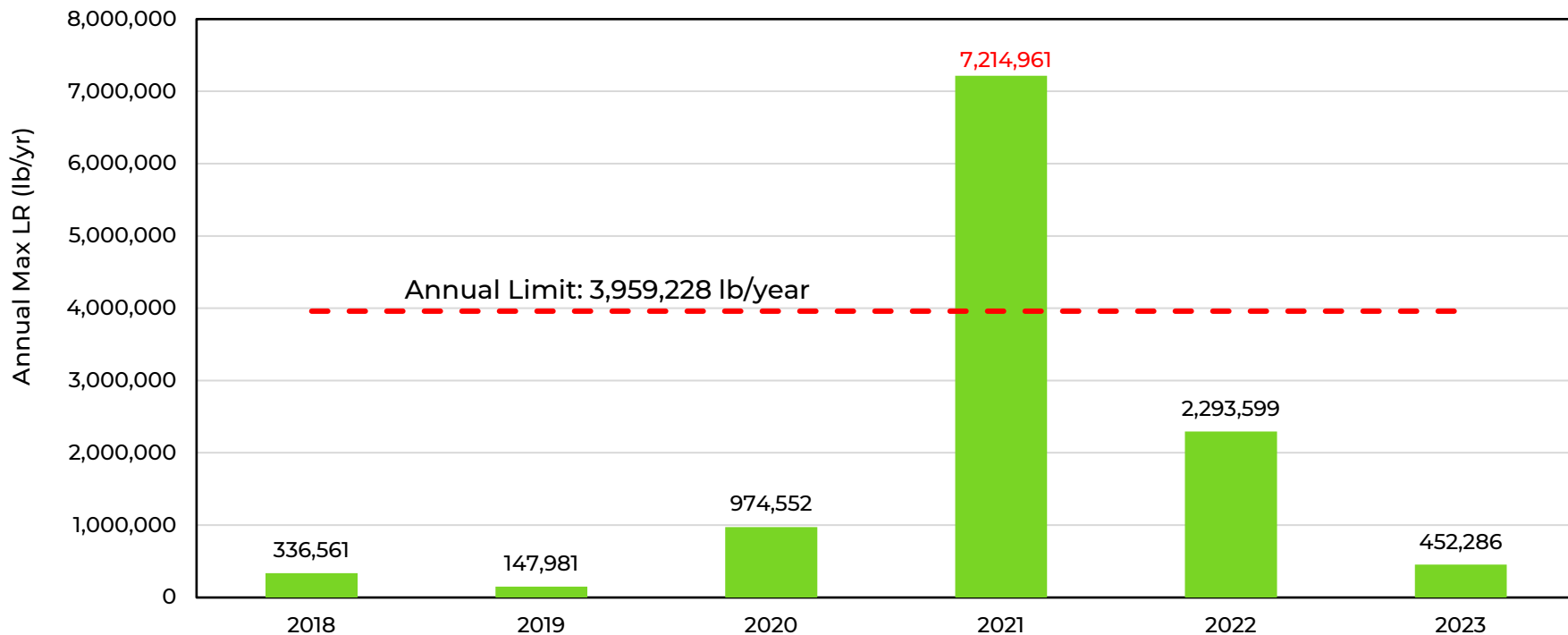
TSS: COMBINED ANNUAL LOADING RATE * (lb/year) OUTFALL 001A & 002A (180 MGD) (05/2018 - 07/2023)





TSS: ANNUAL MAX. LOADING RATE * (lb/year) OUTFALL 001A (130 MGD) (05/2018 - 07/2023)

■ TSS Annual Load Reported (lb/yr) - - - Annual Maximum Limit (lb/year)



* Based on Water Quality Modeling

Year

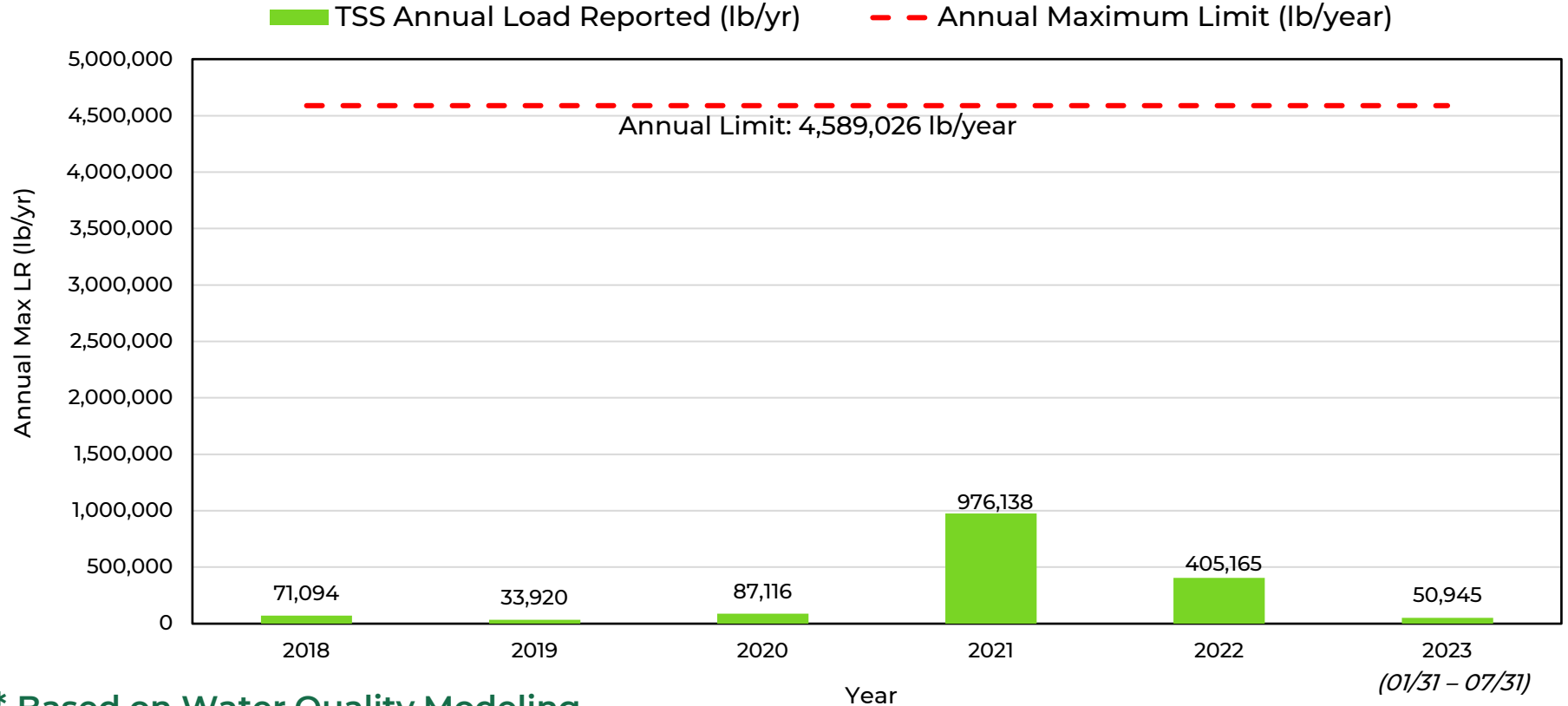
(01/31 - 07/31)



TSS: ANNUAL MAX. LOADING RATE * (lb/year)

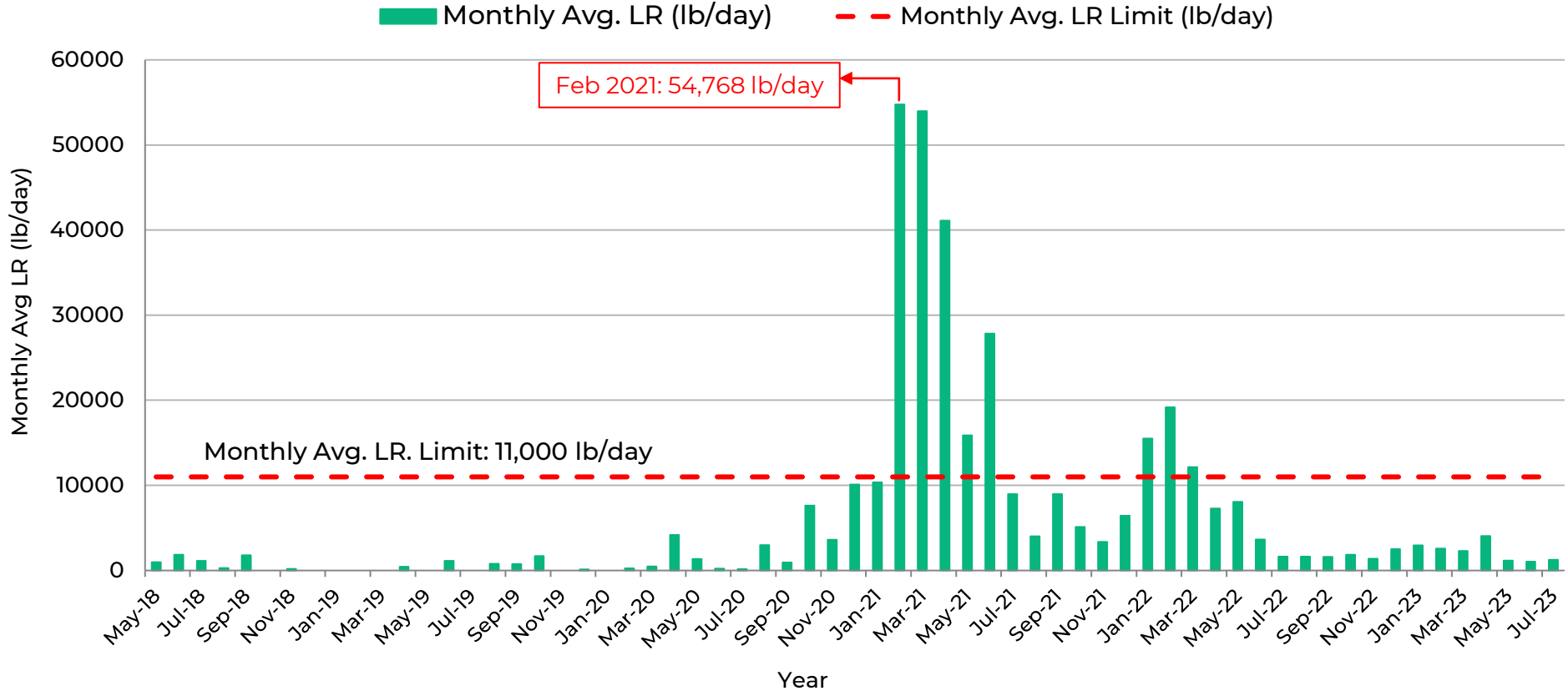
OUTFALL 002A (50 MGD)

(05/2018 - 07/2023)



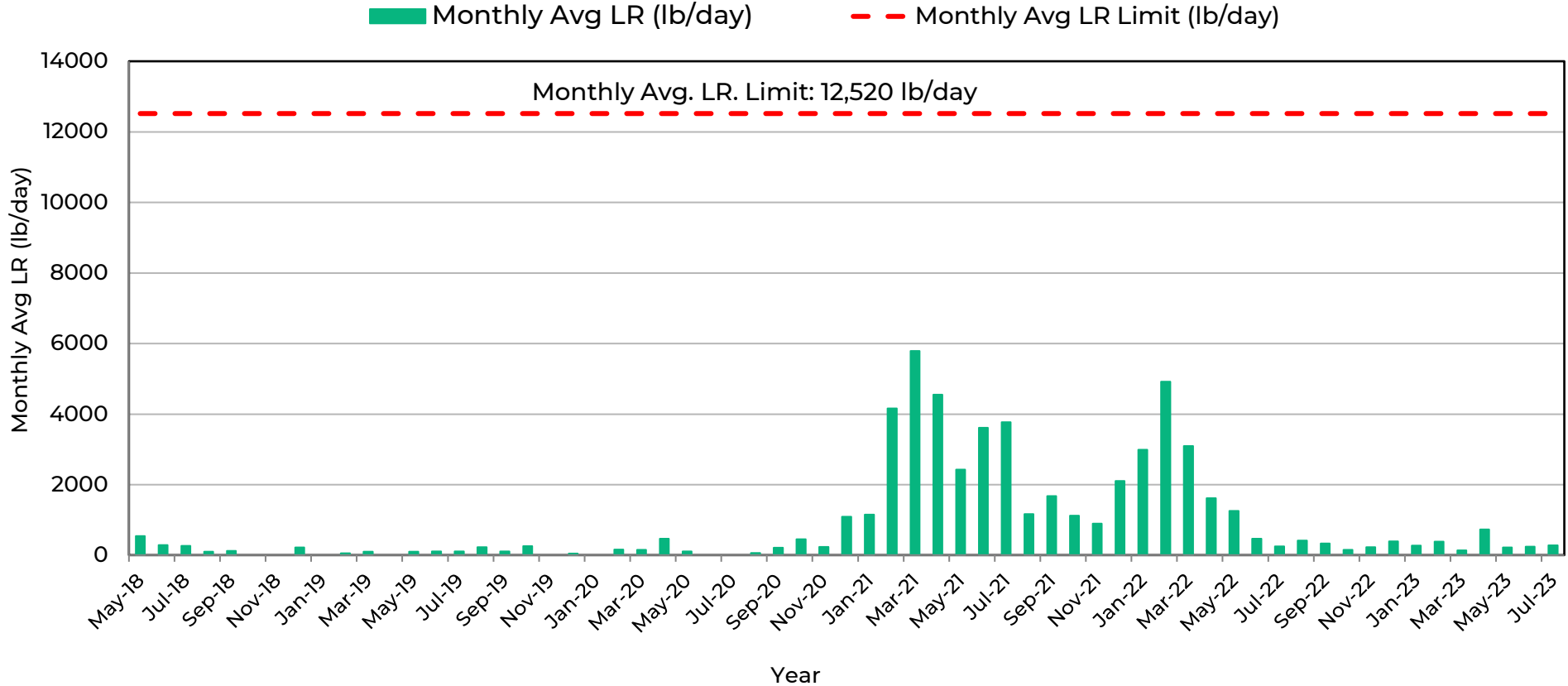


TSS: MONTHLY AVERAGE LOADING RATE (lb/day) OUTFALL 001A (130 MGD) (05/2018 - 07/2023)





TSS: MONTHLY AVERAGE LOADING RATE (lb/day) OUTFALL 002A (50 MGD) (05/2018 - 07/2023)

