

Findings of the Mountaire Pollution Committee

Chris Bason, Executive Director
April 9, 2018



DELAWARE CENTER FOR THE
INLAND BAYS
Research. Educate. Restore.

MOUNTAIRE FACILITY

Swan Creek

Wastewater Spray Disposal Fields

Indian River





**\$7 Billion Coastal
Economy**

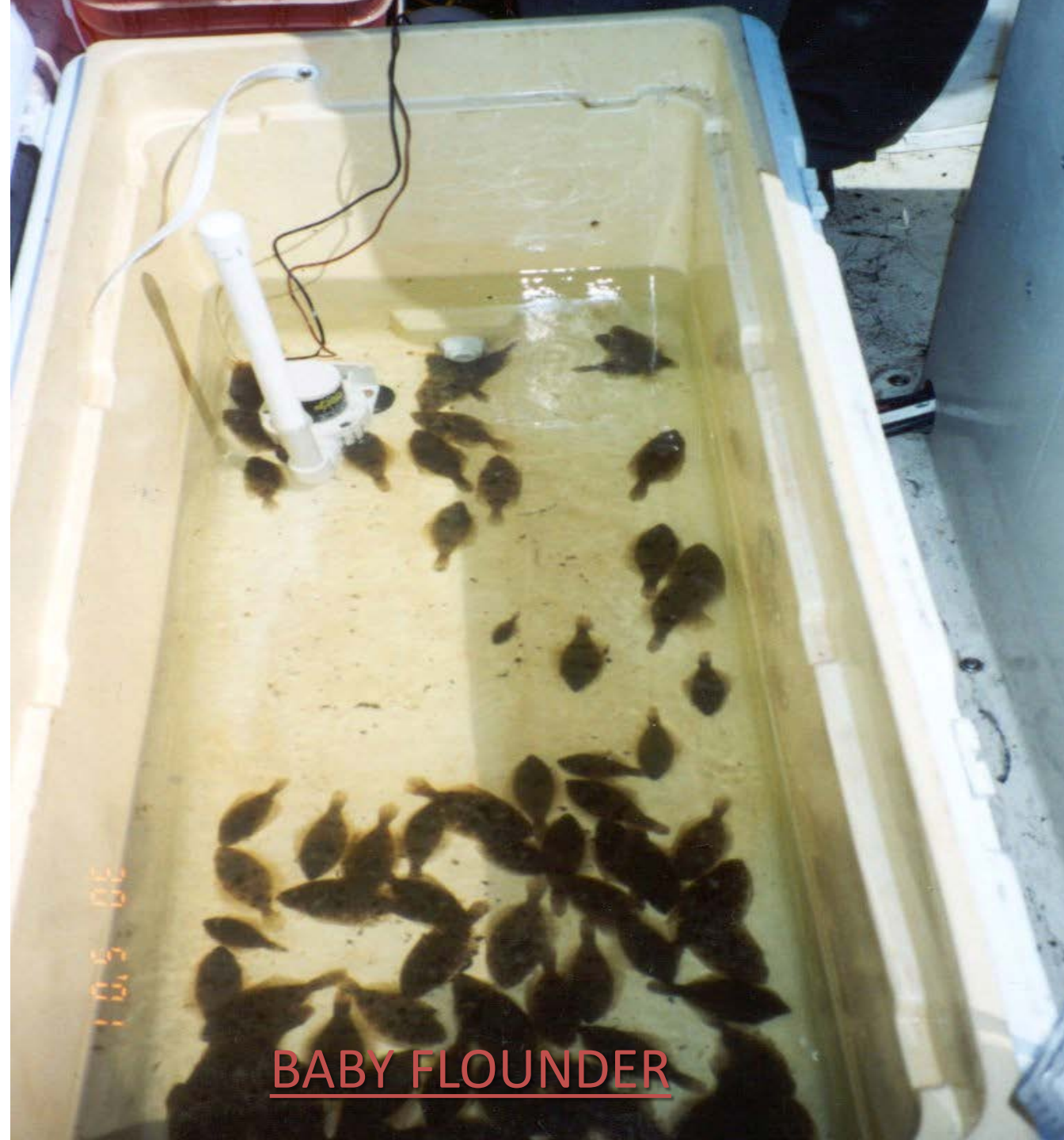
59,000 jobs

**\$711 million in
tax revenue**

