

Nutrient Permit Counts and Pollutant Discharge Loading Estimates for Hypoxia Task Force Searches

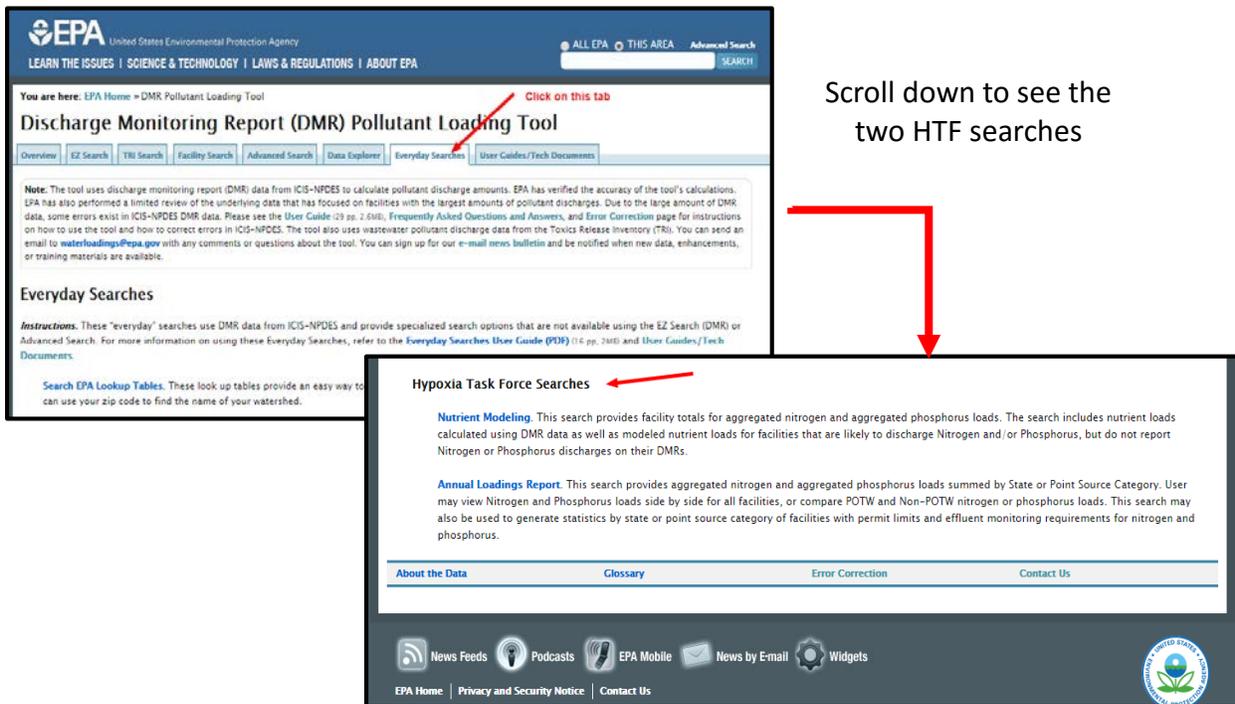
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1. Introduction

The Mississippi River/Gulf of Mexico Watershed Nutrient Task Force was established in the fall of 1997 to understand the causes and effects of eutrophication in the Gulf of Mexico; coordinate activities to reduce the size, severity, and duration; and ameliorate the effects of hypoxia. Activities include coordinating and supporting nutrient management activities from all sources, restoring habitats to trap and assimilate nutrients, and supporting other hypoxia related activities in the Mississippi River and Gulf of Mexico watersheds.

EPA developed two new search features for the DMR Pollutant Loading Tool to facilitate discussions among Mississippi River/Gulf of Mexico Watershed states about nutrient pollution. The new searches allow users to see nutrient pollution from point sources. The two searches and results are limited to nitrogen and phosphorus data and are located on the 'Everyday Searches' tab of the Loading Tool.