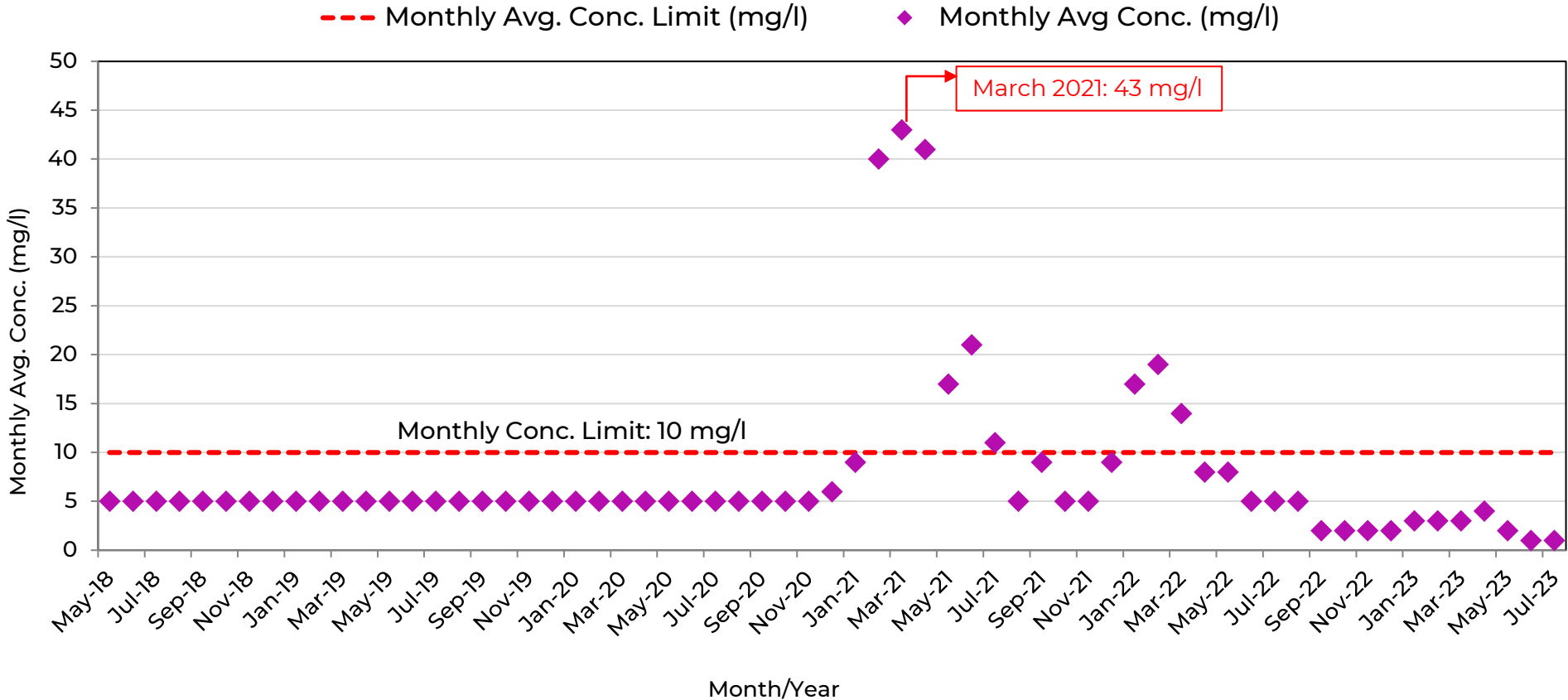




TSS: MONTHLY AVERAGE CONCENTRATION (mg/l)

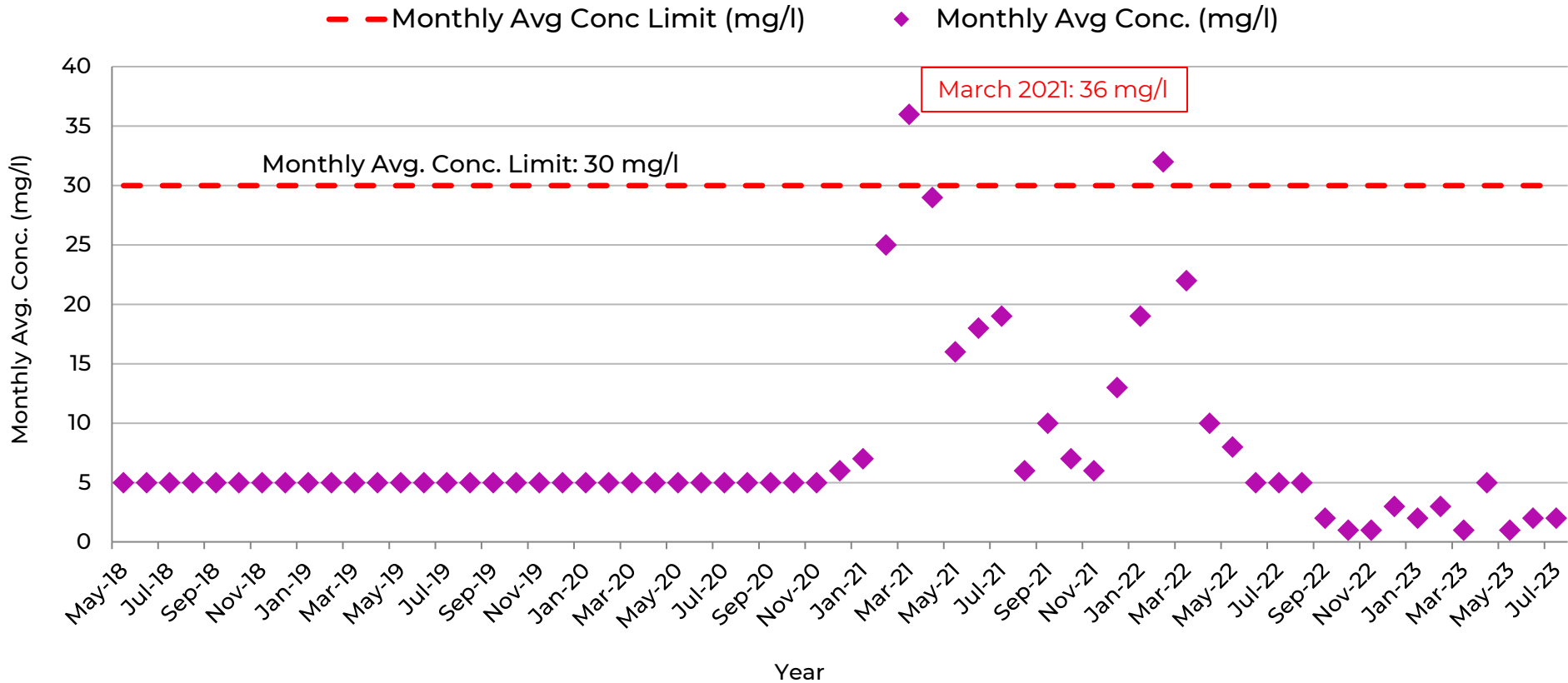
OUTFALL 001A (130 MGD)

(05/2018 - 07/2023)



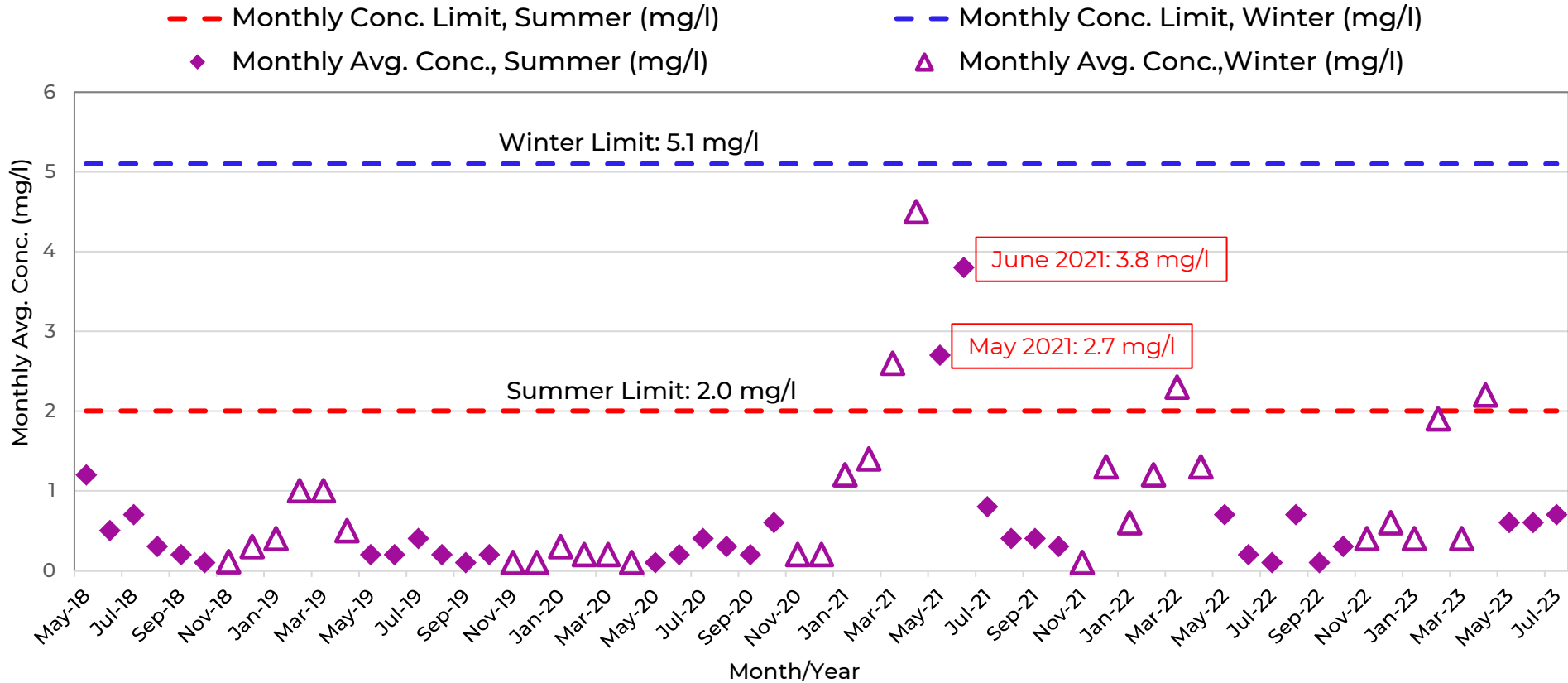


TSS: MONTHLY AVERAGE CONCENTRATION (mg/l) OUTFALL 002A (50 MGD) (05/2018 - 07/2023)





TOTAL AMMONIA AS N: MONTHLY AVERAGE CONCENTRATION (mg/l) OUTFALL 001A (130 MGD) (05/2018 - 07/2023)





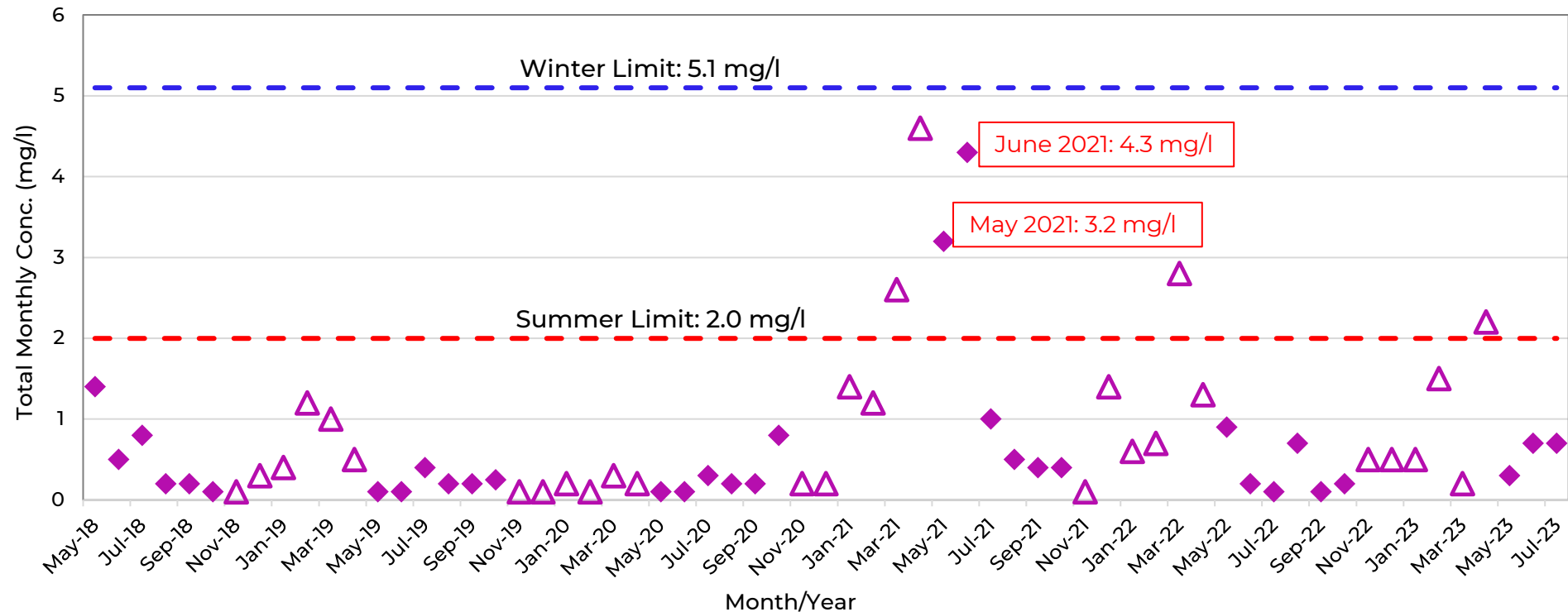
TOTAL AMMONIA AS N: MONTHLY AVERAGE CONCENTRATION (mg/l) OUTFALL 002A (50 MGD) (05/2018 - 07/2023)

--- Monthly Conc. Limit, Summer (mg/l)

--- Monthly Conc. Limit, Winter (mg/l)

