

Wastewater Discharge and Impaired Waters

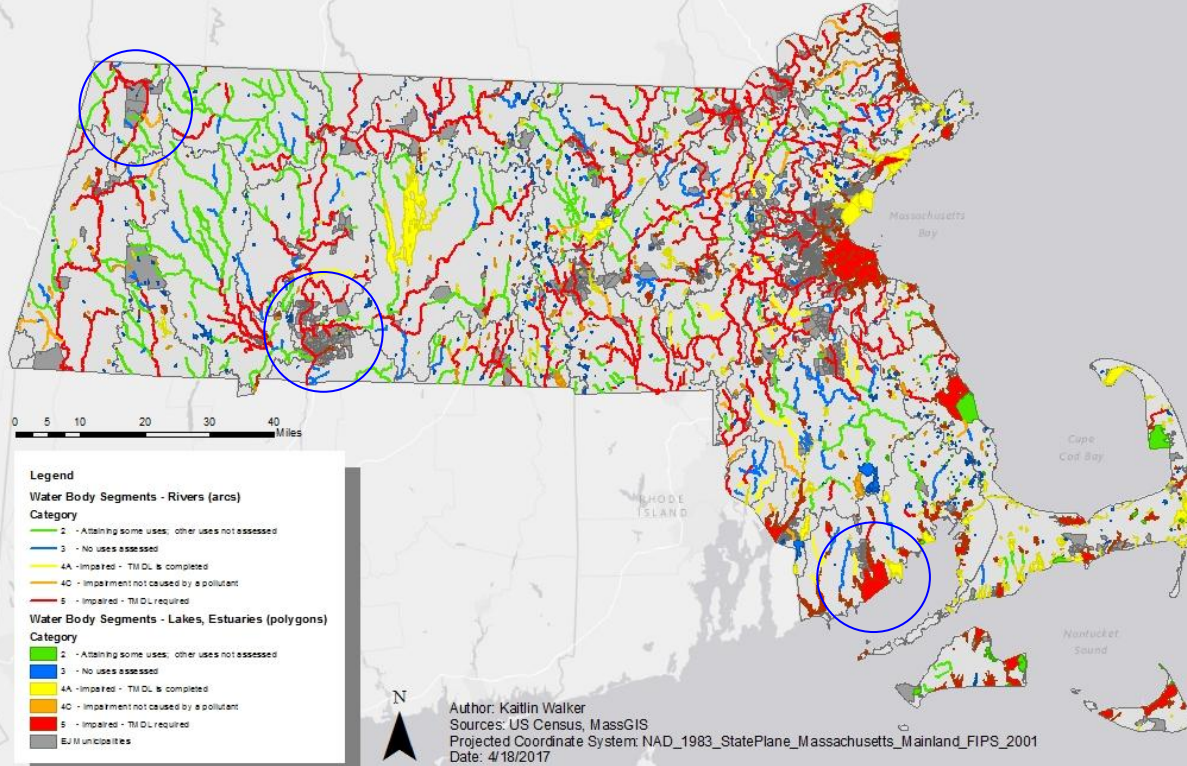
A photograph showing a large, white, cylindrical pipe extending from the left side of the frame. Water is being discharged from the end of the pipe into a stream. The stream flows over a rocky ledge and continues down a grassy bank. The background is filled with lush green trees and foliage under a clear blue sky. A green semi-transparent box at the top left contains the title text.

Katie Walker and
Casey Kelly

Site Parameters

- Database Parameters: (8 facilities from this search)
 - Category 5 waterbody impairment (in need of a TMDL)
 - Search DMR database: “Facilities contributing to a waterbody impairment”
- Other factors: (3 EJ communities from 8 facilities)
 - EJ communities: Minority, Income, English Isolation

Environmental Justice Communities and Impaired Water Bodies



Three facilities in EJ communities, and contributing to water body impairment (Category 5):

- 1.) New Bedford Wastewater Treatment Facility
- 2.) Adams Wastewater Treatment Plant
- 3.) Westfield Wastewater Treatment Plant