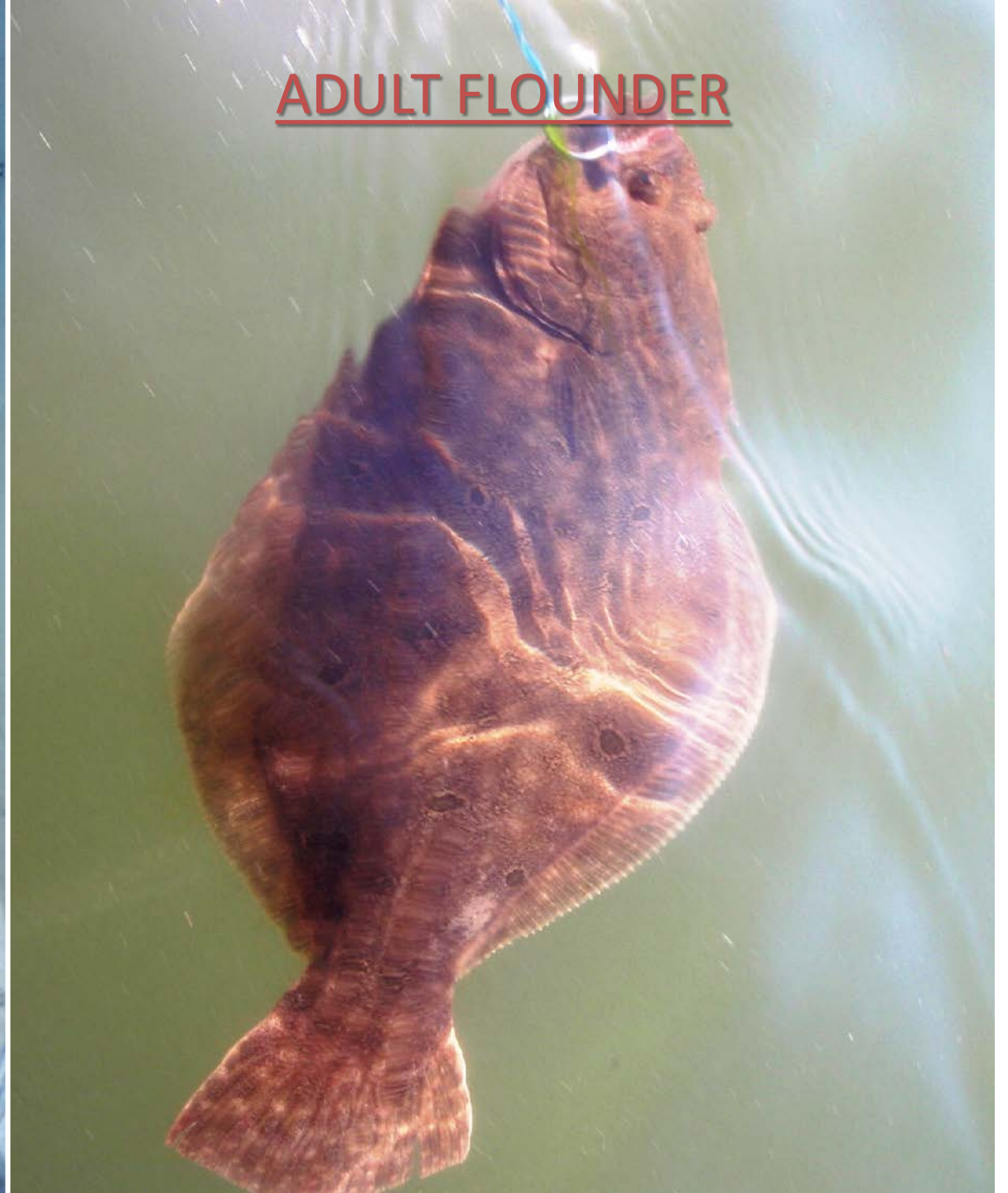


**60,000 registered
boaters**

**250,000 fishing
trips per year**



BABY FLOUNDER



ADULT FLOUNDER





Groundwater flows toward Swan Creek & Indian River.

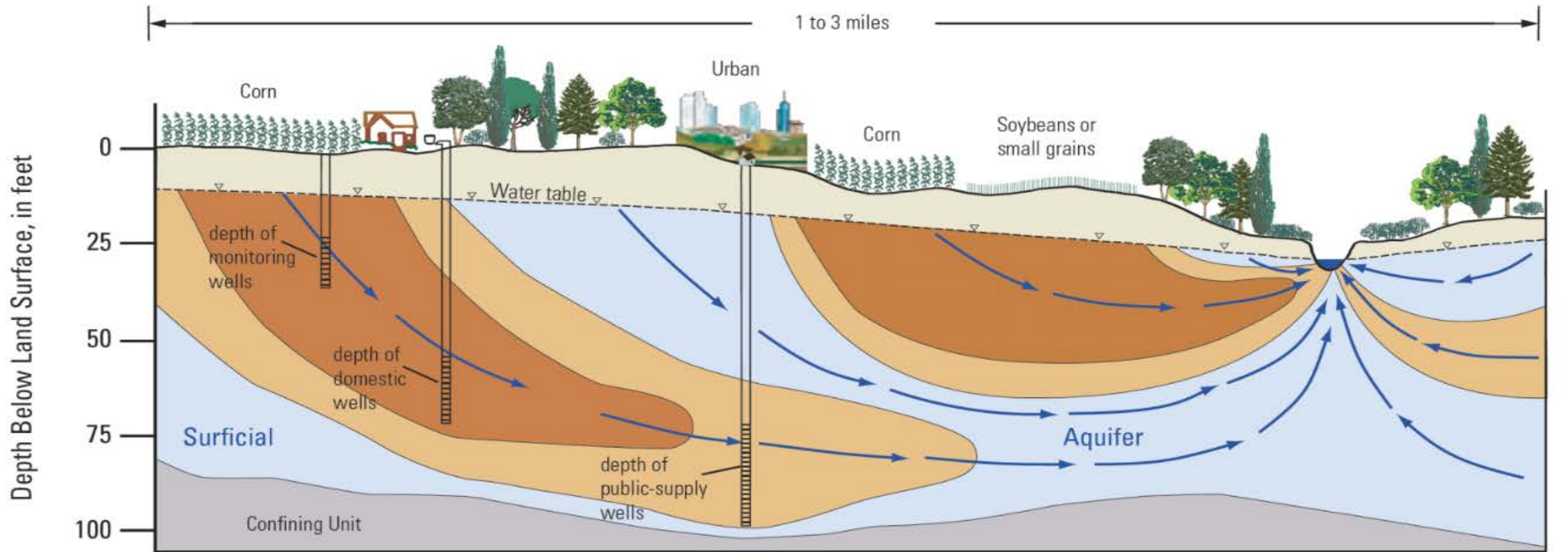
Groundwater of the area travels 4 to 39 inches/day or 122 to 1,187 feet/year in vertical and horizontal directions.