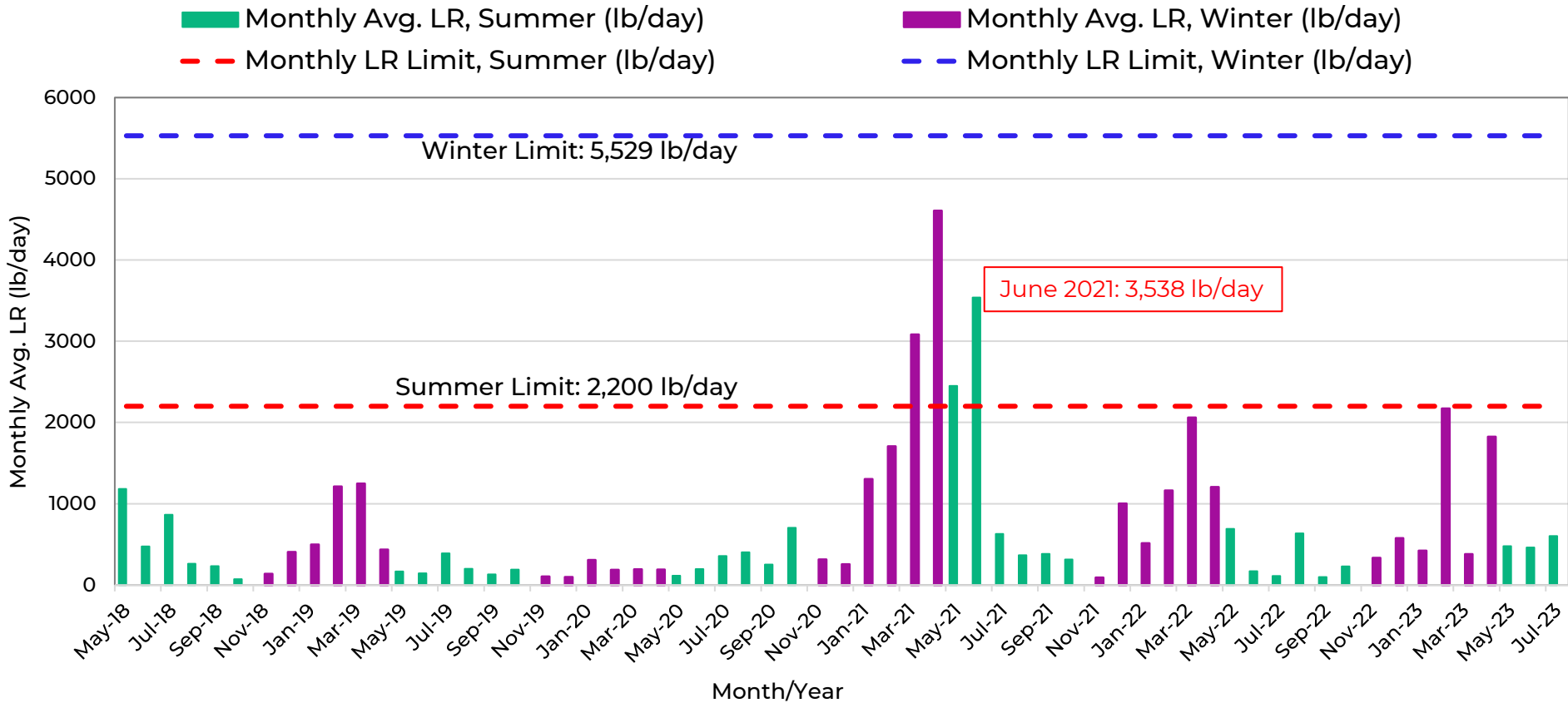
◆ Monthly Avg. Conc., Summer (mg/l)

△ Monthly Avg. Conc., Winter (mg/l)



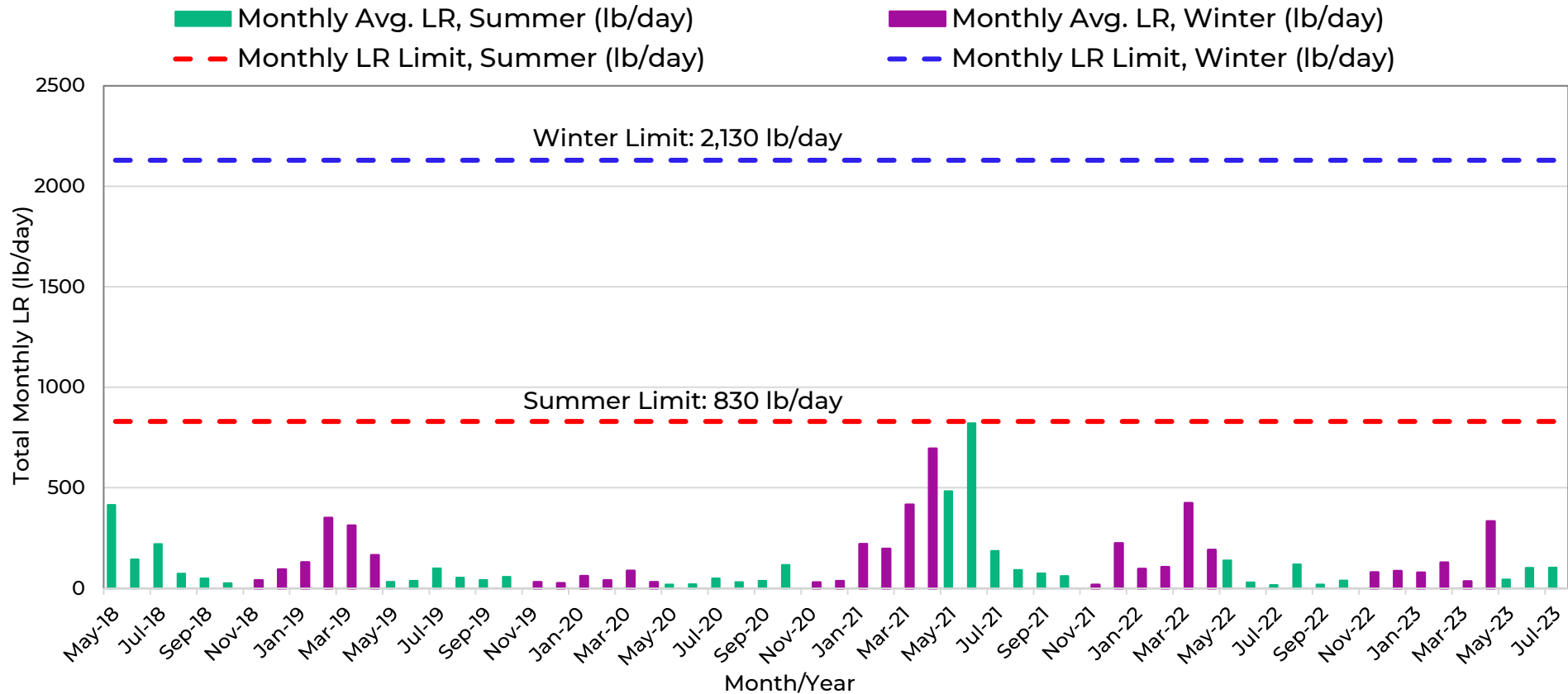


TOTAL AMMONIA AS N: MONTHLY AVERAGE LOADING RATE (lb/day) OUTFALL 001A (130 MGD) (05/2018 - 07/2023)



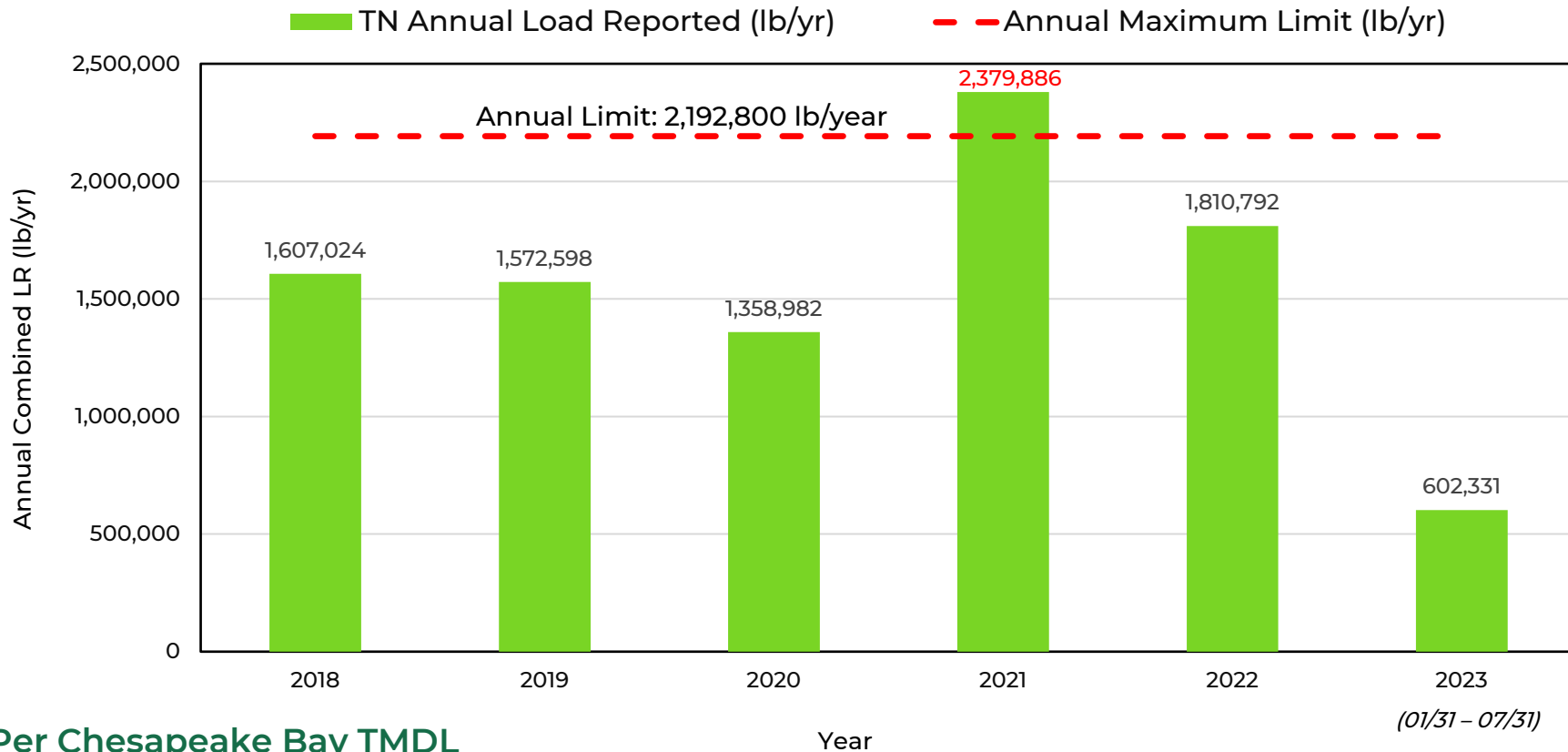


TOTAL AMMONIA AS N: MONTHLY AVERAGE LOADING RATE (lb/day) OUTFALL 002A (50 MGD) (05/2018 - 07/2023)





TOTAL NITROGEN: COMBINED ANNUAL LOADING RATE * (lb/year) OUTFALL 001A & 002A (180 MGD) (05/2018 - 07/2023)

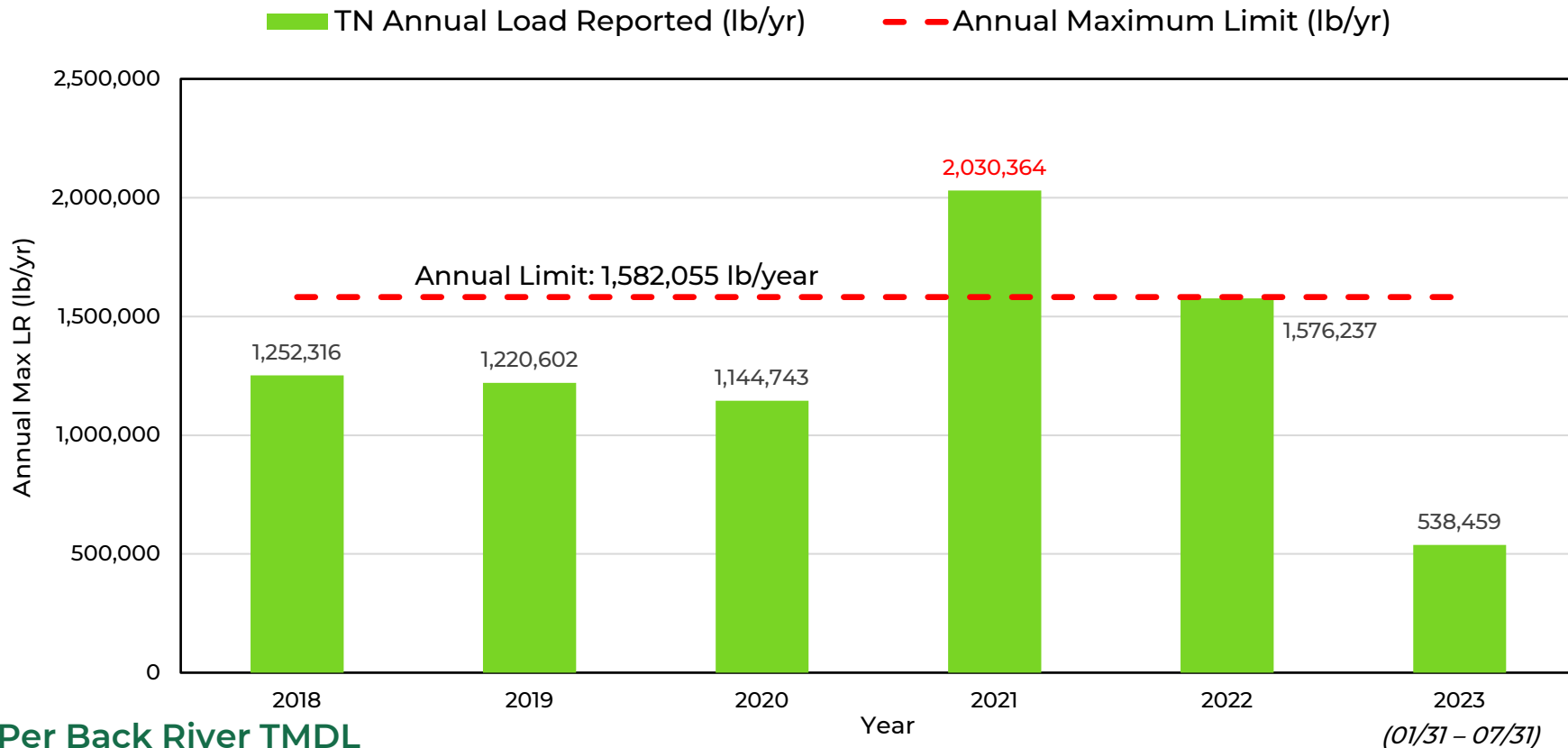




TOTAL NITROGEN: ANNUAL MAX. LOADING RATE * (lb/year)