2. HTF Nutrient Modeling Search

The HTF Nutrient Modeling search provides facility totals for aggregated nitrogen and aggregated phosphorus loads. The search includes nutrient loads calculated using Discharge Monitoring Report (DMR) data as well as modeled nutrient loads for facilities that are likely to discharge Nitrogen and/or Phosphorus, but do not report Nitrogen or Phosphorus discharges on their DMRs. This model was based on the USGS model and was reviewed by USGS prior to deployment. A complete description of this model is provided at “About the Nutrient Model” (<http://cfpub.epa.gov/dmr/about-the-nutrient-model.cfm>). Search results can be downloaded to a CSV file. These results show the pollutant load for the selected year and whether it was based on DMR data or modeled from similar facilities using the Nutrient Model.

Nutrient Modeling (Hypoxia Task Force Search)

Instructions. Enter or select a value for one or more of the criteria below and click the Search button to summarize aggregated nutrient compound discharge amounts by facility.

Select Reporting Year: 2015

Loads for the current year are not based on a full reporting year because data are not complete.

The screenshot displays the search interface with three main sections:

- 1 Location:** Includes fields for EPA Region (dropdown), State (dropdown), Watershed Zip Code, 12-Digit HUC, and Major U.S. Watersheds (dropdown). It also has checkboxes for "Only include facilities that discharge:" to impaired waterbodies, pollutants contributing to a waterbody impairment, and to counties or watersheds with ESA-listed aquatic species.
- 2 Pollutant:** Contains checkboxes for "Include nitrogen loads:" and "Include phosphorus loads:". Each section has a "Specify a concentration range:" with "Greater than:" and "Less than:" input fields. There are also checkboxes for "Show only facilities with exceedances" and input fields for "Percent over limit (%)" and "Pounds over limit (lbs)".
- 3 Industry:** Features radio buttons for "All Point Source Categories" and "Publicly Owned Treatment Works (POTWs) Only". It includes a checkbox for "Include industrial facilities treating domestic sewage (SIC = 4952)". Under "Industrial Point Sources (non-POTW)", there are dropdowns for "Point Source Category:", "2-Digit SIC Code:", "2-Digit NAICS code:", and "Major/Minor indicator:".

A "Generate File" button is located at the bottom of the form.

The following example search shows how to find nitrogen pollution for all facilities in Iowa discharging nitrogen compounds above 10 mg/L.

Nutrient Modeling (Hypoxia Task Force Search)

Instructions. Enter or select a value for one or more of the criteria below and click the Search button to summarize aggregated nutrient compound discharge amounts by facility.

Select Reporting Year:

1 Location

EPA Region:

[View EPA regional map](#)
OR
State

Watershed Zip Code

12-Digit HUC

[Find 12-digit HUC on a map](#)
Major U.S. Watersheds:

2 Pollutant

Nitrogen:
Specify a concentration range:
Greater than: mg/L Less than: mg/L
 Show only facilities with exceedances
Percent over limit (%):
Pounds over limit (lbs):

Phosphorus:
Specify a concentration range:
Greater than: mg/L Less than: mg/L
 Show only facilities with exceedances
Percent over limit (%):
Pounds over limit (lbs):

3 Industry

All Point Source Categories
 Publicly Owned Treatment Works (POTWs) Only
 Industrial Point Sources (non-POTW)
Point Source Category:

2-Digit SIC Code:

OR
Enter a 4-digit SIC Code:

[SIC Code lookup](#)
2-digit NAICS code:

You can download the results from this search to your computer in a file that can be opened in a spreadsheet for further analysis.