High-rate application of wastewater on fields can cause groundwater to travel faster and in a greater variety of directions.



Generalized flow of groundwater and contaminants



Not to Scale

EXPLANATION

Unsaturated Zone

Direction of groundwater flow

Maximum Contaminant Level

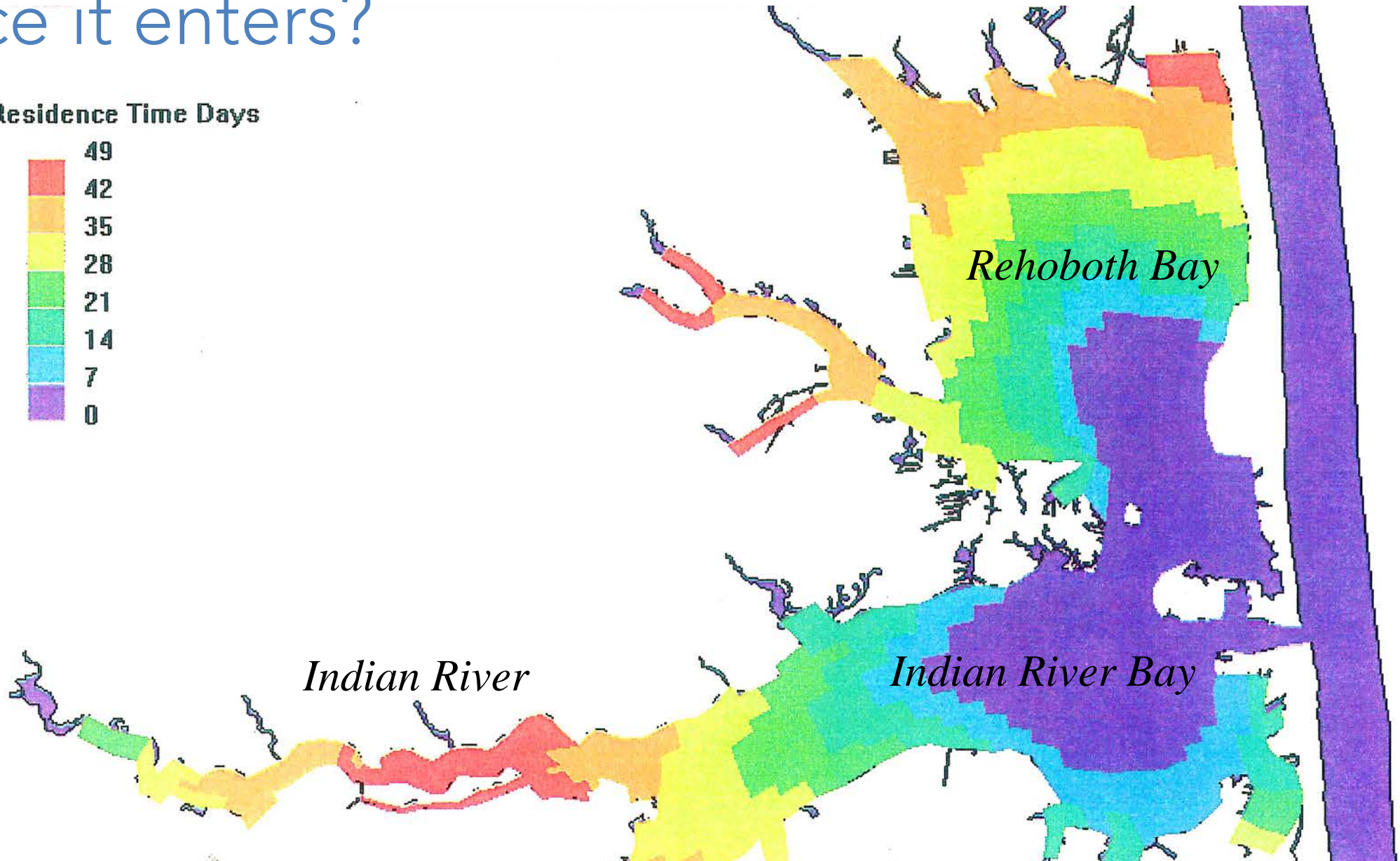
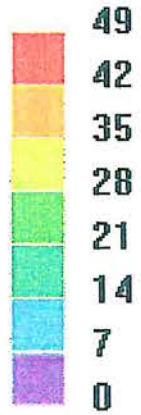
Nitrate concentration,
in milligrams per liter as N

<5 5-10 >10

How long does water entering the estuary stay once it enters?