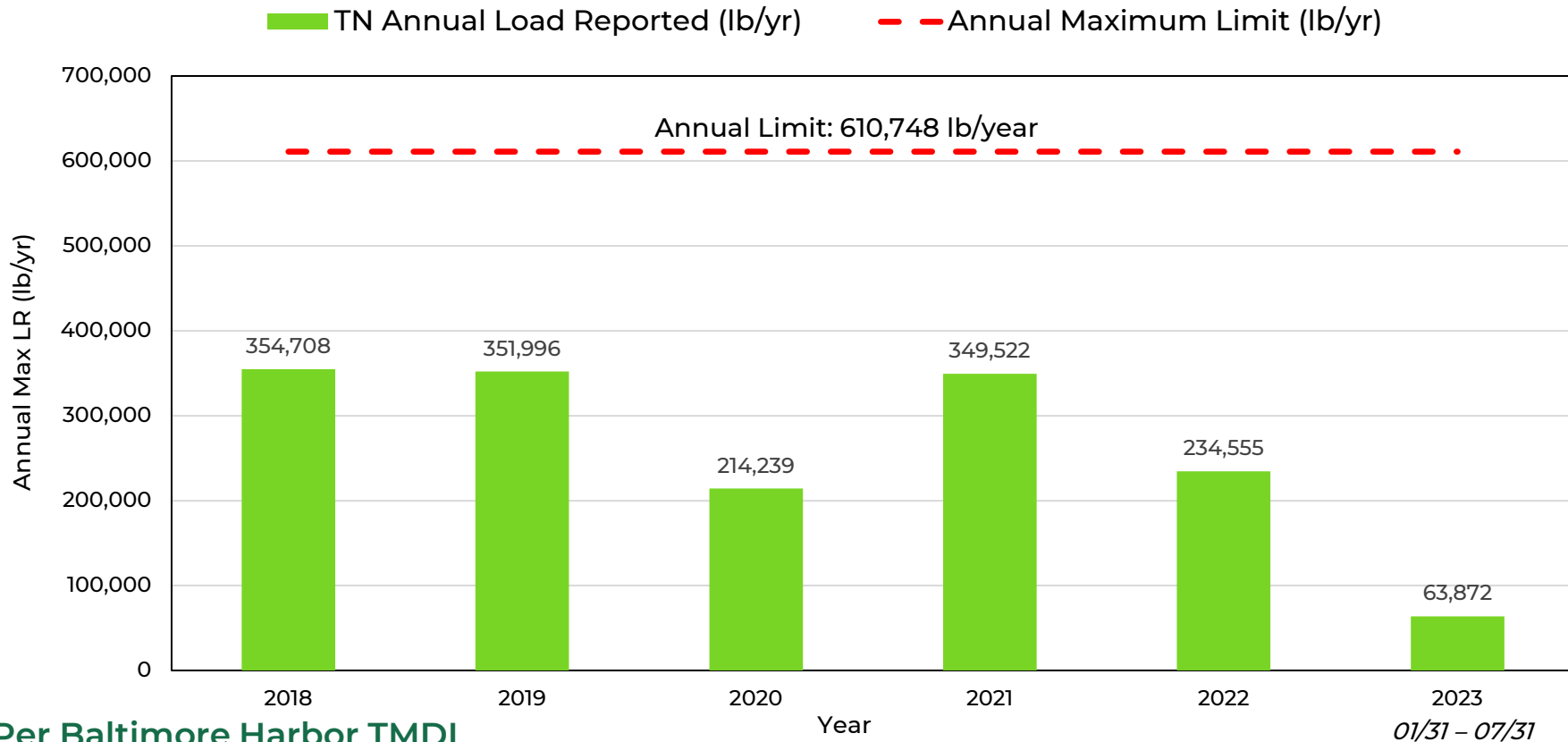
OUTFALL 001A (130 MGD)

(05/2018 - 07/2023)



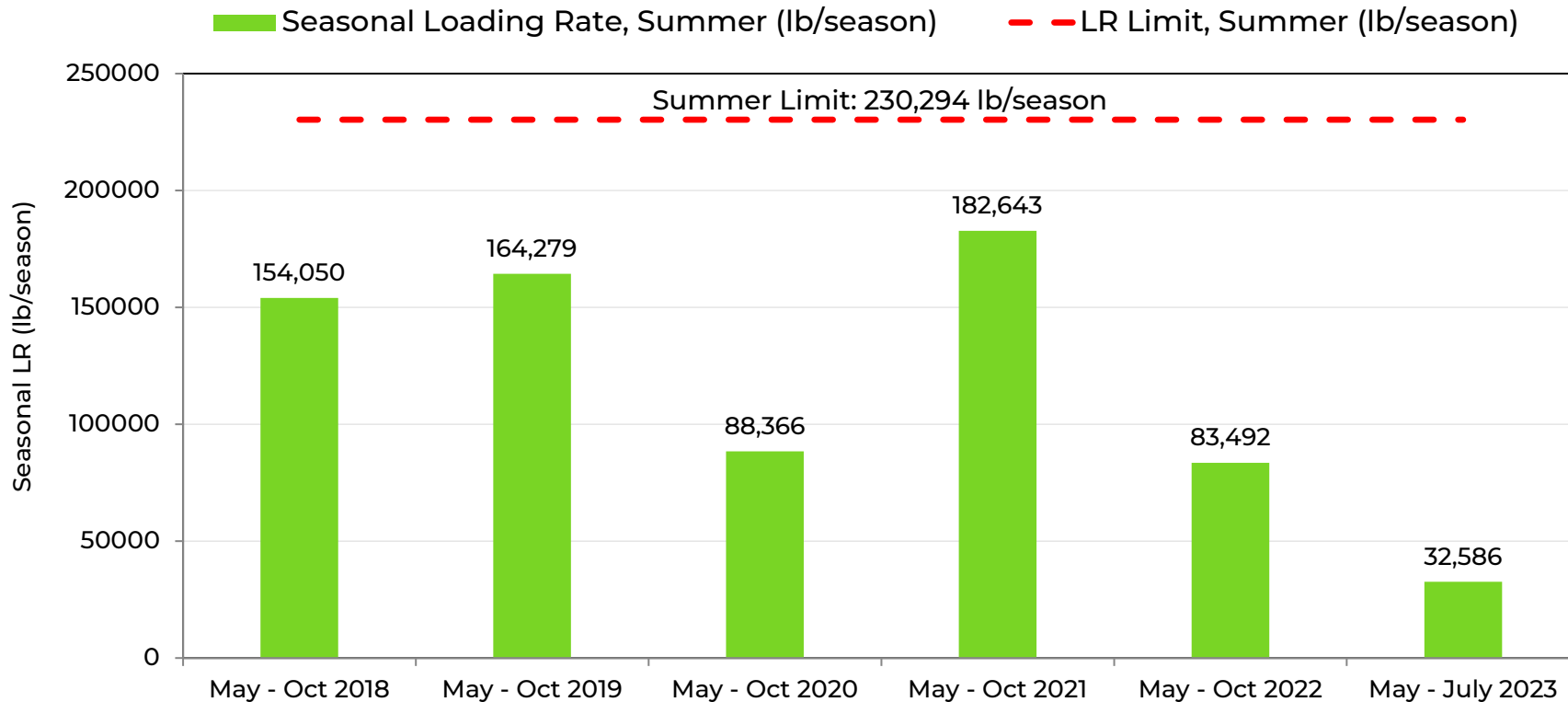


TOTAL NITROGEN: ANNUAL MAX. LOADING RATE, ALL YEAR * (lb/year) OUTFALL 002A (50 MGD) (05/2018 - 07/2023)





TOTAL NITROGEN: ANNUAL MAX. LOADING RATE – SUMMER * (lb/season) OUTFALL 002A (50 MGD) (05/2018 - 07/2023)

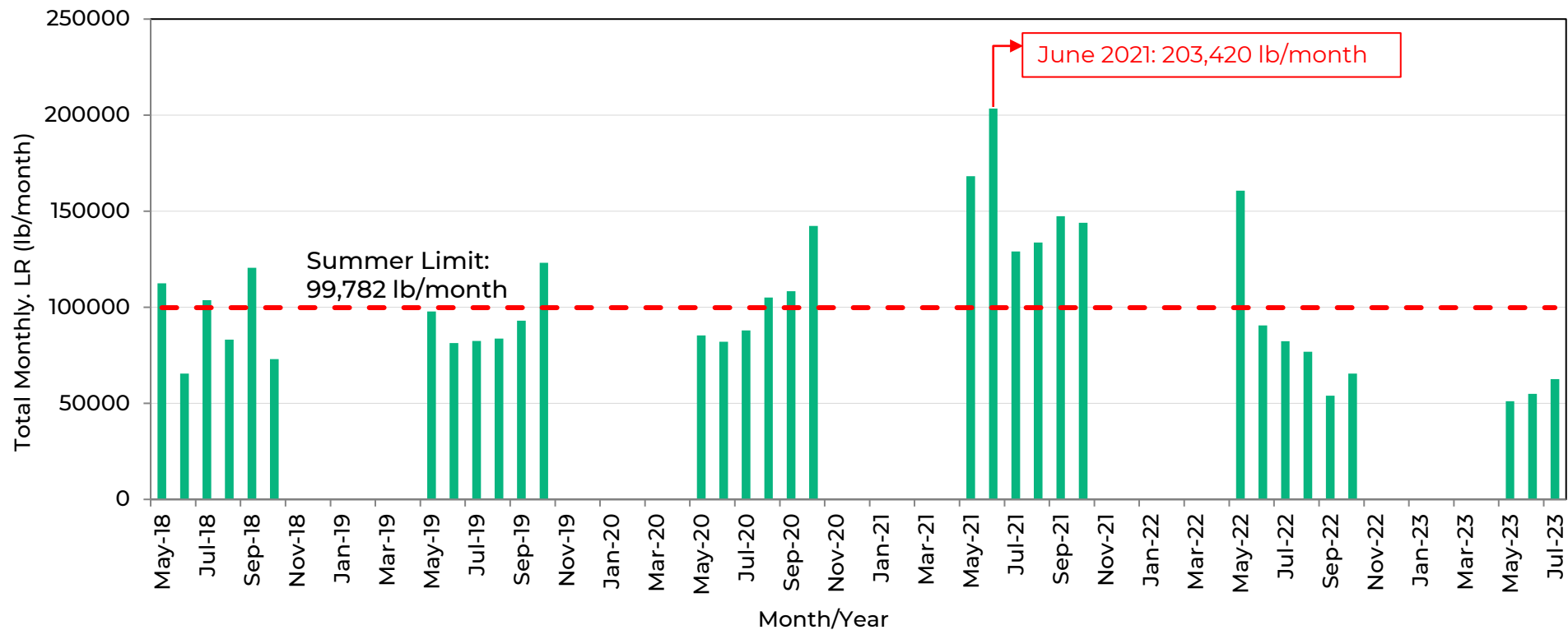


* Per Baltimore Harbor TMDL



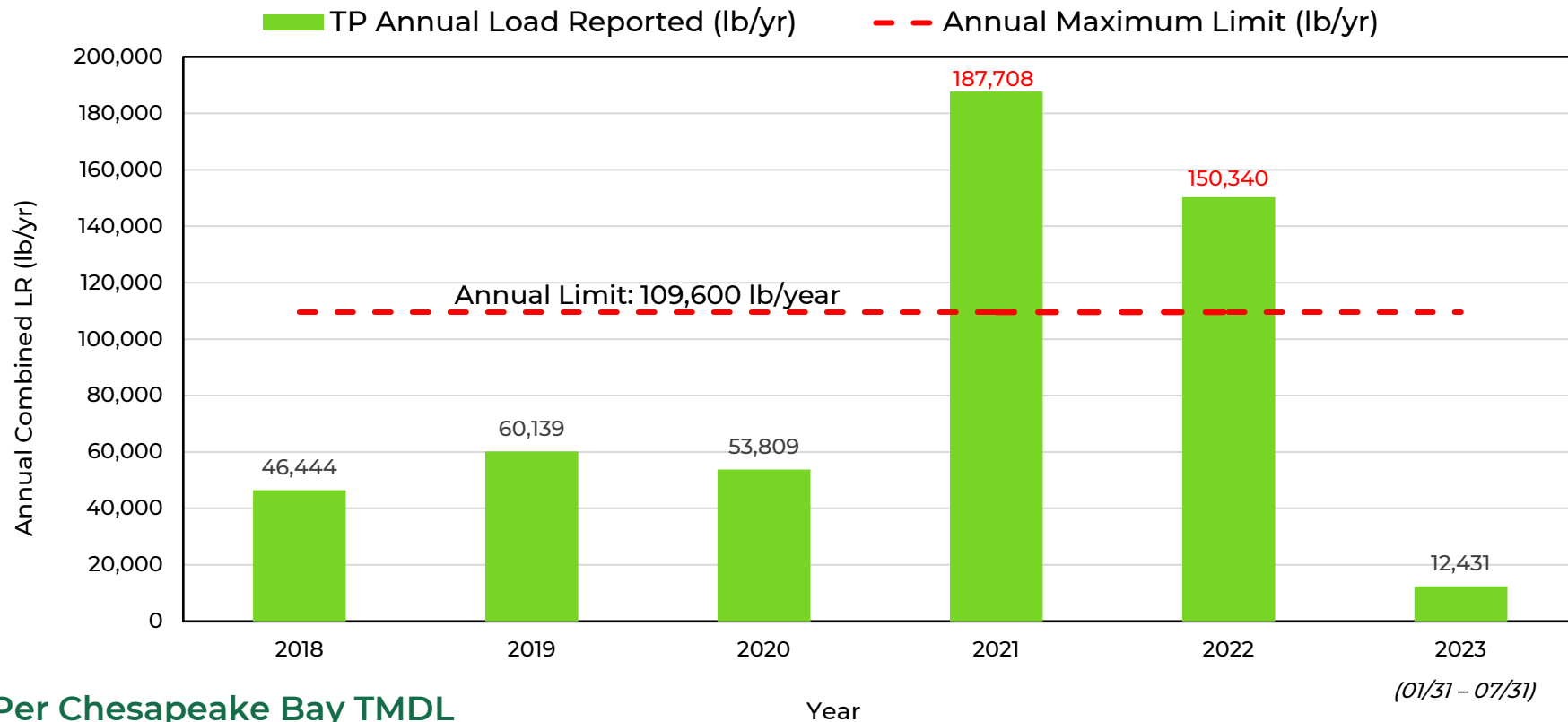
TOTAL NITROGEN: TOTAL MONTHLY LOADING RATE, SUMMER (lb/month) OUTFALL 001A (130 MGD) (05/2018 - 07/2023)