TMDL Status

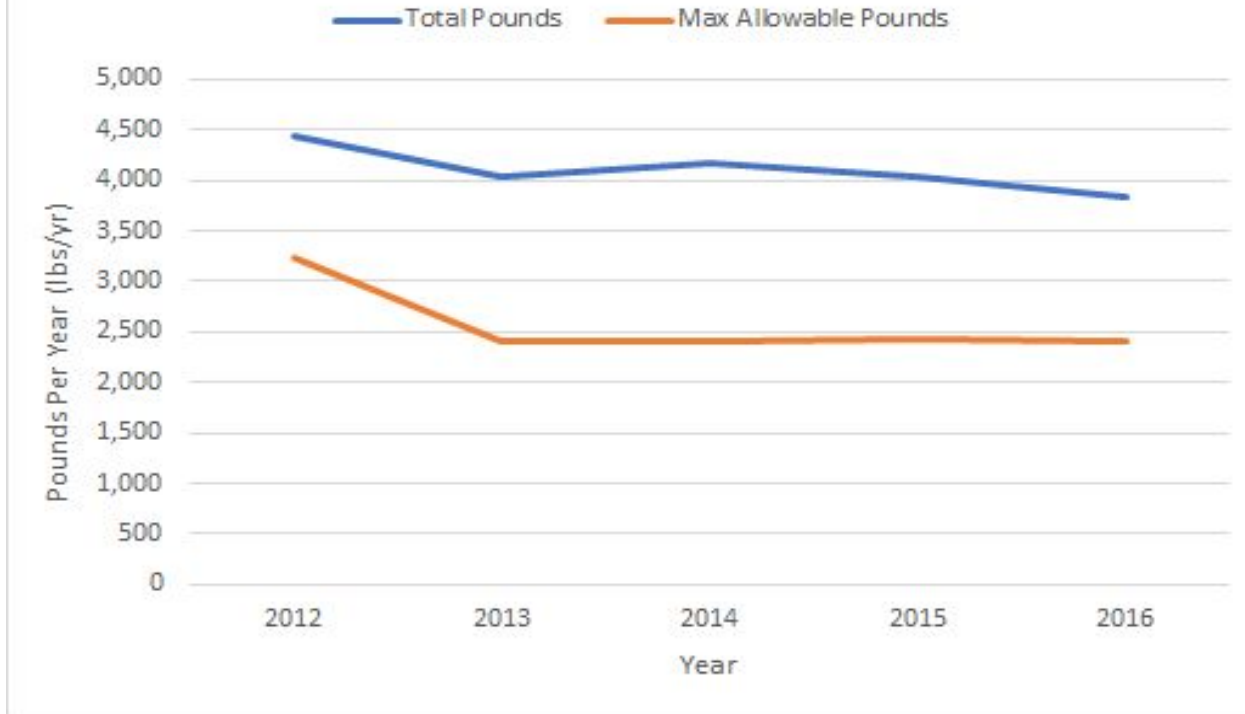
- Difficult to find updated/recent TMDL Status reports
- Reports found on MassDEP site
- Information found for three EJ sites:
 - New Bedford/Acushnet River: TMDL report on Pathogens (2009) and draft TMDL on Nitrogen (May 2016), no TMDL on Phosphorous. (N and P listed as potentially contributing to impairment.)
 - Adams/Hoosic River: No TMDL reports found
 - Westfield/Westfield River: No TMDL found

Municipality: Adams

Impaired Water Body: Hoosic River



Adams Wastewater Treatment Plant: Phosphorus



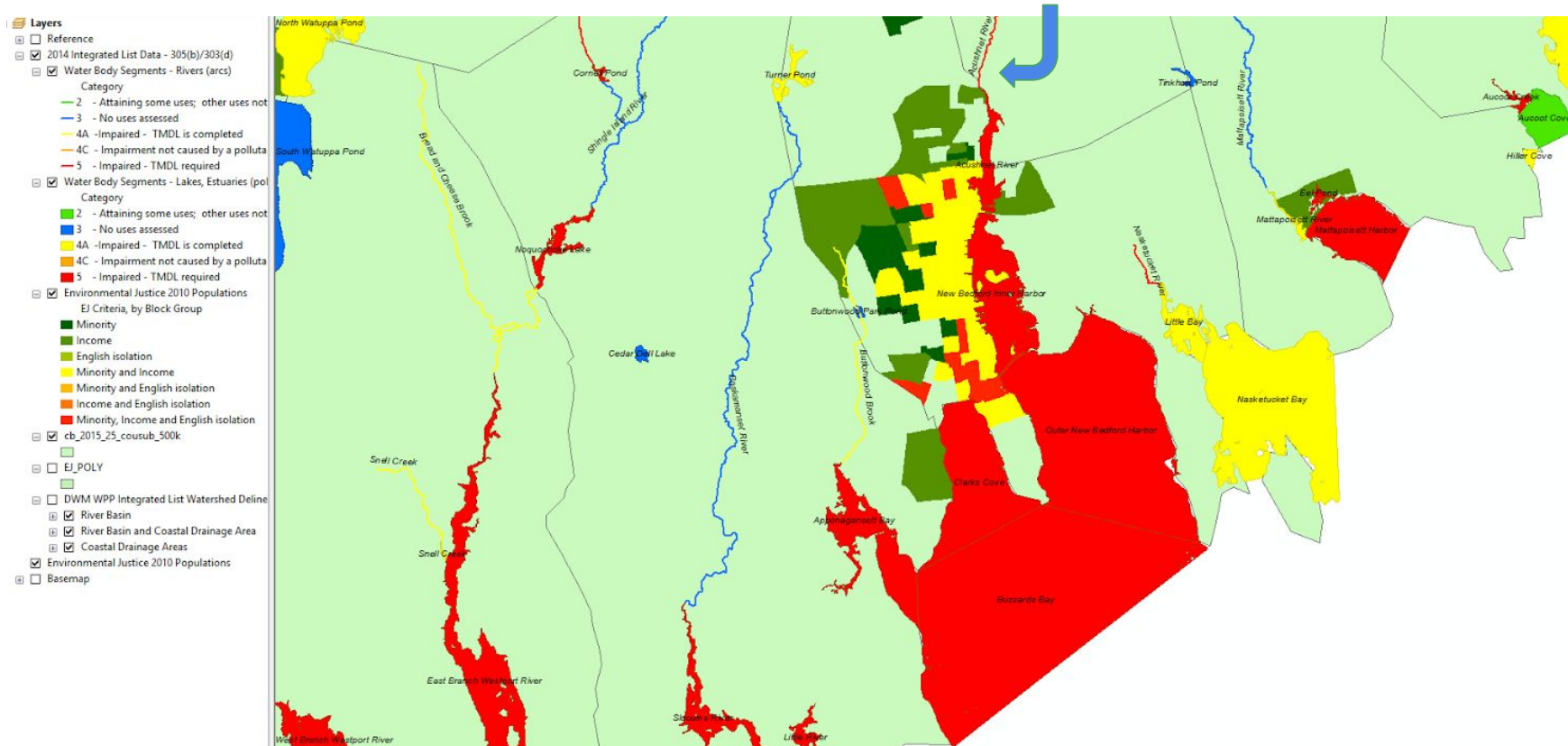
From 2016 DMR:

Cause(s) of Impairment: FLOW ALTERATION(S), HABITAT ALTERATIONS, PATHOGENS, TEMPERATURE, TOTAL TOXICS

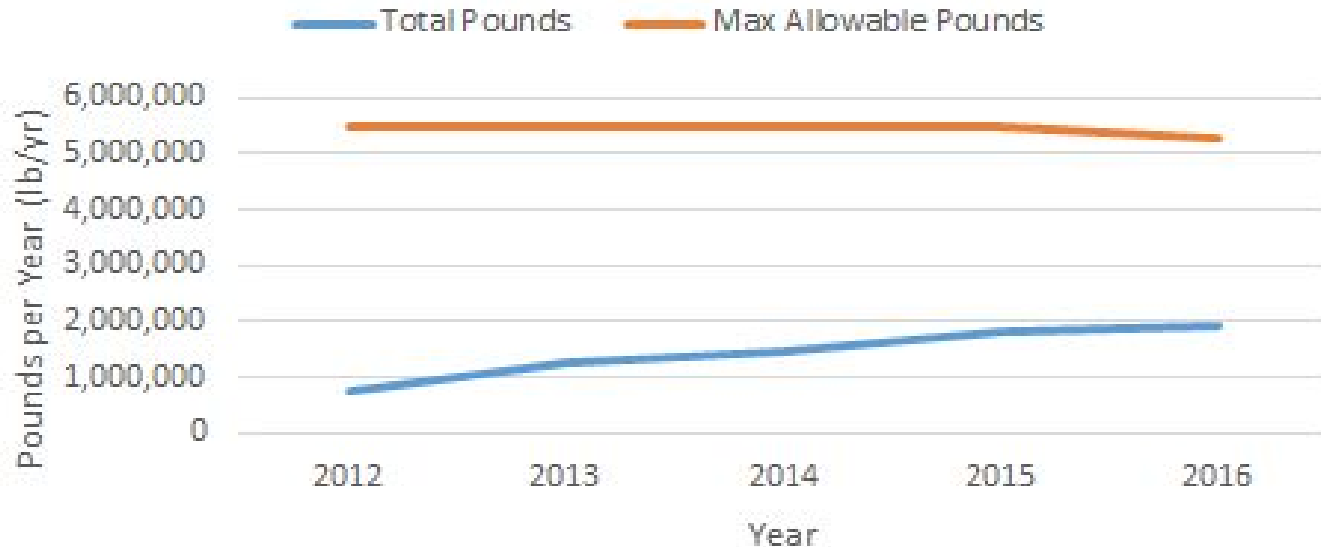
Facility pollutant(s) potentially contributing to impairment: Coliform, fecal general; Copper

Municipality: New Bedford

Impaired Water Body: Acushnet River



New Bedford Wastewater Treatment Facility: Solids (Total Suspended)



From 2016 DMR:

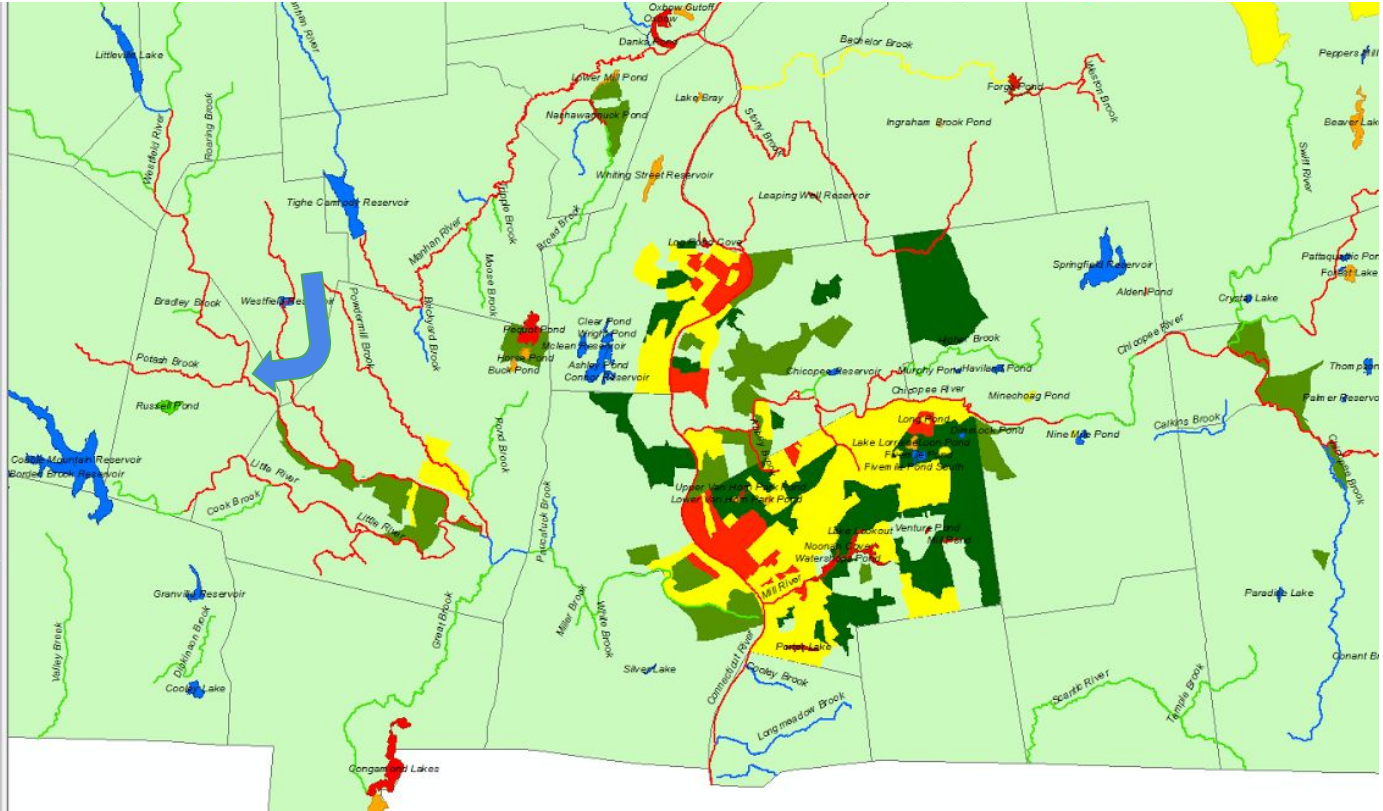
Cause(s) of Impairment: CAUSE UNKNOWN - IMPAIRED BIOTA, NUTRIENTS, ORGANIC ENRICHMENT/OXYGEN DEPLETION, OTHER CAUSE, PATHOGENS, POLYCHLORINATED BIPHENYLS (PCBS)