Residence Time Days

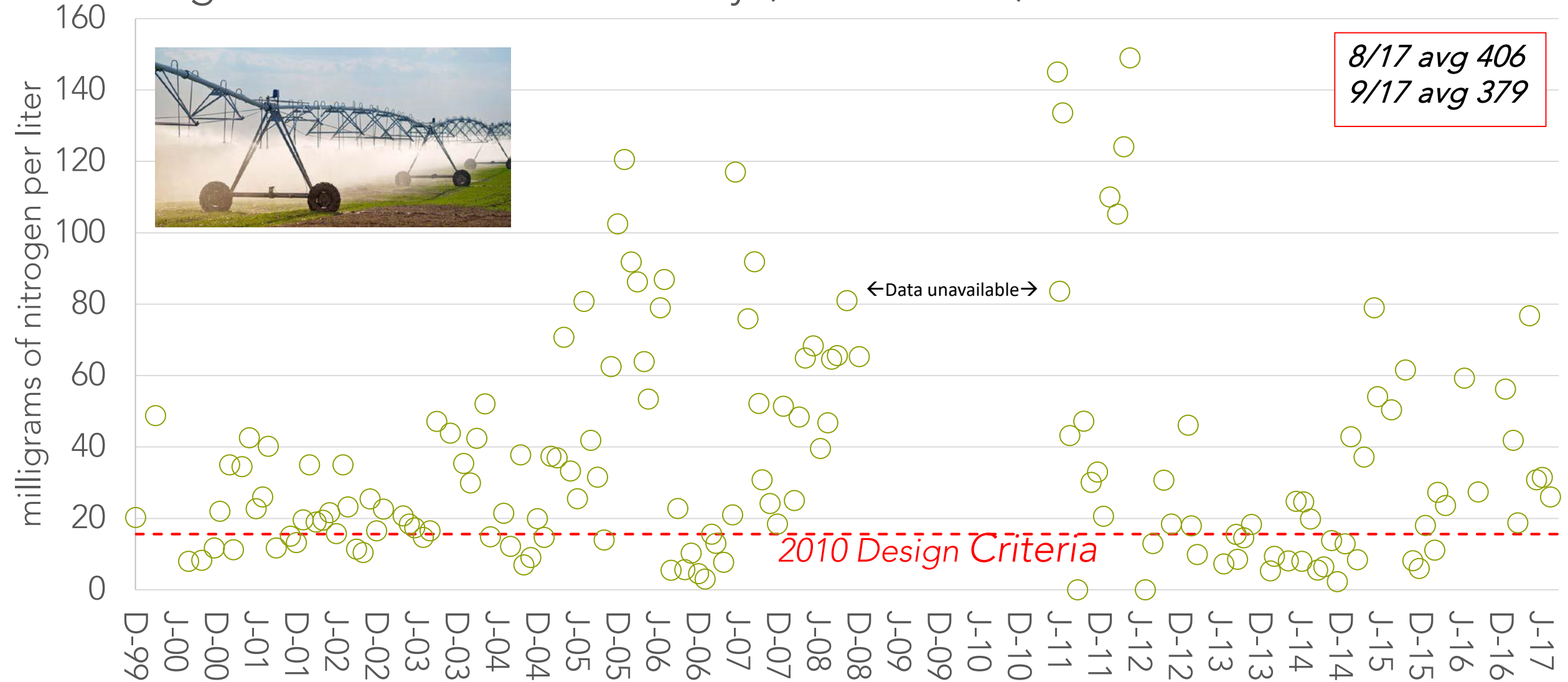


DNREC Wastewater Disposal Permit

- Facility permitted to dispose of 2.6 million gallons of wastewater per day on ~1,000 acres of farm fields.
- No more than 320 lbs. of nitrogen, including agricultural fertilizers, applied per year.
- Groundwater must meet safe drinking water standard for nitrate of 10 milligrams per liter.