■ Total Monthly LR, Summer (lb/month) - - - LR Limit, Summer (lb/month)





TOTAL PHOSPHORUS: COMBINED ANNUAL LOADING RATE* (lb/year) OUTFALL 001A & 002A (180 MGD) (05/2018 - 07/2023)

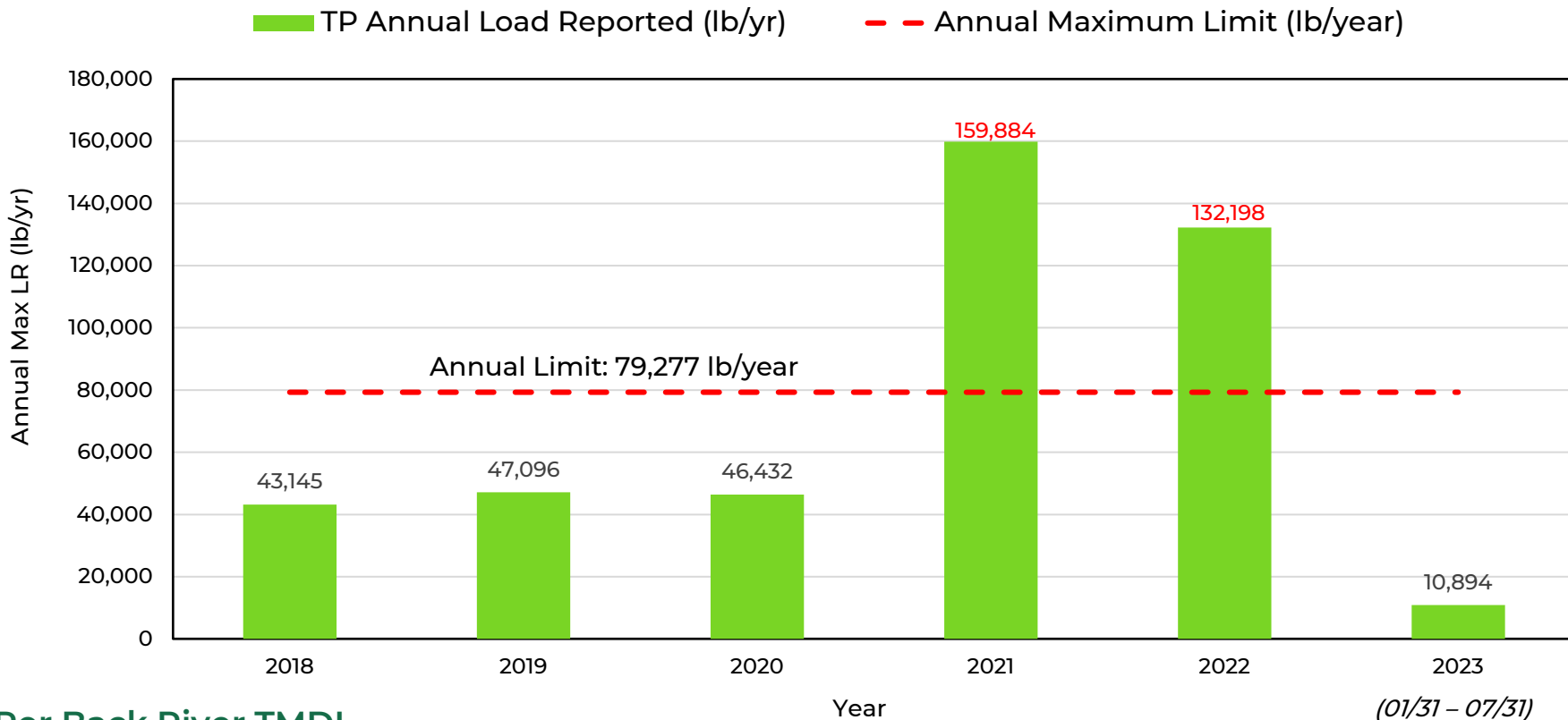




TOTAL PHOSPHORUS: ANNUAL MAX. LOADING RATE * (lb/year)

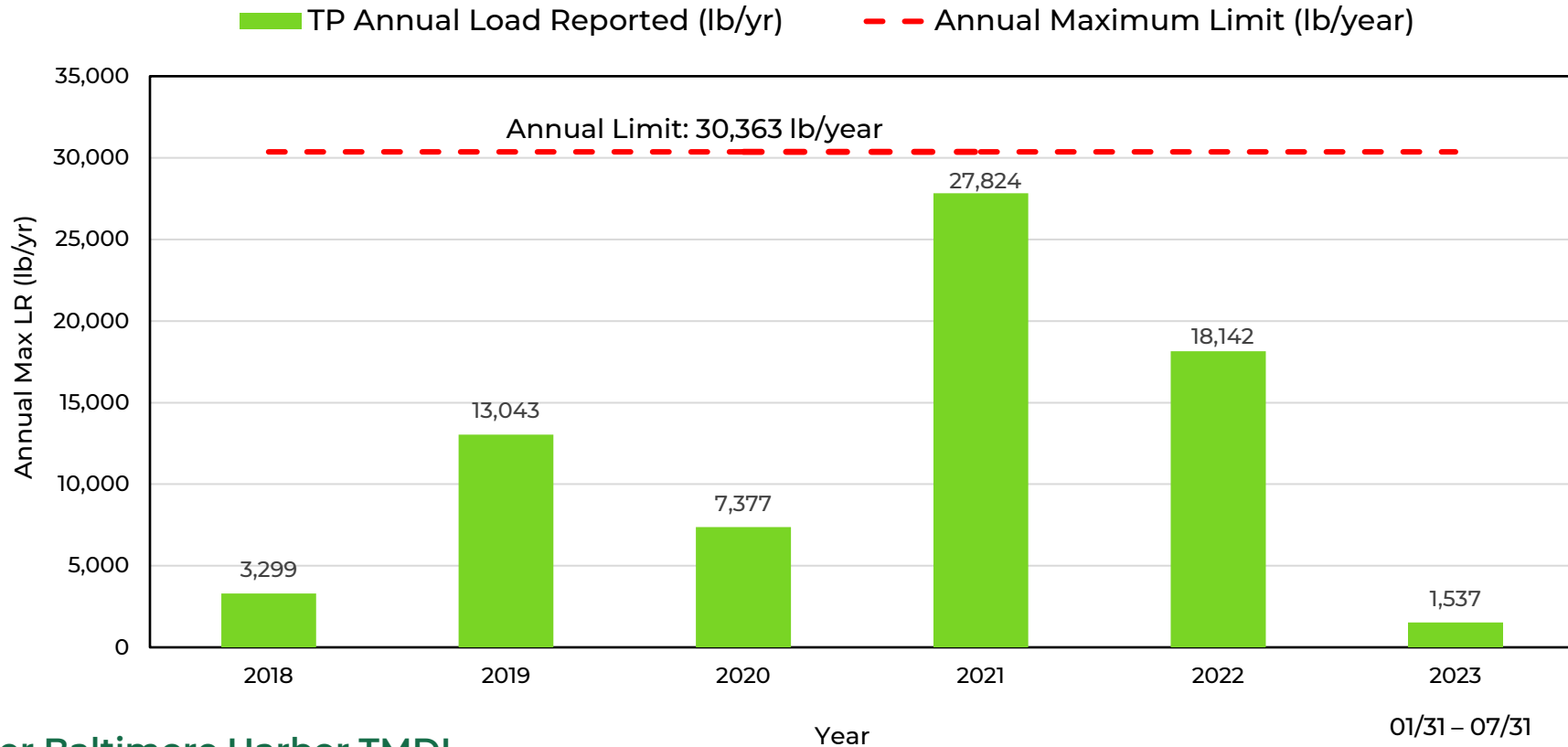
OUTFALL 001A (130 MGD)

(05/2018 - 07/2023)





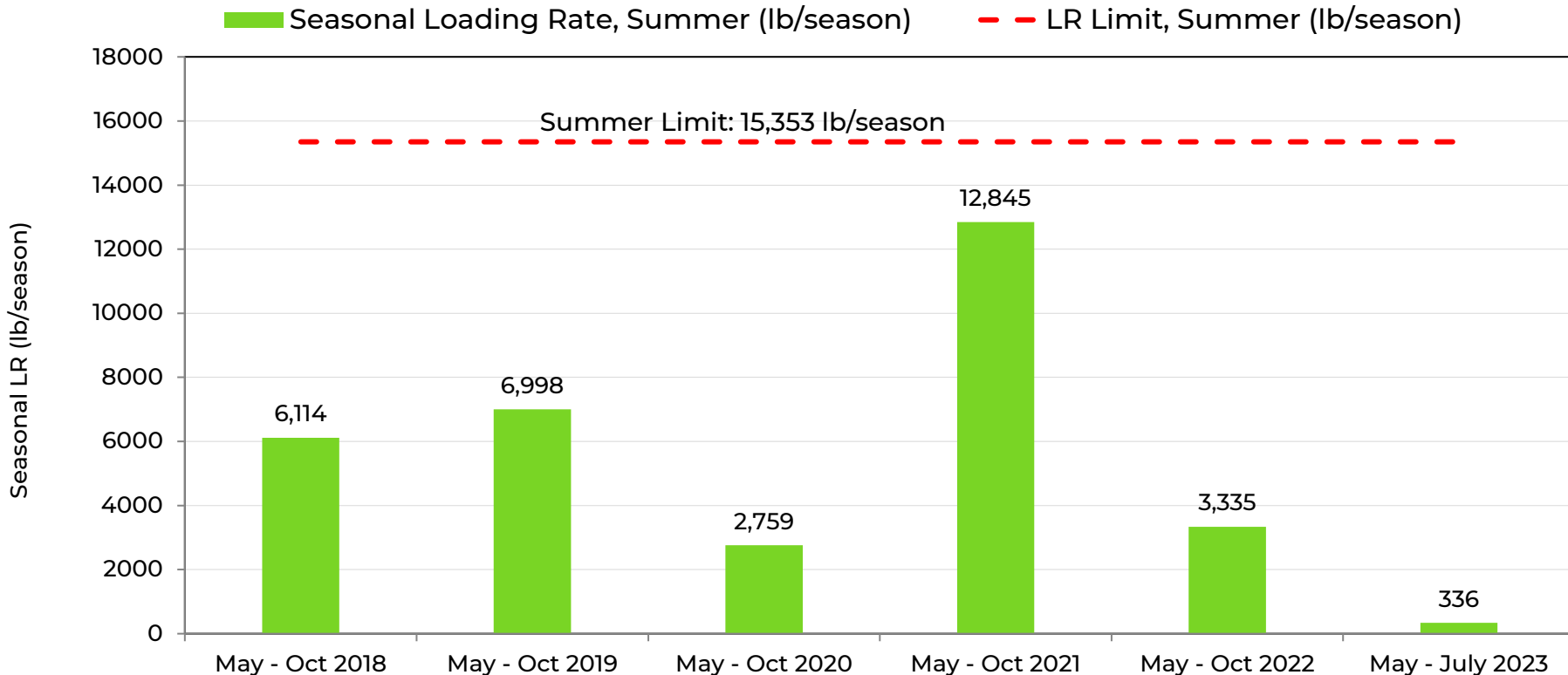
TOTAL PHOSPHORUS: ANNUAL MAX. LOADING RATE, ALL-YEAR * (lb/year) OUTFALL 002A (50 MGD) (05/2018 - 07/2023)



* Per Baltimore Harbor TMDL



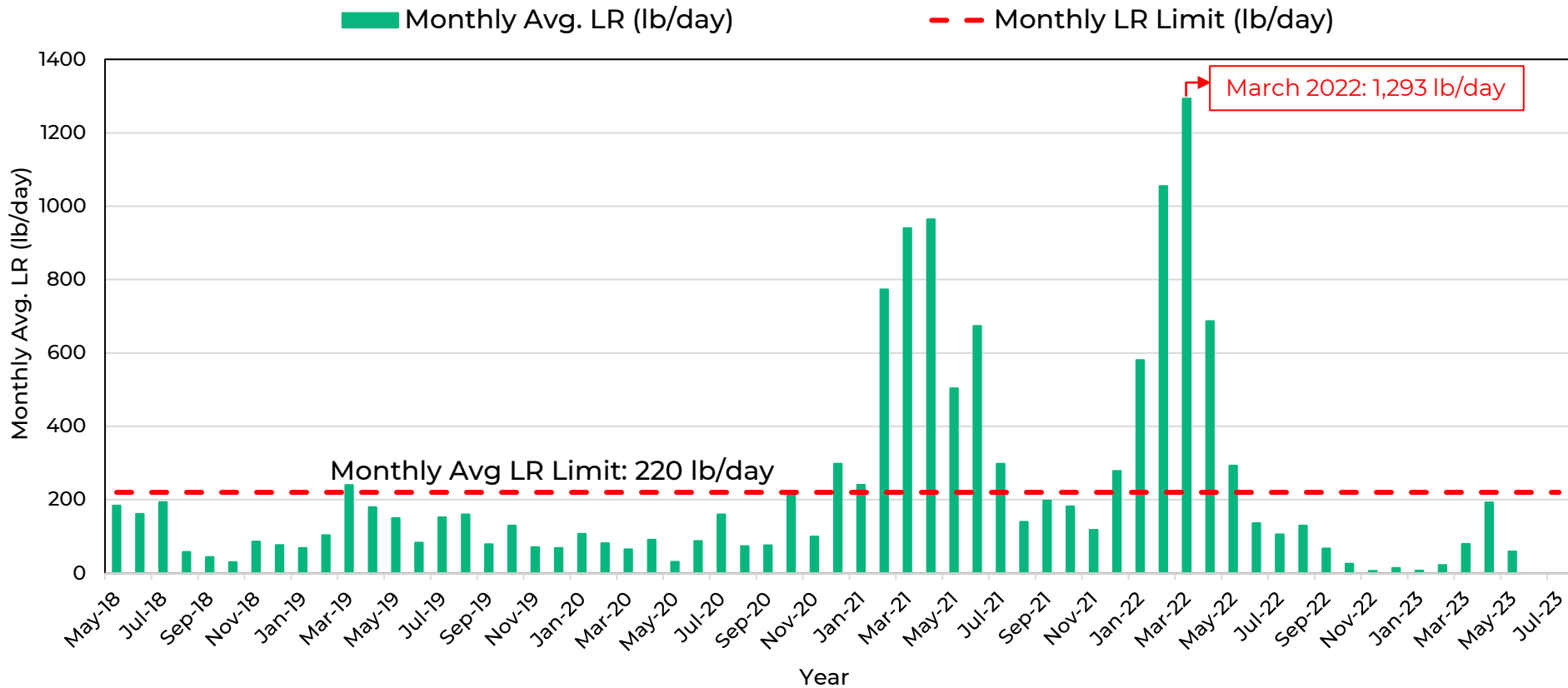
TOTAL PHOSPHORUS: ANNUAL MAX. LOADING RATE – SUMMER * (lb/season) OUTFALL 002A (50 MGD) (05/2018 - 07/2023)