Year	NPDES Permit Number	FRS ID	Industr Facility Name	City	State	Nutrient Type	Total Pollutant Pounds (lbs/yr)
2010	IA0044130	110011869246	4952 DES MOINES METRO REGN WASTEWATER FACLTY	DES MOINES	IA	Nitrogen	842,754
2010	IA0061859	110000414114	4911 MIDAMERICAN ENERGY CO-NEAL SOUTH	SALIX	IA	Nitrogen	423,747
2010	IA0043052	110010829121	4952 DAVENPORT CITY OF STP	DAVENPORT	IA	Nitrogen	162,669
2010	IA0042641	110012460185	4952 CEDAR RAPIDS WPCF	CEDAR RAPIDS	IA	Nitrogen	147,636
2010	IA0043095	110000525566	4952 SIOUX CITY CITY OF STP	SIOUX CITY	IA	Nitrogen	119,857
2010	IA0042650	110001962840	4952 WATERLOO CITY OF STP	WATERLOO	IA	Nitrogen	90,563
2010	IA0042617	110000510386	4952 IOWA CITY, CITY OF (NORTH) STP	IOWA CITY	IA	Nitrogen	77,764
2010	IA0044458	110012460158	4952 CITY OF DUBUQUE WPCP-SLUDGE ASH REUSE	DUBUQUE	IA	Nitrogen	73,805
2010	IA0036641	110001123221	4952 COUNCIL BLUFFS CITY OF STP	COUNCIL BLUFFS	IA	Nitrogen	73,586
2010	IA0035955	110002039918	4952 AMES WATER POLLUTION CONTRL FACLTY	AMES	IA	Nitrogen	60,701
2010	IA0036633	110001123212	4952 CEDAR FALLS WWTP	CEDAR FALLS	IA	Nitrogen	43,882
2010	IA0035947	110001123203	4952 CLINTON CITY OF WASTEWATER TREATMENT FACILITY	CLINTON	IA	Nitrogen	37,361
2010	IA0057169	110000731290	4952 MASON CITY, CITY OF STP	MASON CITY	IA	Nitrogen	37,155
2010	IA0001562	110007357635	4911 CENTRAL IOWA PWR COOP CCR DISPOSAL LANDFILL	MONTPELIER	IA	Nitrogen	35,643
2010	IA0043079	110009362741	4952 BURLINGTON, CITY OF (CITY HALL)	BURLINGTON	IA	Nitrogen	34,811
2010	IA0038610	110001123230	4952 MARSHALLTOWN CITY OF STP	MARSHALLTOWN	IA	Nitrogen	33,277
2010	IA0044849	110009362073	4952 FORT DODGE CITY OF STP	FORT DODGE	IA	Nitrogen	33,130
2010	IA0058611	110001362034	4952 WATER POLLUTION CONTROL FACILITY	OTTUMWA	IA	Nitrogen	31,331
2010	IA0059765	110000731307	4952 IOWA GREAT LAKES SANITARY DISTRICT STP	MILFORD	IA	Nitrogen	30,242
2010	IA0023434	110000789479	4952 MUSCATINE CITY OF STP	MUSCATINE	IA	Nitrogen	29,275
2010	IA0070866	110000509209	4952 IOWA CITY CITY OF SOUTH STP	IOWA CITY	IA	Nitrogen	25,987
2010	IA0020788	110002040103	4952 CORALVILLE CITY SEWAGE PLANT	CORALVILLE	IA	Nitrogen	24,699
2010	IA0038628	110001961066	4952 ANKENY POTW, CITY OF	ANKENY	IA	Nitrogen	24,107
2010	IA0027723	110002040005	4952 NEWTON WASTE WATER TREATMENT	NEWTON	IA	Nitrogen	20,203
2010	IA0058076	110001934569	4952 BOONE CITY OF STP	BOONE	IA	Nitrogen	16,381
2010	IA0042609	110001934596	4952 KEOKUK CITY OF STP	KEOKUK	IA	Nitrogen	15,930

3. HTF Annual Loadings Report

The Annual Loadings Report provides aggregated nitrogen and aggregated phosphorus loads summed by State or Point Source Category. Users may view Nitrogen and Phosphorus loads side by side for all facilities, or compare POTW and Non-POTW nitrogen or phosphorus loads. This search may also be used to generate statistics, by state or point source category, of facilities with permit limits and effluent monitoring requirements for nitrogen and phosphorus.

Users can make several selections to display data, including: Time period, Row Heading (State or Point Source Category), and Column Heading [Pollutant or Industry (POTW/non-POTW)].

Annual Loadings Report

Instructions. Enter or select a value for one or more of the criteria below and click the Search button to view nitrogen and phosphorus loads side-by-side or compare POTW and non-POTW nitrogen or phosphorus loads. If you select an EPA region or state in combination with a major U.S. watershed, your search results will be limited to facilities that are located in both selections. For example:

- Select 'Delaware River Basin' to include all facilities that fall within the boundaries of the Delaware River Basin, or
- Select 'Maryland' and 'Delaware River Basin' to include facilities located in Maryland that also fall within the boundaries of the Delaware River Basin, or
- Select EPA Region '03' and 'Delaware River Basin' to include facilities located in EPA Region 3 that also fall within the boundaries of the Delaware River Basin.