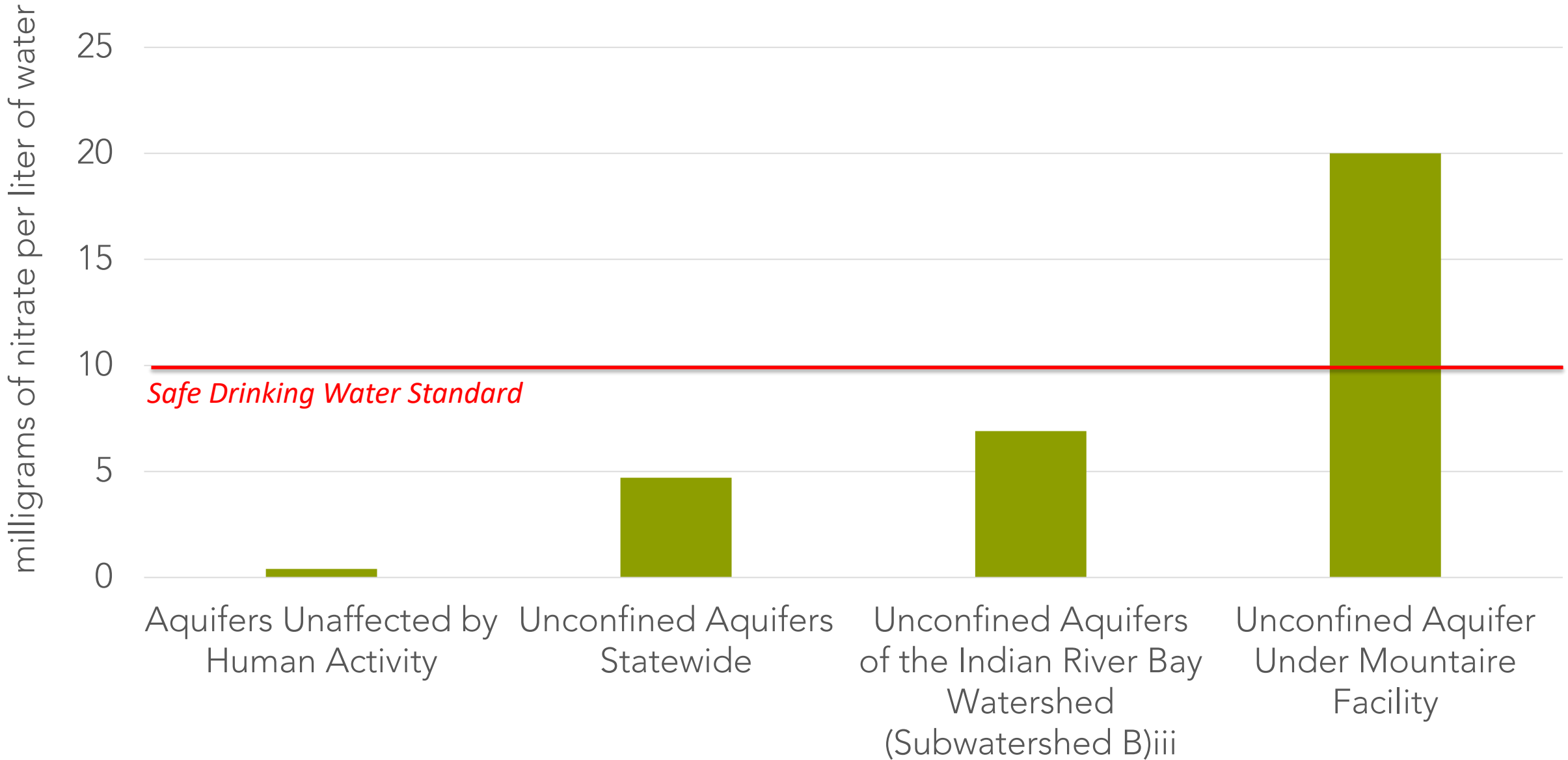


Nitrogen Concentration of Wastewater Effluent to Spray Irrigation at Mountaire Facility (1999 – 2017)

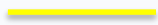


Mountaire monitoring data submitted to DNREC obtained by Scott Andres (1999-2008) and CIB (2011-2017) from DNREC