* Per Baltimore Harbor TMDL

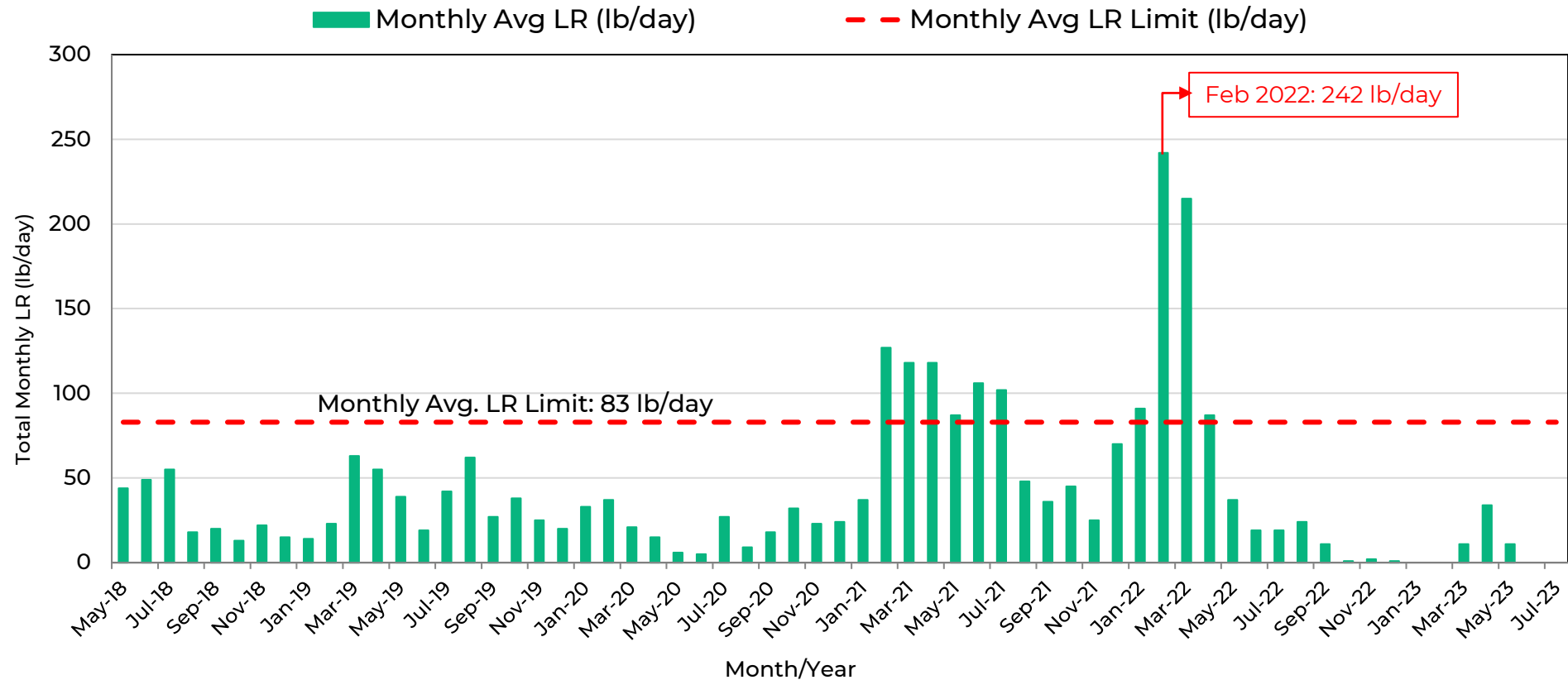


TOTAL PHOSPHORUS: MONTHLY AVERAGE LOADING RATE (lb/day) OUTFALL 001A (130 MGD) (05/2018 - 07/2023)





TOTAL PHOSPHORUS: MONTHLY AVERAGE LOADING RATE (lb/day) OUTFALL 002A (50 MGD) (05/2018 - 07/2023)

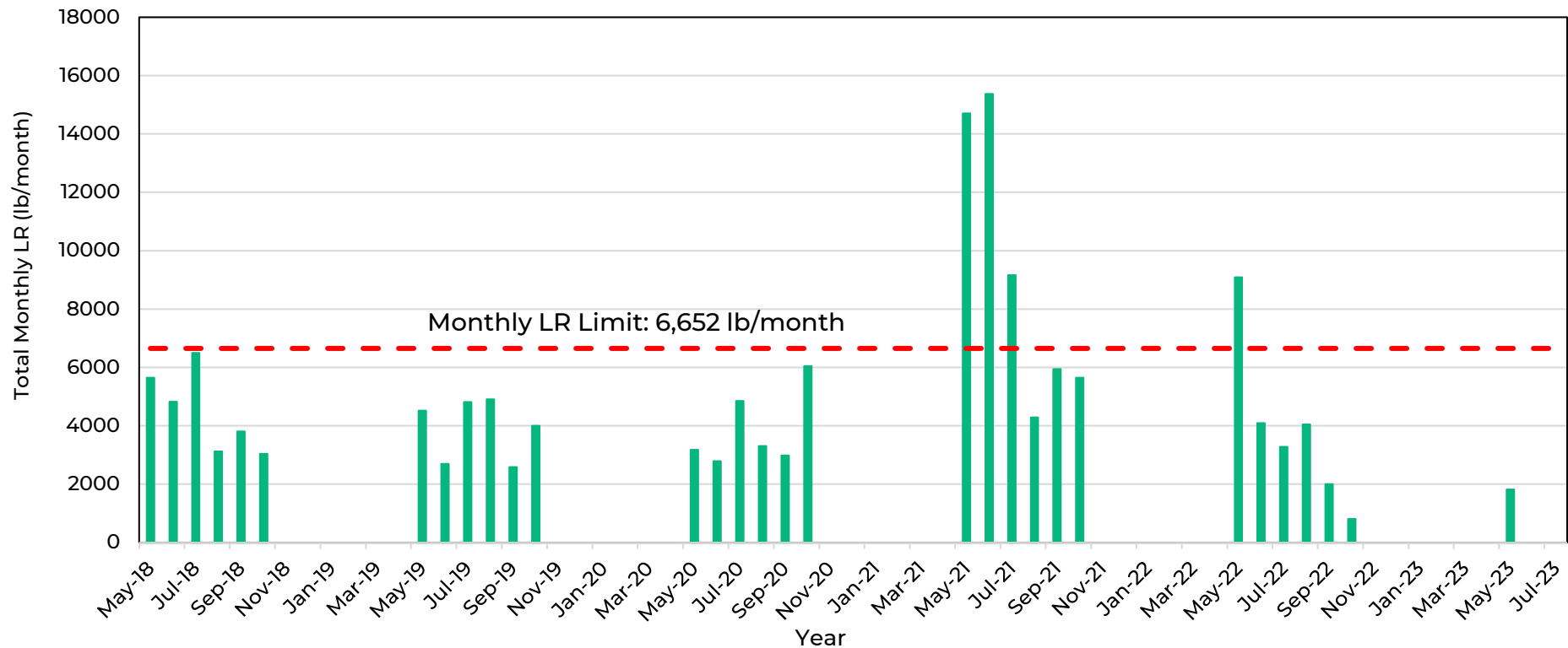




TOTAL PHOSPHORUS: TOTAL MONTHLY LOADING RATE, SUMMER (lb/month) OUTFALL 001A (130 MGD) (05/2018 - 07/2023)

■ Total Monthly LR (lb/month)

- - - Total Monthly LR Limit, Summer (lb/month)

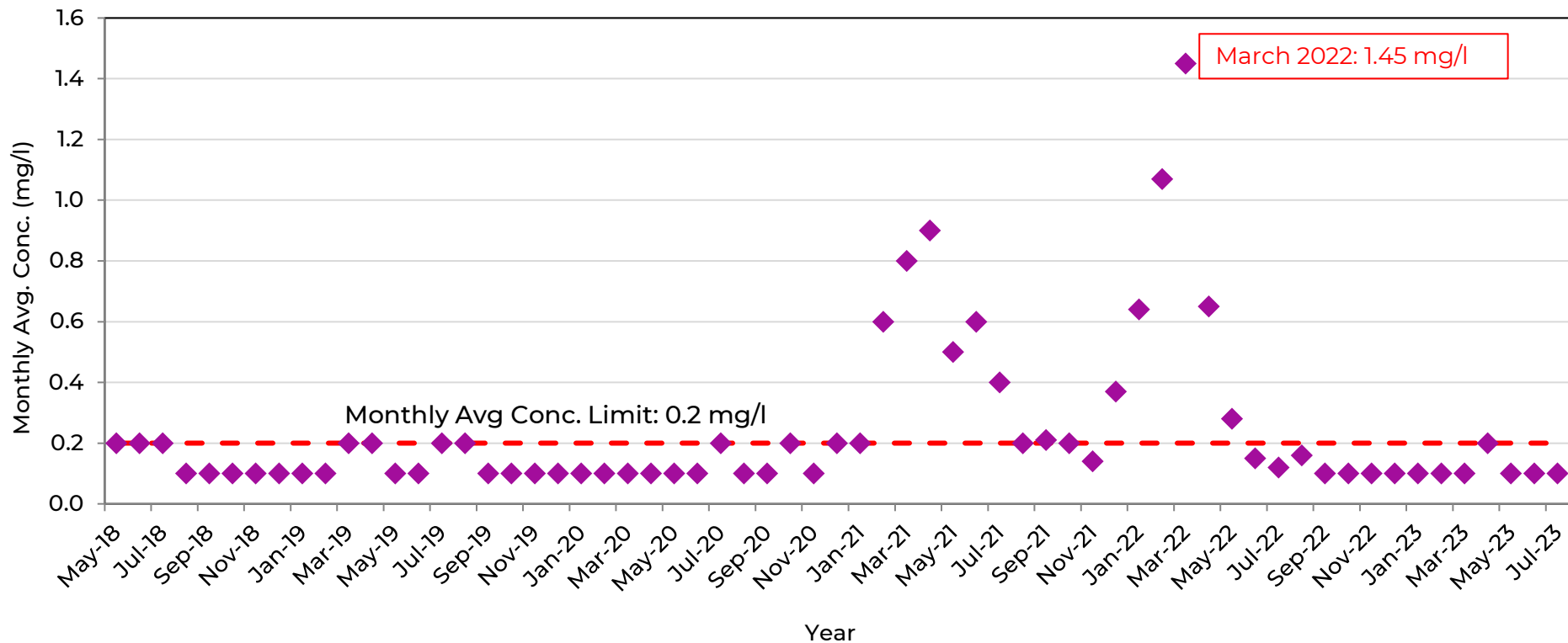




TOTAL PHOSPHORUS : MONTHLY AVERAGE CONCENTRATION (mg/l) OUTFALL 001A (130 MGD) (05/2018 - 07/2023)

--- Monthly Conc. Limit (mg/l)

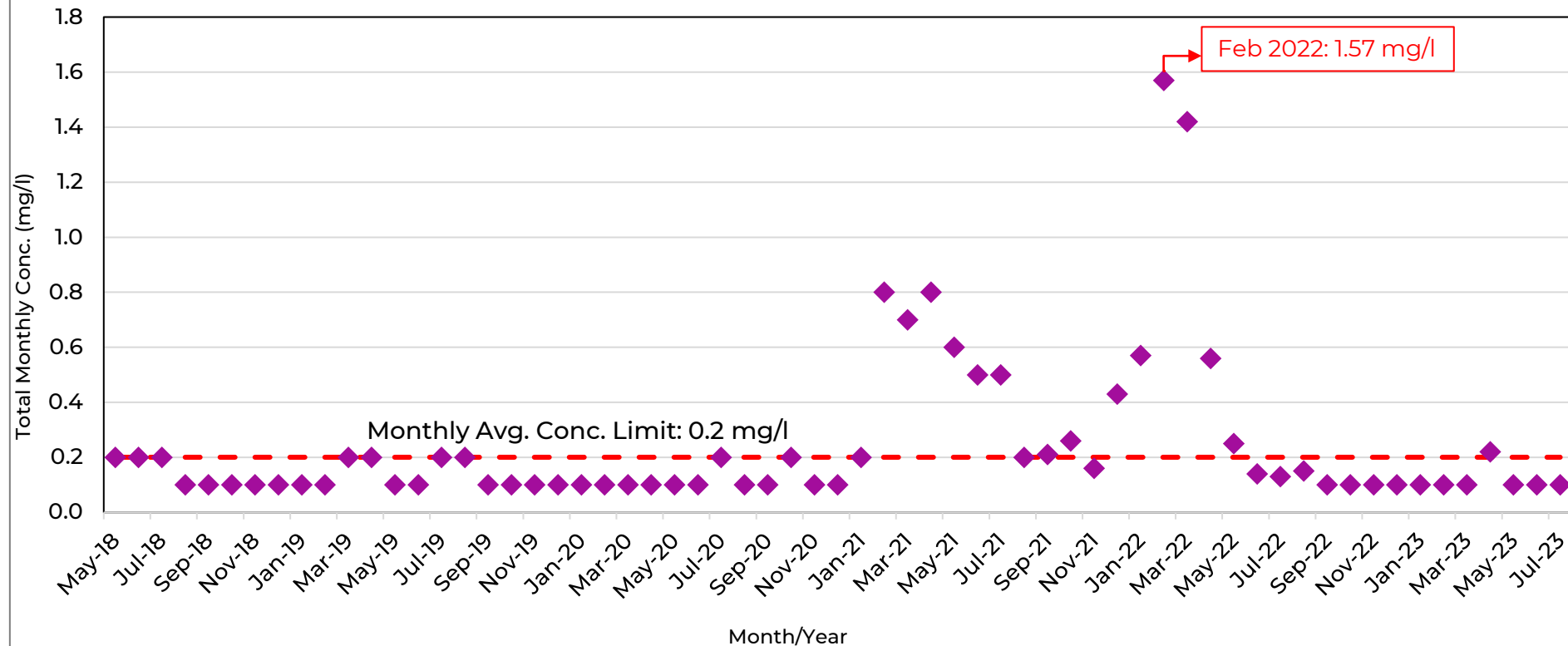
◆ Monthly Avg. Conc. (mg/l)