Select Row Heading: Select Column Heading:

Include Data From: To:

Loads for the current year are not based on a full reporting year because data are not complete.

The screenshot shows a search interface with three main filter panels:

- 1 Location:** Includes fields for EPA Region (dropdown), State (dropdown), and Major U.S. Watersheds (dropdown). It also has checkboxes for "Include only Hypoxia Task Force States" and "Only include facilities that discharge:" with sub-options for impaired waterbodies, pollutants contributing to impairment, and ESA-listed aquatic species.
- 2 Pollutant:** Includes radio buttons for "Both Nitrogen and Phosphorus", "Nitrogen Only", and "Phosphorus Only".
- 3 Industry:** Includes radio buttons for "All Point Source Categories", "Publicly Owned Treatment Works (POTWs) Only", and "Industrial Point Sources (non-POTW)". The "POTWs Only" option has a sub-option "Include industrial facilities treating domestic sewage (SIC = 4952)". There is also a "Major/Minor indicator:" dropdown.

At the bottom, there are two buttons: "View Annual Loadings" and "View Effluent Limits and Monitoring Req't Counts".

Option 1: "View Annual Loadings"

Users can make their selections and click on the "View Annual Loadings" button. This will return the total amount of nutrient discharges for a given state or industrial sector. For example, the following search will return the total amount of nitrogen and phosphorus discharges (in pounds) in 2014 for major facilities treating domestic sewage (SIC = 4952).

Annual Loadings Report

Instructions. Enter or select a value for one or more of the criteria below and click the Search button to view nitrogen and phosphorus loads side-by-side or compare POTW and non-POTW nitrogen or phosphorus loads. If you select an EPA region or state in combination with a major U.S. watershed, your search results will be limited to facilities that are located in both selections. For example:

- Select 'Delaware River Basin' to include all facilities that fall within the boundaries of the Delaware River Basin, or
- Select 'Maryland' and 'Delaware River Basin' to include facilities located in Maryland that also fall within the boundaries of the Delaware River Basin, or
- Select EPA Region '03' and 'Delaware River Basin' to include facilities located in EPA Region 3 that also fall within the boundaries of the Delaware River Basin.

Select Row Heading: Select Column Heading:

Include Data From To:

Loads for the current year are not based on a full reporting year because data are not complete.

1 Location

EPA Region:

[View EPA regional map](#)
 OR
 State

 Include only Hypoxia Task Force States

Major U.S. Watersheds:

Select only a major U.S. watershed, or select a watershed in combination with a state or EPA region to limits results further.

Only include facilities that discharge:

to impaired waterbodies
 pollutants contributing to a waterbody impairment
 to counties or watersheds with ESA-listed aquatic species

2 Pollutant

Both Nitrogen and Phosphorus
 Nitrogen Only
 Phosphorus Only

3 Industry

All Point Source Categories
 Publicly Owned Treatment Works (POTWs) Only
 Include industrial facilities treating domestic sewage (SIC = 4952)
 Industrial Point Sources (non-POTW)

Major/Minor indicator:

Annual Loadings

Search Criteria:

Reporting Year: 2014 and State: MINNESOTA and Pollutant: Nitrogen and Phosphorus and POTWs and Industrial Facilities Treating Domestic Sewage (SIC = 4952) and Major/Minor = Major

Instructions.

- Click a bar graph icon to view the multi-year trends for a state, or for all states combined.
- [MINNESOTA](#) — Click a hyperlinked state name to view facility-level discharges for each state, or for all states.

State	Nitrogen				Phosphorus			
	Total Annual Discharge (lbs/yr)	% of Total Annual Discharge Based on DMR Data	Total # of Facilities with Loadings Based on DMR Data	Total # of Facilities with Modeled Loadings	Total Annual Discharge (lbs/yr)	% of Total Annual Discharge Based on DMR Data	Total # of Facilities with Loadings Based on DMR Data	Total # of Facilities with Modeled Loadings
MINNESOTA	54,014,103	35%	133	2	3,394,444	33%	75	1
TOTAL	54,014,103	35%	133	2	3,394,444	33%	75	1

[Download Data](#) [Download Field Descriptions](#)

Option 2: “Effluent Limits and Monitoring Requirement Counts”

Users can also generate counts of facilities with monitoring requirements and effluent limits by pressing the “View Effluent Limits and Monitoring Req’t Counts” button. For example, the following table shows the counts of all major facilities treating domestic sewage (SIC = 4952) with nitrogen or phosphorus parameters in their NPDES permits in 2014.