Facility pollutant(s) potentially contributing to impairment: BOD, carbonaceous, 05 day, 20 C; Coliform, fecal general; Enterococci: group D, MF trans, M-E, EIA; Phosphorus; Polychlorinated biphenyls; Total Kjeldahl Nitrogen

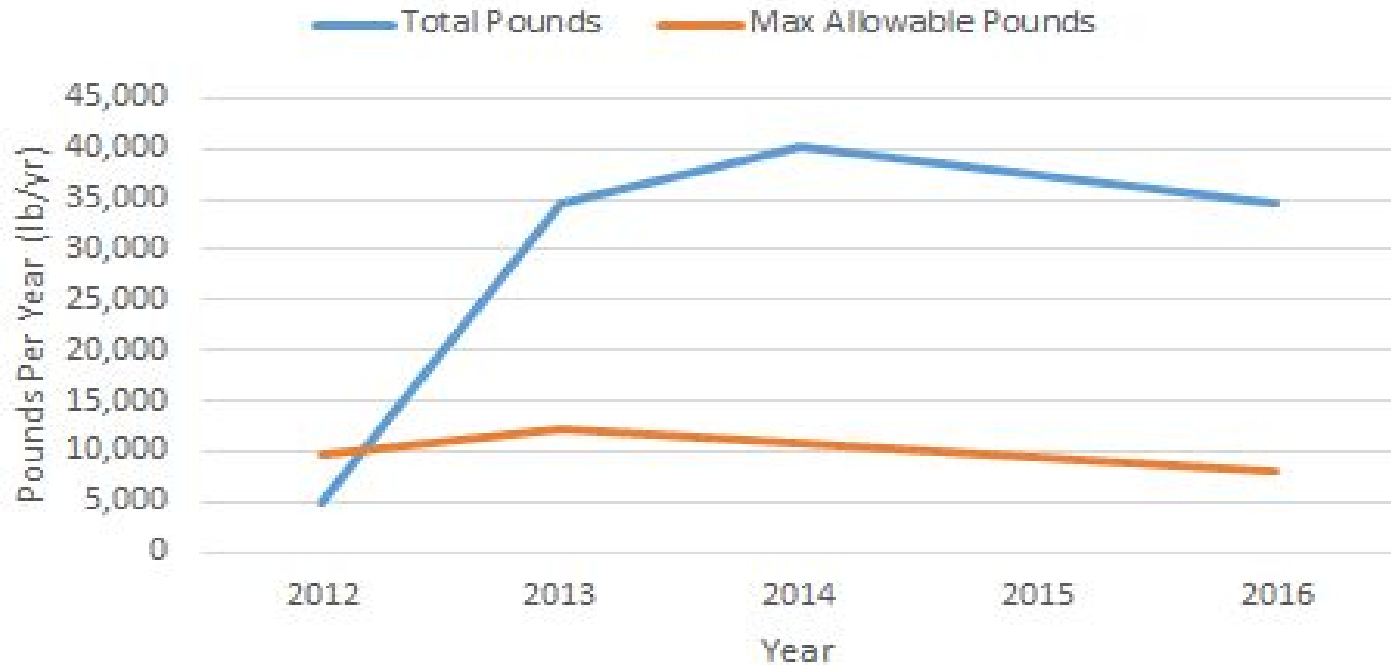
Municipality: Westfield

Impaired Water Body: Westfield River

- Layers**
- Reference
 - 2014 Integrated List Data - 305(b)/303(d)
 - Water Body Segments - Rivers (arcs)
 - Category
 - 2 - Attaining some uses; other uses not
 - 3 - No uses assessed
 - 4A - Impaired - TMDL is completed
 - 4C - Impairment not caused by a pollutant
 - 5 - Impaired - TMDL required
 - Water Body Segments - Lakes, Estuaries (polygons)
 - Category
 - 2 - Attaining some uses; other uses not
 - 3 - No uses assessed
 - 4A - Impaired - TMDL is completed
 - 4C - Impairment not caused by a pollutant
 - 5 - Impaired - TMDL required
 - Environmental Justice 2010 Populations
 - EJ Criteria, by Block Group
 - Minority
 - Income
 - English isolation
 - Minority and Income
 - Minority and English isolation
 - Income and English isolation
 - Minority, Income and English isolation
 - cb_2015_25_cousub_500k
 - EJ_POLY
 - DWM WPP Integrated List Watershed Deline
 - River Basin
 - River Basin and Coastal Drainage Area
 - Coastal Drainage Areas
 - Environmental Justice 2010 Populations
 - Basemap