Average Nitrate Concentration of Groundwaters



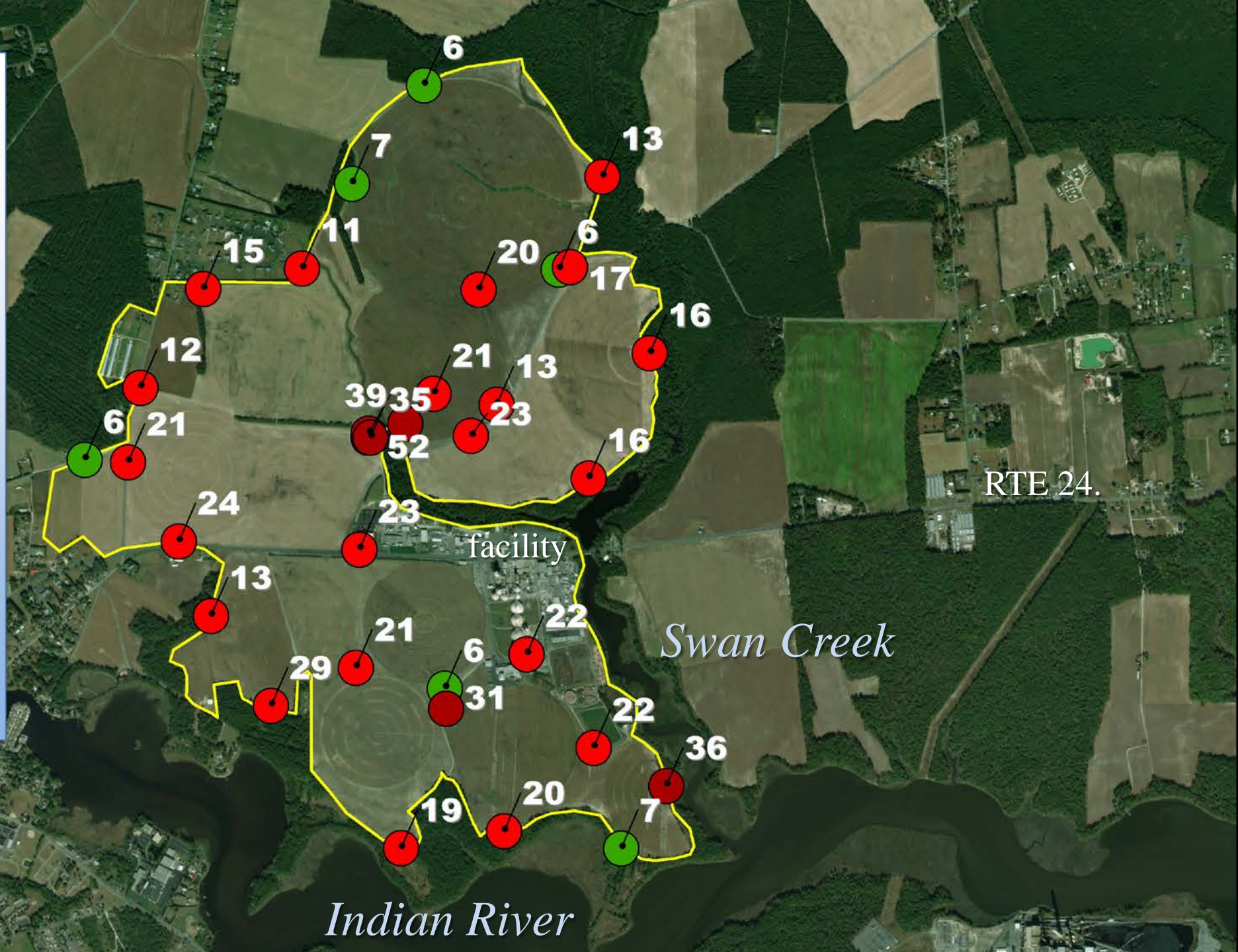
General area of
Mountaire facility
wastewater
disposal