TOTAL PHOSPHORUS : MONTHLY AVERAGE CONCENTRATION (mg/l) OUTFALL 002A (50 MGD) (05/2018 - 07/2023)

— Monthly Avg Conc Limit (mg/l) ◆ Monthly Avg Conc. (mg/l)

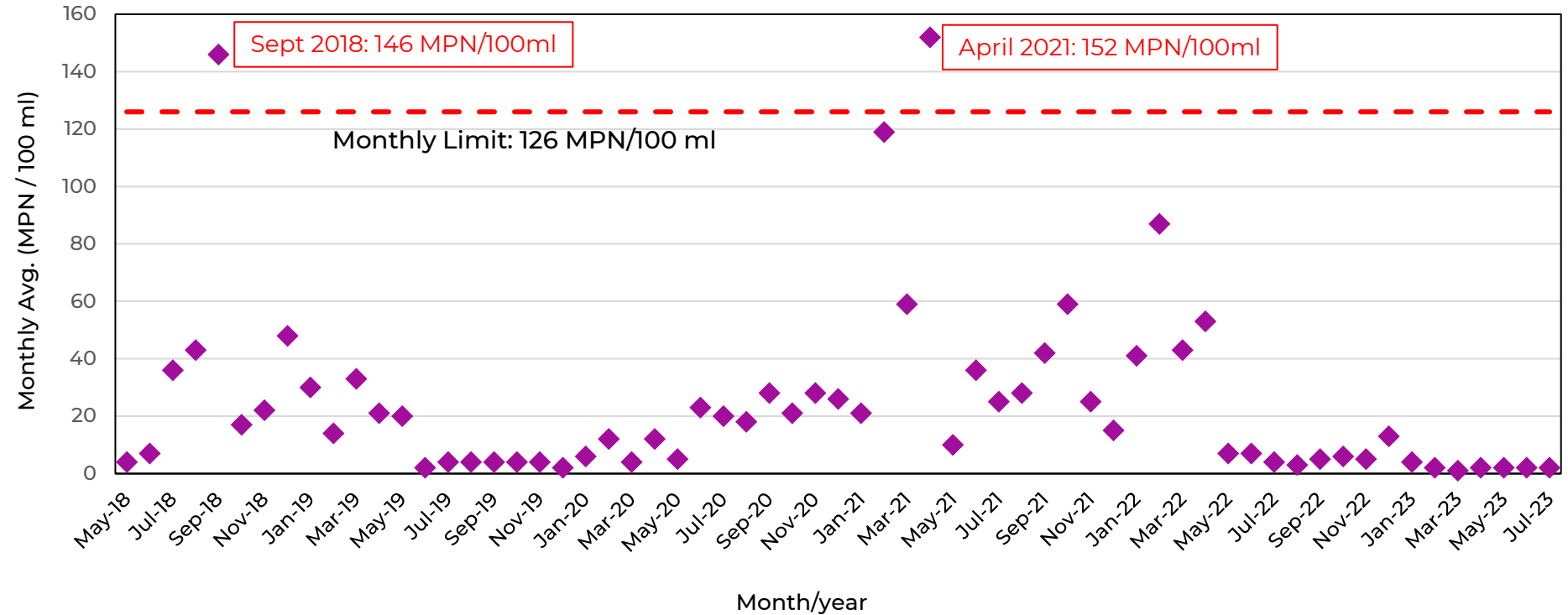




E. Coli: MONTHLY AVERAGE (MPN/100 ml) OUTFALL 001A (130 MGD) (05/2018 - 07/2023)

--- Maximum Limit

◆ Monthly Avg.

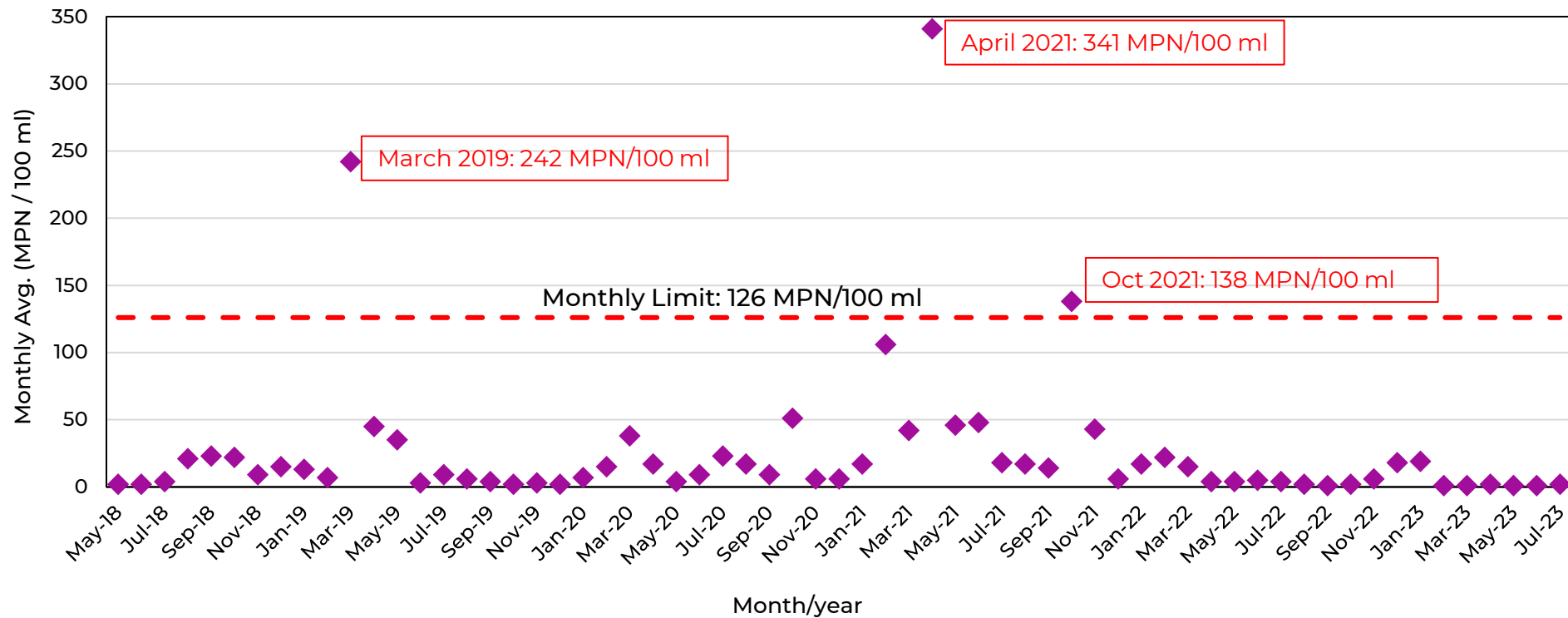




E. Coli: MONTHLY AVERAGE (MPN/100 ml) OUTFALL 002A (50 MGD) (05/2018 - 07/2023)

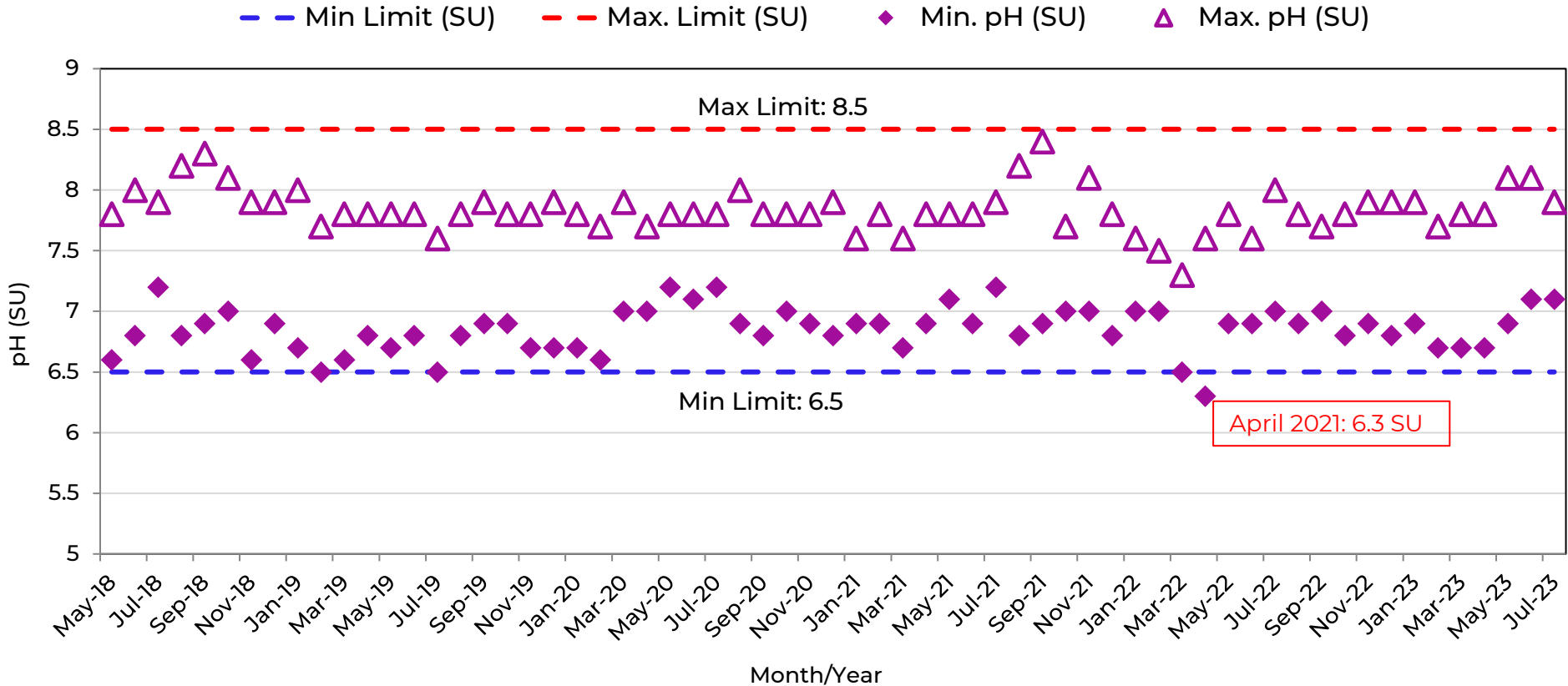
— Maximum Limit

◆ Monthly Avg.



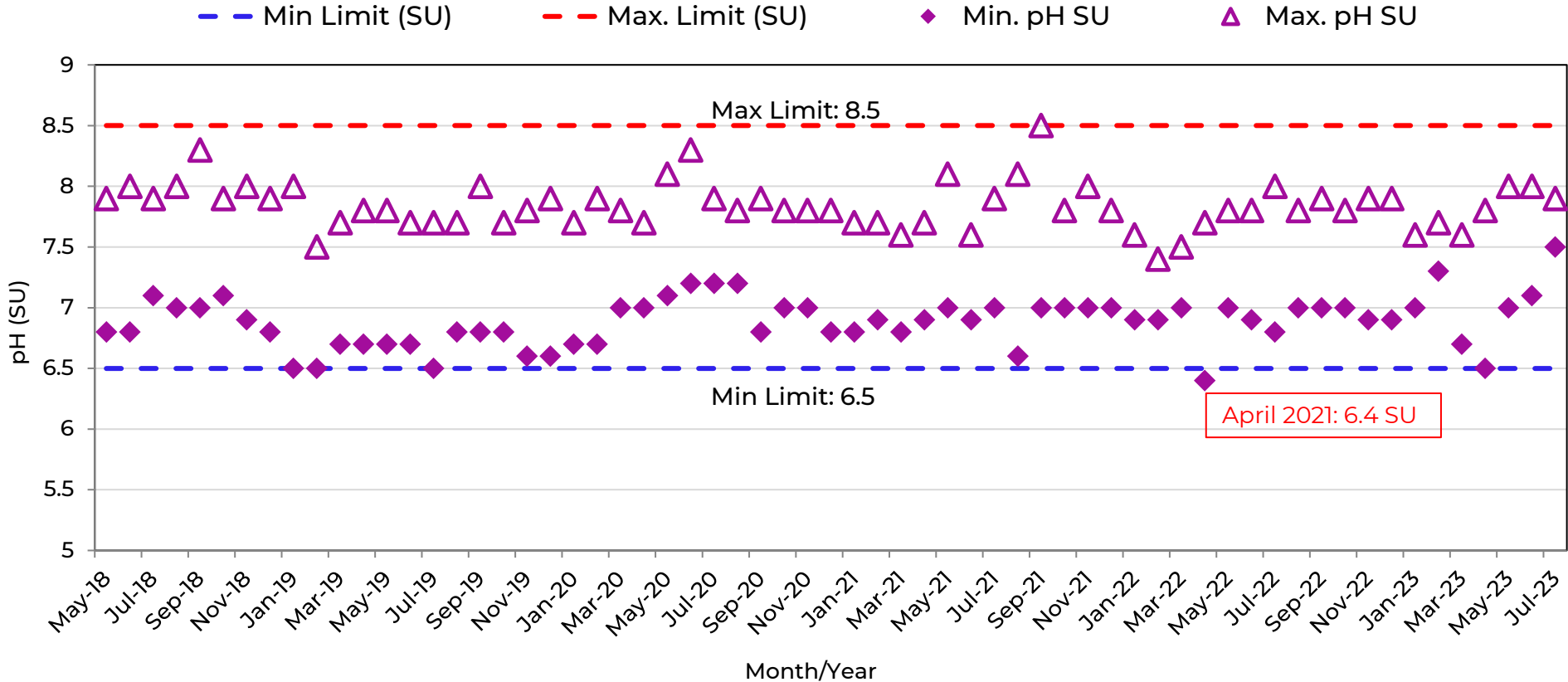


pH: MONTHLY AVERAGE (SU) OUTFALL 001A (130 MGD) (05/2018 - 07/2023)