Westfield Wastewater Treatment Plant: Ammonia as N

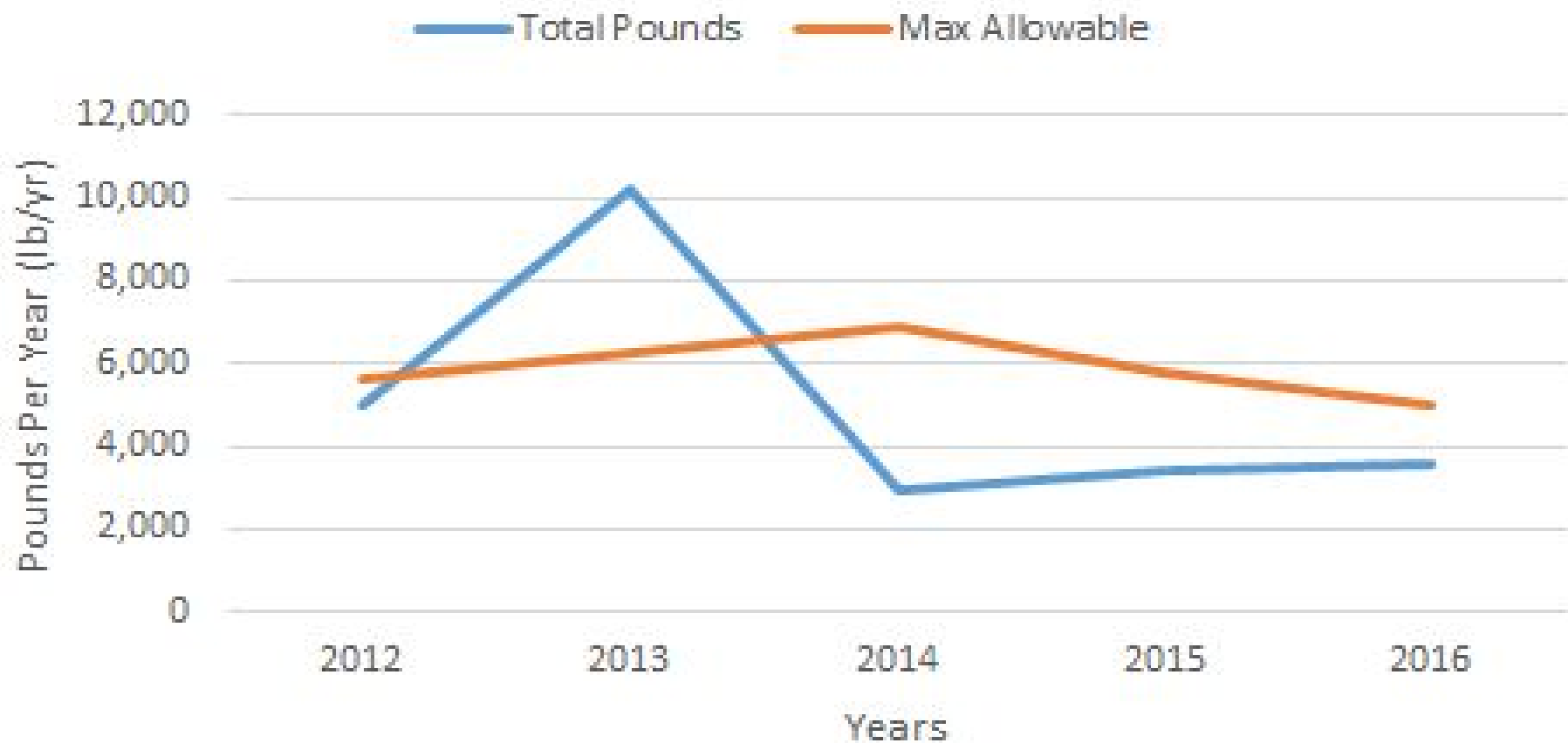


From 2016 DMR:

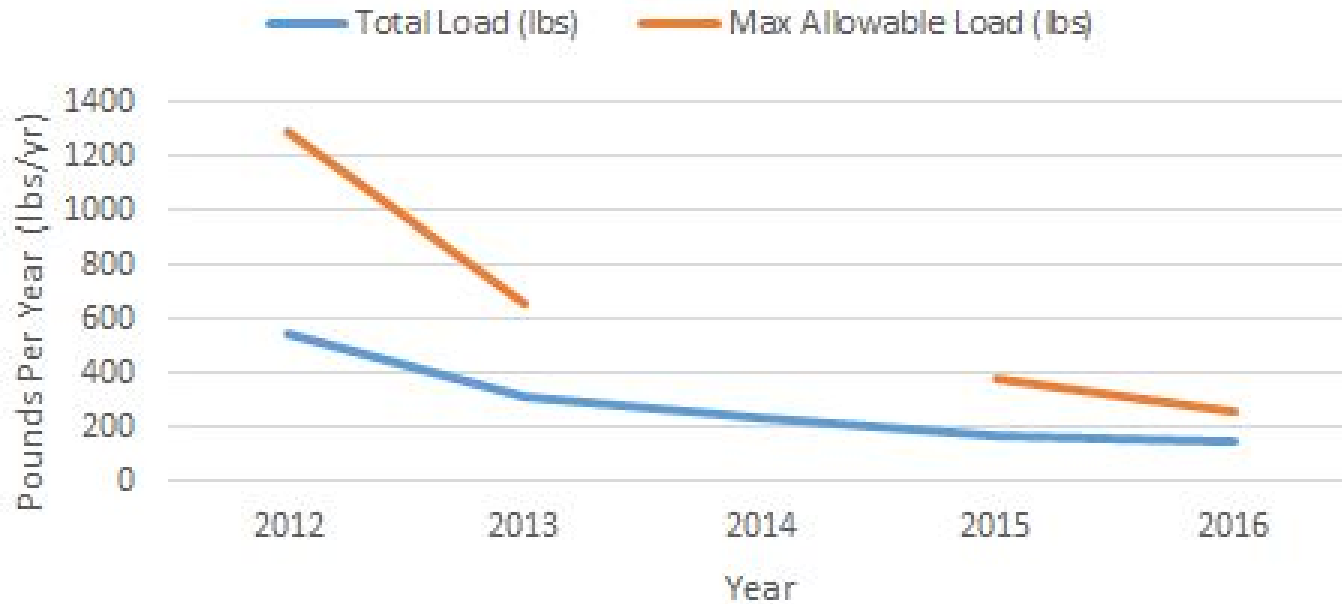
Cause(s) of Impairment: ALGAL GROWTH, CAUSE UNKNOWN - IMPAIRED BIOTA, TASTE, COLOR AND ODOR, TURBIDITY