Effluent Limits and Monitoring Requirement Counts

Search Criteria:

Reporting Year: 2014 and State: MINNESOTA and Pollutant: Nitrogen and Phosphorus and POTWs and Industrial Facilities Treating Domestic Sewage (SIC = 4952) and Major/Minor = Major

Instructions.

[MINNESOTA](#) — Click a hyperlinked state name to view facility-level data.

State	Facilities Counts (Based on Facility Data)			Nitrogen				Phosphorus				Both Nitrogen and Phosphorus Compounds*	
				Total Nitrogen		Other Nitrogen Compounds		Total Phosphorus		Other Phosphorus Compounds			
	All Facilities Meeting Search Criteria	With Facility Info Only	With Facility and Permit Data	With Monitoring Req't Only	With Monitoring Req't and Effluent Limits	With Monitoring Req't Only	With Monitoring Req't and Effluent Limits						
MINNESOTA	76	1	75	2	0	28	46	22	53	0	0	22	53
TOTAL	76	1	75	2	0	28	46	22	53	0	0	22	53

*Represents the number of facilities that have both nitrogen and phosphorus effluent limits and/or monitoring requirements.

 [Download Data](#)
 [Download Field Descriptions](#)

4. Detailed Look at the HTF Select Logic

The HTF Search applies the following criteria to select data for nutrient loadings and to count effluent limits and monitoring requirements. Where available, the ICIS-NPDES database fields and codes are provided.

Permit Type

The search includes only Individual NPDES permits (permit_type_code = NPD). The search further excludes any individual NPDES permits that have a non-numeric 3rd character (e.g., CAF001507).

Permit Status

The search includes only permits flagged as Administratively Continued (ADC), Effective (EFF), or Expired (EXP) in the respective reporting year.

Permit Version

The search uses the most recent permit version effective during the respective reporting year. In the current year, this is permit version 0.

Permit Feature Type

The search includes only outfalls labeled as external outfalls or summation outfalls (Perm_feature_type = EXO or SUM).

Monitoring Locations

The search only includes nutrient measurements at monitoring locations with monitoring location codes equal to 1, 2, SC, EG, Y, A, and B. The search uses a hierarchy to select nutrient measurements at only one of these monitoring locations to best represent the effluent load for each facility. The order in which the tool selects data from monitoring locations for loading calculations is:

Priority	Monitoring Location	Notes
1	2 (Effluent Net)	Monitoring location code 2 represent net effluent discharges, which the tool gives top priority for selection for loading calculations.
2	1 (Effluent Gross)	Monitoring location code 1 is the most commonly report effluent gross monitoring location.
3	Y (Effluent Gross)	Monitoring location code Y represents gross effluent measurements and is third in the selection hierarchy because it is less commonly reported than monitoring location 1.
4	SC (See Comments)	This upstream monitoring location may be used to monitor trace chemicals that are too diluted to measure at the final outfall.
5	A (After Disinfection)	This upstream monitoring location may be used to monitor trace chemicals that are too diluted to measure at the final outfall.
6	B (Before Disinfection)	This upstream monitoring location may be used to monitor trace chemicals that are too diluted to measure at the final outfall.
7	EG (Effluent Gross)	This monitoring location code is intended for reporting the corresponding effluent measurement for an upstream measurement that was reported using SC, A, or B. The tool includes this monitoring location as the last step in the hierarchy as a safe guard to capture any nutrient measurements that were not reported to the above monitoring locations.

Limit Value Type

The search excludes permits for which the Limit Value Type is null.

Units of Measure

The search includes only records with concentration- or mass-based measurements entered into ICIS-NPDES.