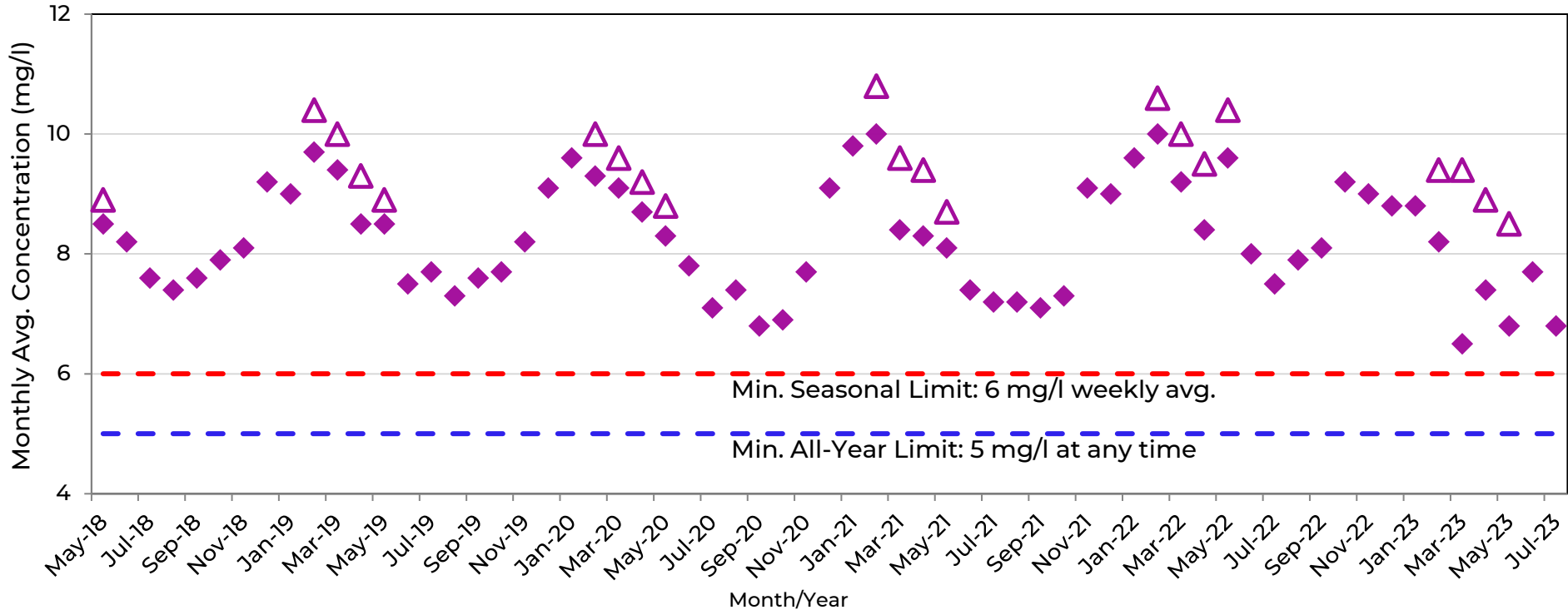
pH: MONTHLY AVERAGE (SU) OUTFALL 002A (50 MGD) (05/2018 - 07/2023)





DISSOLVED OXYGEN: MONTHLY AVERAGE (mg/l) OUTFALL 001A (130 MGD) (05/2018 - 07/2023)

- - - Seasonal Minimum Limit (mg/l)
- - - All-Year Limit (mg/l)
- △ Seasonal Minimum, February-May (mg/l)
- ◆ All-Year Minimum (mg/l)



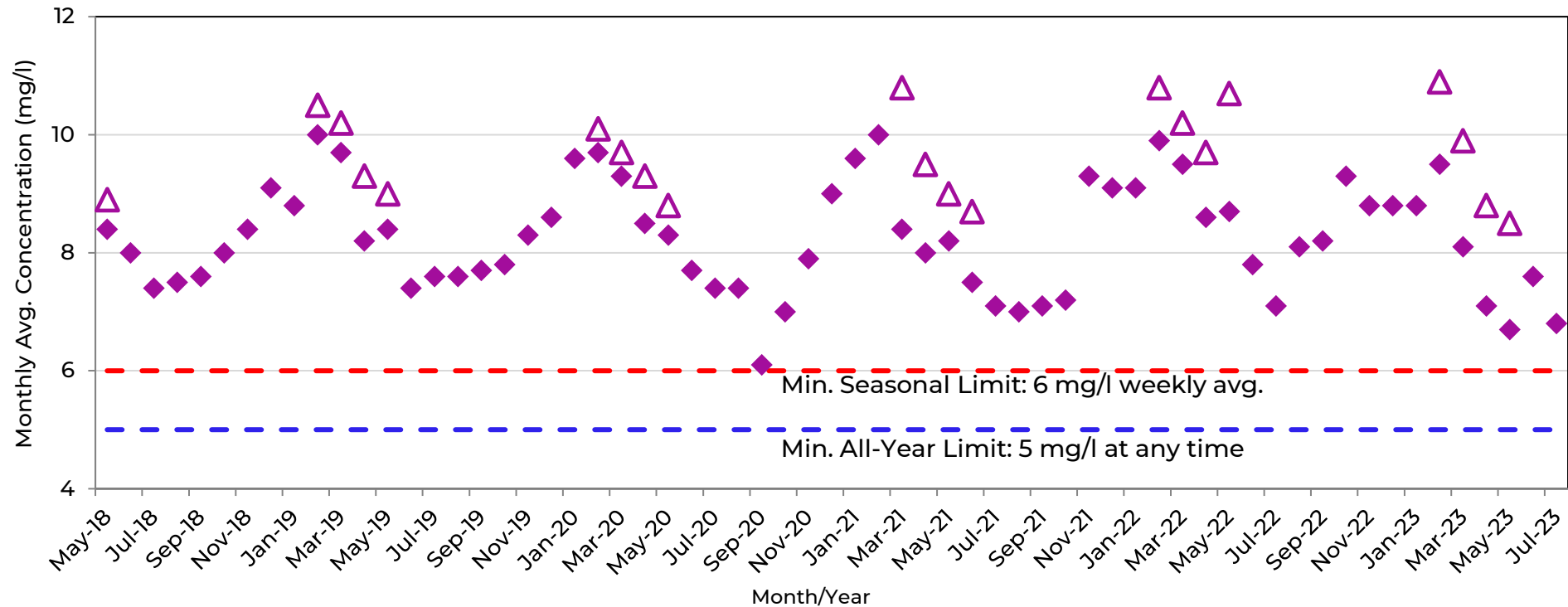


DISSOLVED OXYGEN: MONTHLY AVERAGE (mg/l)

OUTFALL 002A (50 MGD)

(05/2018 - 07/2023)

- All-Year Limit (mg/l)
- ◆ All-Year Minimum (mg/l)
- Seasonal Minimum Limit (mg/l)
- △ Seasonal Minimum, February - May (mg/l)





WHOLE EFFLUENT TOXICITY (WET) OUTFALL 001A

- ❑ The current permit, 15-DP-0581A, allocates the following effluent limits for Whole Effluent Toxicity (WET) on a quarterly basis for Outfall 001A:
 - i. Acute Toxicity: **$TU_a < 1.00$**
 - ii. Chronic Toxicity: **$TU_c < 1.02$**
- ❑ Special Condition II.D of the current permit requires Back River WWTP to perform quarterly definitive chronic testing on sheepshead minnow (*Cyprinodon variegatus*) & mysid shrimp (*Americamysis bahia*).
- ❑ Results analyzed from September 2018 through June 2023.



tPCB: QUARTERLY REPORT SUBMISSION SUMMARY (10/2018 - 06/2023)

	2018	2019				2020				2021				2022				2023	
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
001A	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	NR	✓	✓	✓
002A	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	NR	✓	NR	✓

* NR = No Report Available



EPA ECHO WEBSITE FOR COMPLIANCE INFORMATION

<https://echo.epa.gov/facilities/facility-search?mediaSelected=cwa>

Use NPDES number (**MD0021555**) and facility name to query the records.

The screenshot displays the EPA ECHO website interface for Facility Search. At the top, the EPA logo and "United States Environmental Protection Agency" are visible, along with a search bar for "Search EPA.gov". Below this is a navigation menu with categories: Environmental Topics, Laws & Regulations, Report a Violation, and About EPA. The ECHO logo, "Enforcement and Compliance History Online", is prominently displayed, with a search bar and "Login" and "Contact Us" links. The breadcrumb trail reads: Home > Facilities > Facility Search – Enforcement and Compliance Data.

Facility Search – Enforcement and Compliance Data

View More Search Options — Collapse All + Expand All Related Tools ? Help

Search Media Program

Geographic Location

Community

Facility Characteristics

[View More](#)

Facility Name (Separate multiple names with a semicolon ;):

Find Facility Name(s) That:

Facility ID Number:

EPA Registry ID Program System ID

Search Criteria Selected

Media Program
Wastewater/Stormwater/Biosolids (CWA)

Facility Characteristics

Permit Status: Effective, Expired, Administratively Continued

Permit Type: NPD - NPDES Individual Permit, GPC - General Permit Covered Facility

Results View:
 Interactive Map
 Data Table



CONTACT INFORMATION

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QUESTIONS / COMMENTS





PRESENTATION

Baltimore City – DPW

Back River WWTP Public Information Meeting

November 8th, 2023



January 31, 2023



Agenda

- Background
- Site Map
- Process Flow Diagram
- Plant Improvements
- Questions

Back River Wastewater Treatment Plant

- Wastewater system serves a population of about 1.3 million
- Service area of about 140 square miles, including Baltimore City and County
- Largest treatment plant in Maryland (466-acre site)
- Rated to treat an average daily flow of 180 million gallons per day

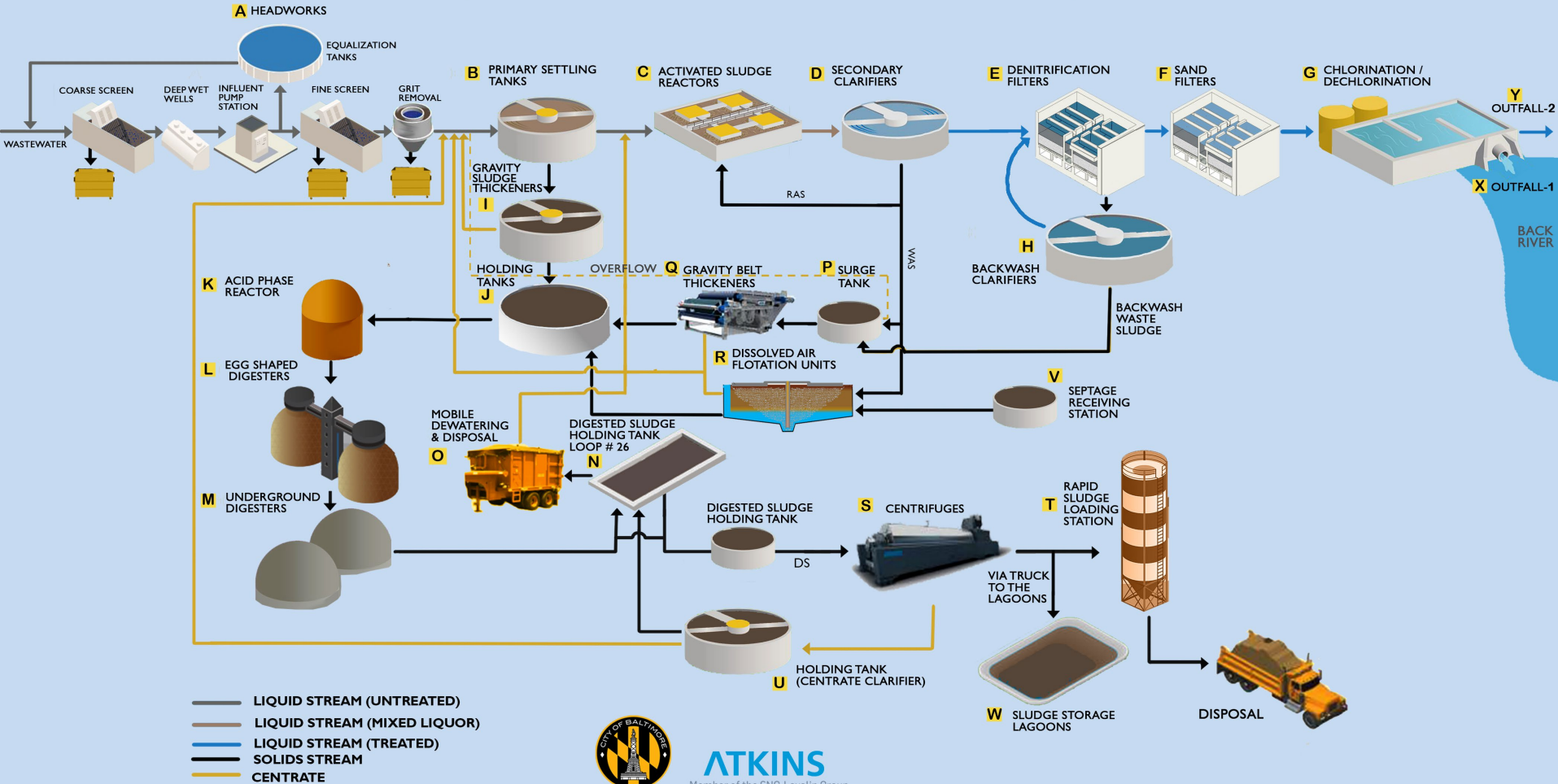


Back River WWTP

Site Map



BACK RIVER WWTP PROCESS FLOW DIAGRAM





Plant Improvements

Progress Status

- Wastewater treatment plants' performance has been significantly improved over the past year and a half.
- DPW has made the following improvements:
 - Ensured plant compliance—Back River reached compliance in June of 2022
 - Renewed focus on hiring and recruiting new staff through an updated HR hiring process.
 - Modernized and executed preventative maintenance programs, including the repair and rehabilitation of critical assets
 - DPW was able to return the solids processing operations to full service and alleviate the excess inventory.



Primary Settling Tank

Collaborative Approach

- In addition, DPW created the Environmental Regulatory Compliance and Safety (ERCS) division to ensure a collaborative approach to compliance. This first-ever team of multi-disciplined professionals met daily to troubleshoot and execute timely actions and solutions.
- Across bureaus and divisions, DPW leadership held all contractors and consultants accountable for their roles and responsibilities



Back River WWTP

Questions?