Facility pollutant(s) potentially contributing to impairment: Ammonia as N; Inorganic Nitrogen; Nitrogen; Phosphorus; Total Kjeldahl Nitrogen

Westfield Wastewater Treatment Plant: Phosphorus



Medfield Wastewater Treatment Facility: Phosphorus



From 2016 DMR:

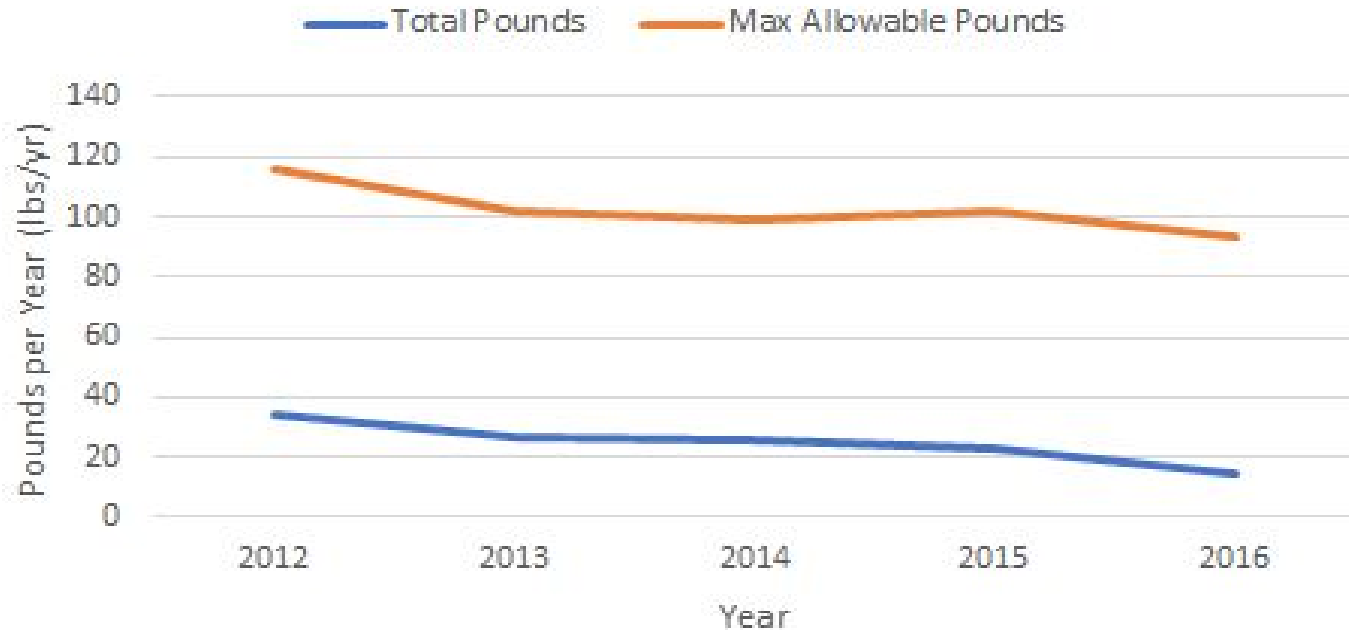
Cause(s) of Impairment: ALGAL GROWTH, CAUSE UNKNOWN - IMPAIRED BIOTA, MERCURY, NUISANCE EXOTIC SPECIES, NUTRIENTS, ORGANIC ENRICHMENT/OXYGEN DEPLETION, PESTICIDES, TURBIDITY

Facility pollutant(s) potentially contributing to impairment: Ammonia as N; BOD, 5-day, 20 deg. C; Nitrogen; Phosphate, total (as PO₄); Phosphorus