Parameter Codes

Parameter Code	Parameter Description	Pollutant Code	Chemical Abstract Service Number
00600	Nitrogen, total [as N]	02817	7727-37-9
00602	Nitrogen, Dissolved	99999	

Parameter Code	Parameter Description	Pollutant Code	Chemical Abstract Service Number
00605	Nitrogen, organic total [as N]	02817	7727-37-9
00607	Nitrogen, organic, dissolved [as N]	02817	7727-37-9
00613	Nitrite nitrogen, dissolved [as N]	02806	14797-65-0
00615	Nitrogen, nitrite total [as N]	02806	14797-65-0
00618	Nitrogen, nitrate dissolved	05713	14797-55-8
00620	Nitrogen, nitrate total [as N]	05713	14797-55-8
00621	Nitrate nitrogen, dry weight	05713	14797-55-8
00623	Nitrogen, Kjeldahl, dissolved [as N]	02817	7727-37-9
00625	Nitrogen, Kjeldahl, total [as N]	02817	7727-37-9
0625D	Nitrogen, Kjeldahl, total [as N] [per discharge]	02817	7727-37-9
00630	Nitrite + Nitrate total [as N]	10354	
00631	Nitrite plus nitrate dissolved 1 det.	10354	
00640	Nitrogen, inorganic total	02817	7727-37-9
00650	Phosphate, total [as PO4]	05878	14265-44-2
00653	Phosphate total soluble	05878	14265-44-2
00655	Phosphate, poly [as PO4]	05878	14265-44-2
00660	Phosphate, ortho [as PO4]	05878	14265-44-2
00662	Phosphorous, total recoverable	05889	7723-14-0
00664	Dock discharge of phosphorus	05889	7723-14-0
00665	Phosphorus, total [as P]	05889	7723-14-0
0665S	Phosphorus, total [as P] [per season]	05889	7723-14-0
00666	Phosphorus, dissolved	05889	7723-14-0
00667	Phosphorus, dissolved reactive [drp as P]	05889	7723-14-0
00670	Phosphorous, total organic [as P]	05889	7723-14-0
00671	Phosphate, ortho, dissolved [as P]	05878	14265-44-2
01299	Nitrogen-nitrate in water, [pct]	05713	14797-55-8
04157	Phosphorus [reactive as P]	05889	7723-14-0
04175	Phosphate, ortho [as P]	05878	14265-44-2
49579	Nitrogen, total Kjeldahl	02817	7727-37-9
50785	Phosphorus, ortho	05889	7723-14-0
51084	Nitrogen, total available [water]	02817	7727-37-9
51086	Nitrogen, nitrate [NO3], [water]	05713	14797-55-8
51087	Nitrogen, Kjeldahl, total [TKN] [water]	02817	7727-37-9
51092	Phosphate, total [P2O5], water	11195	17101-36-9
51100	Nitrogen, total, as NO3, [water]	05713	14797-55-8
51425	Nitrogen, Total As N	99999	
51426	Phosphorus, Total As P	99999	
51445	Nitrogen, Total	02817	7727-37-9
51447	Nitrogen, Nitrite Total	02806	14797-65-0
51448	Nitrogen, Nitrate Total	05713	14797-55-8
51449	Nitrogen, Kjeldahl Total	02817	7727-37-9
51450	Nitrite Plus Nitrate Total	10354	
51451	Phosphorus, Total	05889	7723-14-0
51489	Nitrogen, Total as NO3 + NH3	12586	
51622	Limiting Nutrient [Nitrogen or Phosphorus]	99999	
51662	Nitrogen, Kjeldahl, total [TKN], insoluble	02817	7727-37-9

Parameter Code	Parameter Description	Pollutant Code	Chemical Abstract Service Number
51663	Phosphorus, insoluble	05889	7723-14-0
51675	Annual Nitrate Nitrogen Discharged	05713	14797-55-8
51699	Phosphorus, Total [Avg Seasonal Load Cap]	05889	7723-14-0
51764	Phosphorus Adsorption	05889	7723-14-0
70505	Phosphate, total, color method [as P]	05889	7723-14-0
70506	Phosphate, dissolved color method [as P]	05878	14265-44-2
70507	Phosphorous, in total orthophosphate	05889	7723-14-0
71850	Nitrogen, nitrate total [as NO3]	05713	14797-55-8
71888	Phosphorus, total soluble [as PO4]	05878	14265-44-2
81393	Nitrogen, total Kjeldahl, % removal	02817	7727-37-9
81639	Nitrogen Kjeldahl, total [TKN]	02817	7727-37-9
82386	Nitrogen, oxidized	02817	7727-37-9
82539	Nitrogen, Kjeldahl	02817	7727-37-9