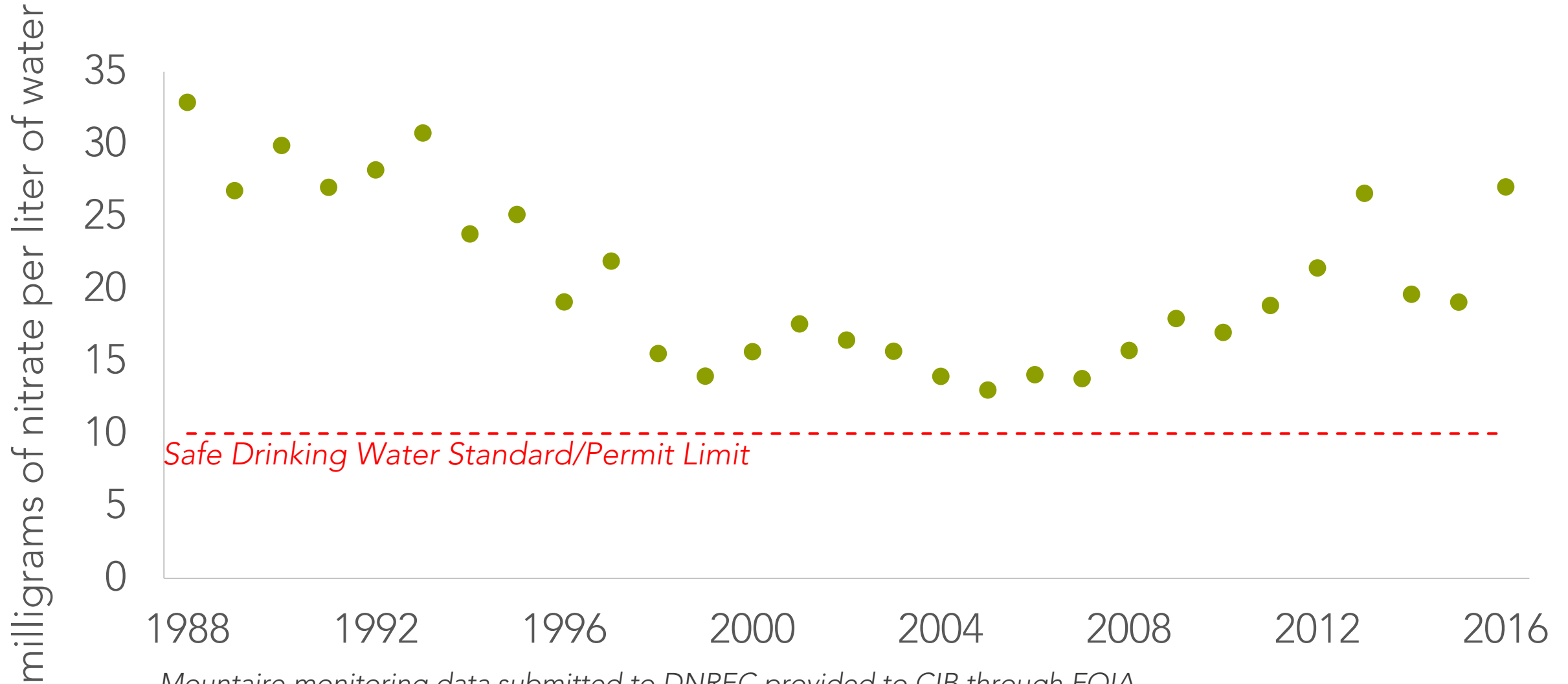
Groundwater
Monitoring Wells

*Average nitrate
Concentration in
milligrams/liter of water
(1988-2016)*

-  0 - 10
-  10 - 30
-  30 - 50+

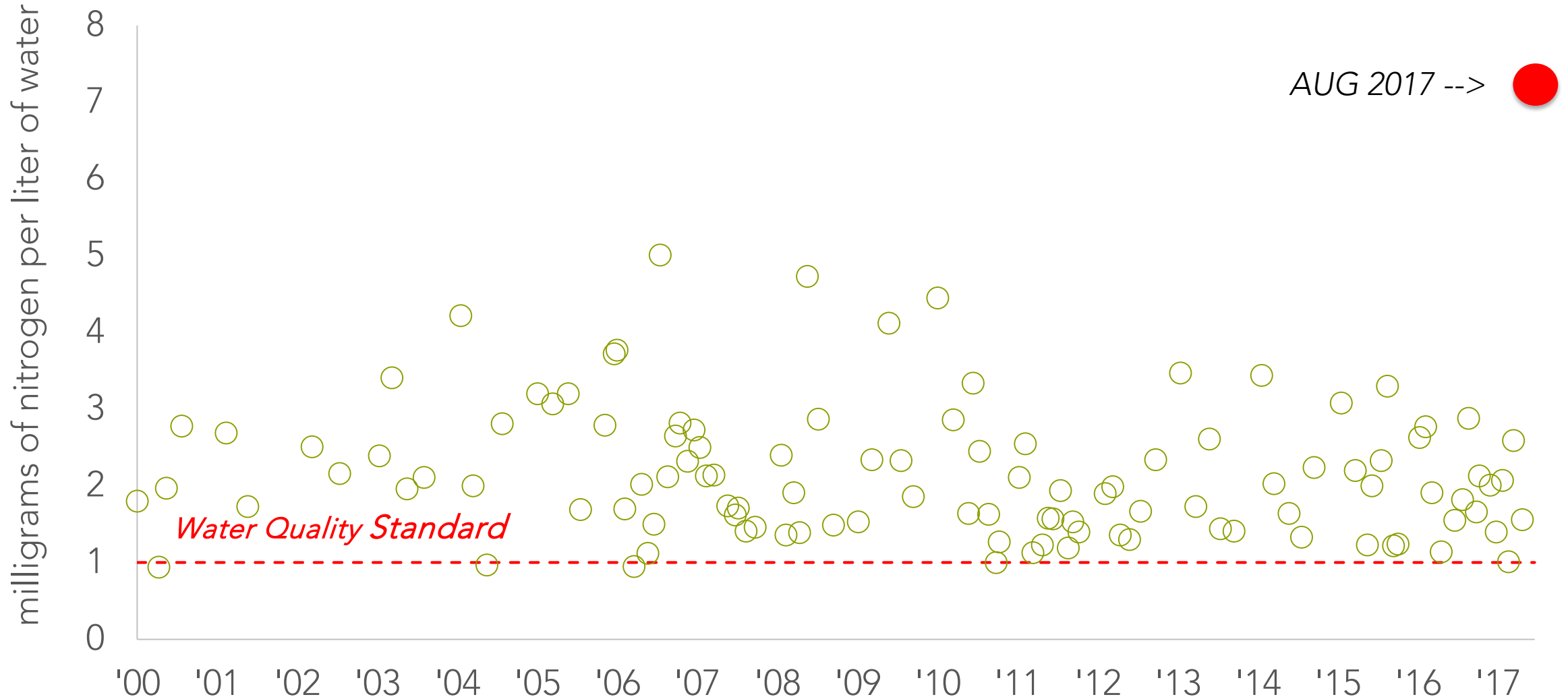


Annual Average Nitrate Concentration of Groundwater in 34 Monitoring Wells of the Mountaire Facility



*Mountaire monitoring data submitted to DNREC provided to CIB through FOIA
Nitrate is (Nitrate or Nitrate+Nitrite)*

Nitrogen Concentration of Indian River near Swan Creek (2000 - 2017)