Medfield Wastewater Treatment Facility: Lead



Maynard Wastewater Treatment Facility: Copper

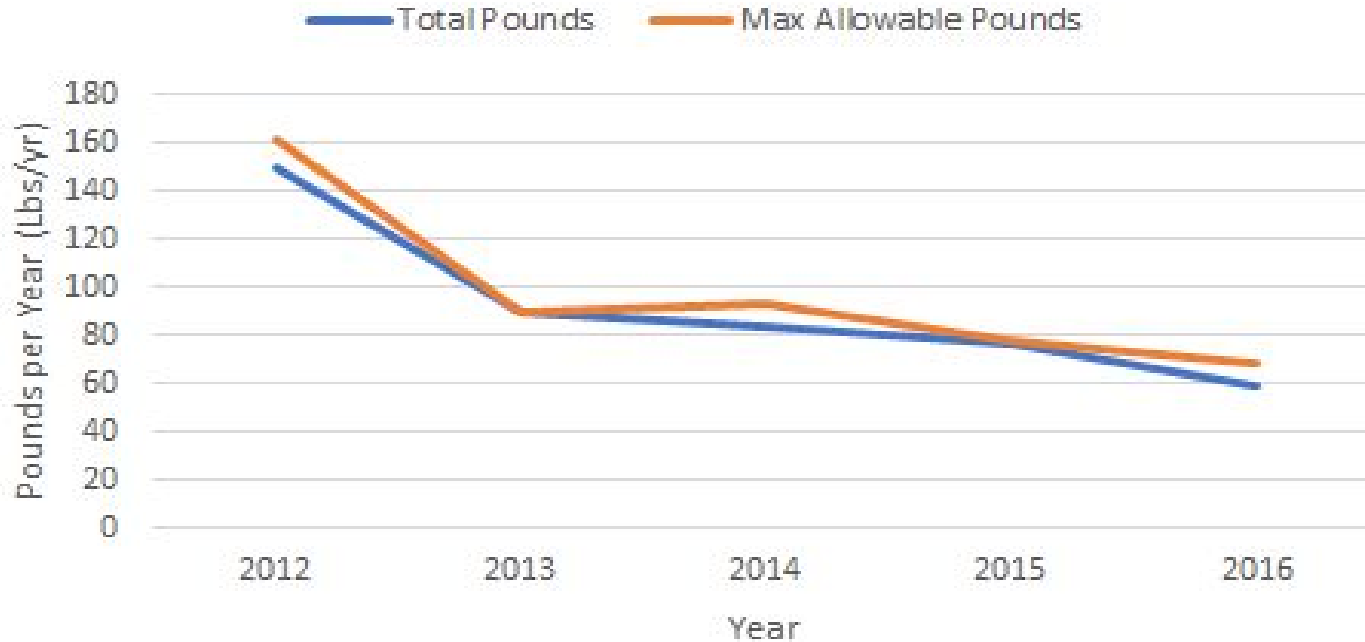


From DMR:

Cause(s) of Impairment: ALGAL GROWTH, NOXIOUS AQUATIC PLANTS, NUISANCE EXOTIC SPECIES, NUTRIENTS, ORGANIC ENRICHMENT/OXYGEN DEPLETION, OTHER CAUSE, TASTE, COLOR AND ODOR, TEMPERATURE, TRASH

Facility pollutant(s) potentially contributing to impairment: Nitrogen; Phosphorus

Hudson Wastewater Treatment Facility: Copper



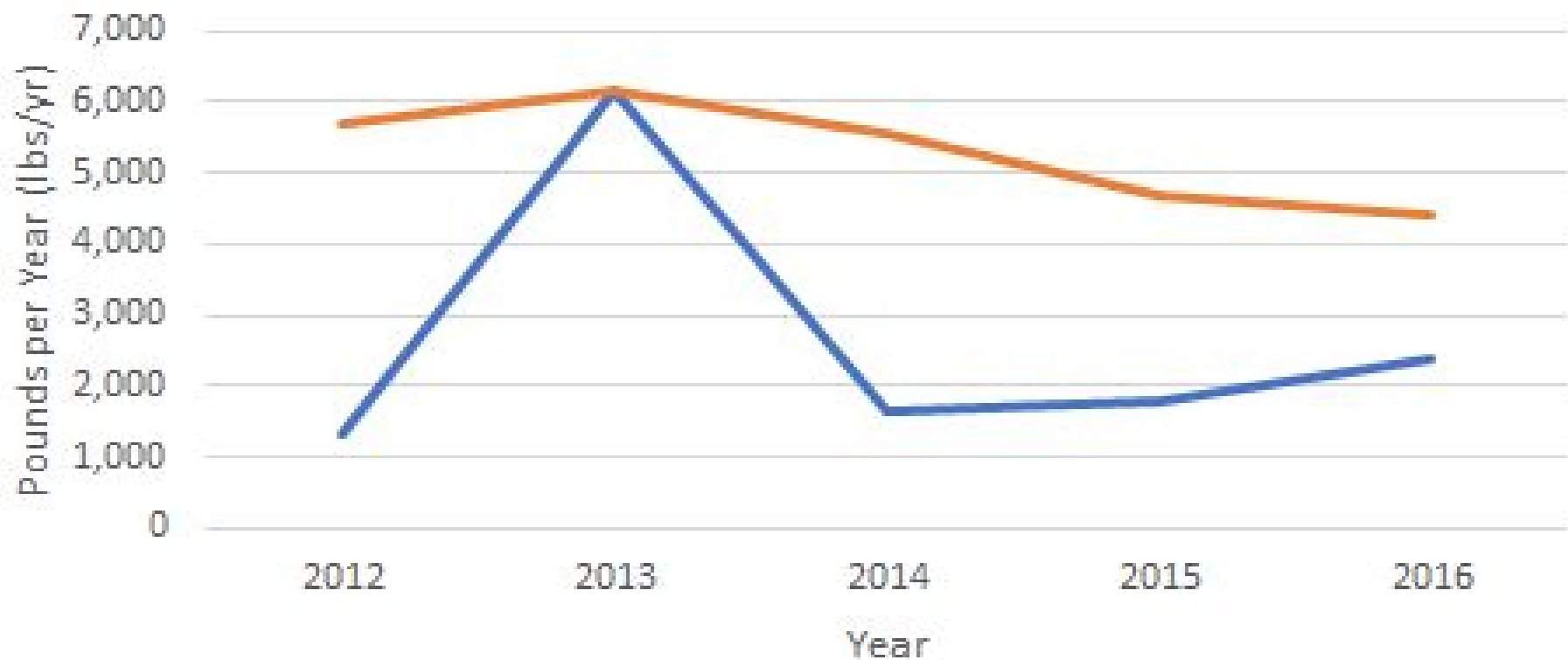
From 2016 DMR:

Cause(s) of Impairment: ALGAL GROWTH, NOXIOUS AQUATIC PLANTS, NUISANCE EXOTIC SPECIES, NUTRIENTS, ORGANIC ENRICHMENT/OXYGEN DEPLETION, PATHOGENS, TASTE, COLOR AND ODOR, TRASH

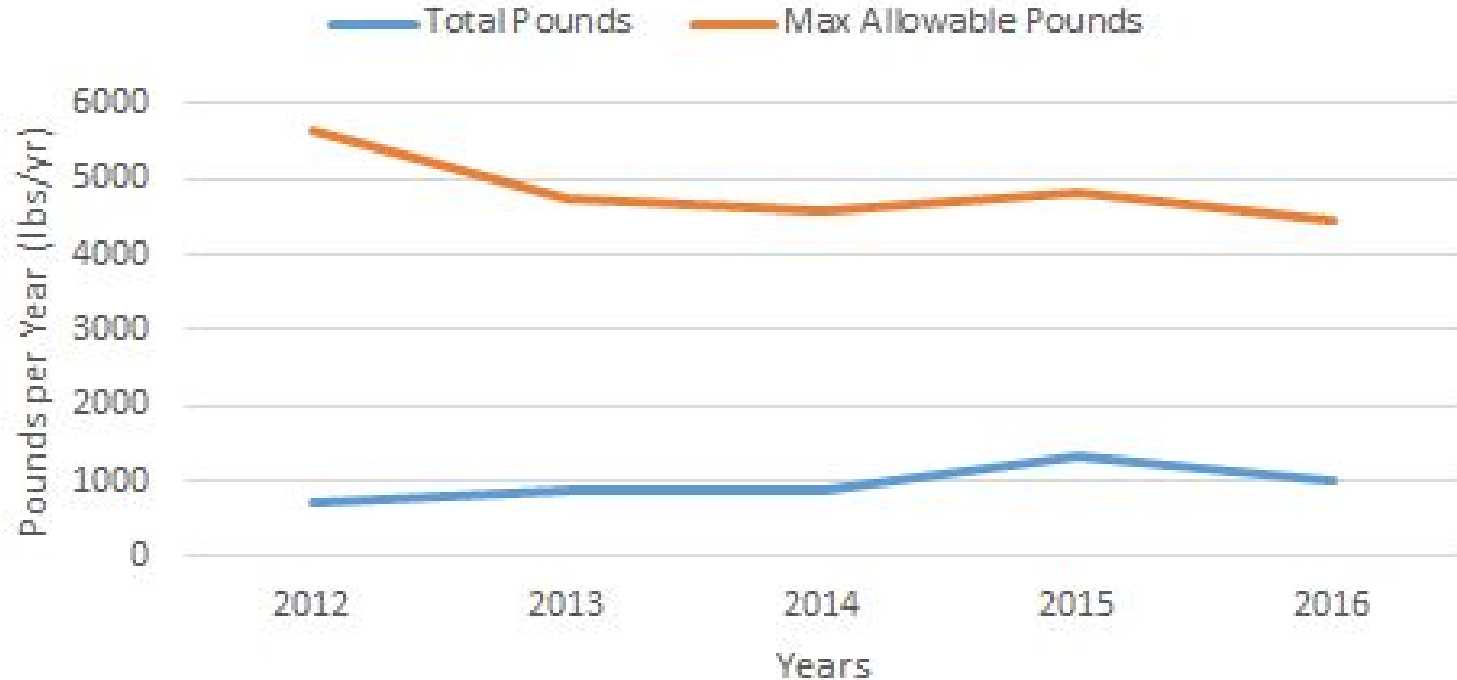
Facility pollutant(s) potentially contributing to impairment: Ammonia as N; BOD, 5-day, 20 deg. C; Coliform, fecal general; Nitrogen; Phosphate, total (as PO4); Phosphorus

Hudson Wastewater Treatment Facility: Ammonia as N

— Total Pounds — Max Allowable Pounds



Westerly Wastewater Treatment Facility: Phosphorus



From 2016 DMR:

Cause(s) of Impairment: CAUSE UNKNOWN - IMPAIRED BIOTA, NUTRIENTS, TURBIDITY

Facility pollutant(s) potentially contributing to impairment: Ammonia as N; Nitrogen; Phosphate, total (as PO₄); Phosphorus

Expired Permits

Facility Name	Permit Expiration Date
Hudson Wastewater Treatment Facility	7/31/2010
Westfield Wastewater Treatment Plant	11/30/2014
Charles River Wastewater Treatment Facility	10/31/2019
Westerly Wastewater Treatment Facility	6/30/2010
Adams Wastewater Treatment Plant	9/12/2010
Maynard Wastewater Treatment Facility	10/31/2010
Medfield Wastewater Treatment Facility	2/28/2017
New Bedford Wastewater Treatment Facility	11/30/2013

Discussion, Recommendations, and Future Considerations

- Some facilities found in EJ areas had load exceedances for multiple years or parts of the year
- Difficulties finding information regarding the prioritization of TMDL developments
- Flags for expired permits to target facilities and if data is collected after the permit expires, indicate that the new permit was not added to the site
- Possible future work:
 - Assess impaired water bodies by use and proximity to populated areas
 - Is there a way we can we help develop comprehensive watershed plans?
 - How can we follow up on TMDL development progress for identified sites? How can we look into control measures for a TMDL?
 - How can we help create educational materials on water quality for the public?
 - Are there different research parameters for a different end goal we can look into?

Thank you!