DNREC monitoring station # 306181 accessed 02/18

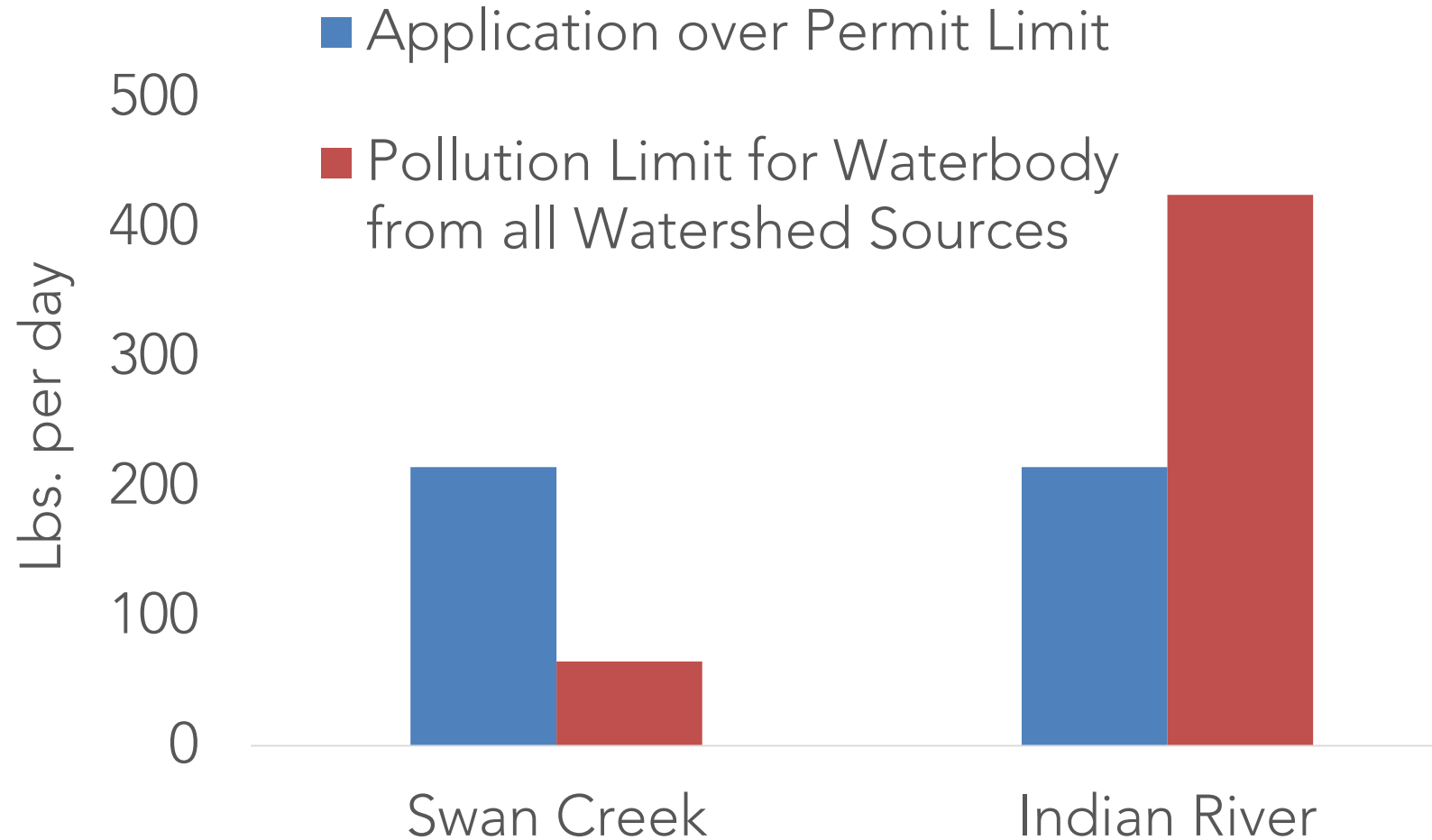
An aerial photograph of a large body of water, likely a reservoir or lake. In the background, a power plant with several tall smokestacks is visible. To the right, there is a residential area with houses and buildings. The foreground shows a grassy area with a small stream or channel flowing through it.

2003 EPA Administrative Order

- Provide permanent alternate water source to 7 residences,
- and implement a groundwater monitoring and remediation program to achieve drinking water standard
- 2005 request for closure by Mountaire denied; order open.

2009 Violation of DNREC Wastewater Permit

- 78,465 lbs. of nitrogen applied to fields over permit limit (32%)
- No penalty issued



2015/2016 DNREC Wastewater Permit 5-year Compliance Review (2009-2013)

- Only 3 of 5 required annual reports available
- Nitrogen loading to fields under-calculated
- Spray wastewater operator logs not produced
- 3 of 7 shallow ground water monitors not working
- Groundwater nitrate concentrations increasing
- Permit re-issued in 2017





2013 EPA Review of DNREC Enforcement of a Clean Water Act Program

- DNREC did not appropriately escalate enforcement on significant violations and long-term non-compliance for the National Pollution Discharge Elimination Program (NPDES)
- 2004 & 2008 Review found the same

STATE REVIEW FRAMEWORK

Delaware

Clean Water Act, Clean Air Act, and
Resource Conservation and Recovery Act
Implementation in Federal Fiscal Year 2013

U.S. Environmental Protection Agency
Region III, Philadelphia



In Conclusion

