

Purpose of the Barnegat Bay Study

- Determine the type and extent of water quality impairments
- Identify appropriate water quality endpoints to inform restoration. May include
 - revised DO criteria
 - numeric criteria or loading targets for nutrients
- Calibrate and validate modeling tools to direct restoration of water quality in the bay



Partners

Yellow = NJWMC member

Barnegat Bay Partnership



Brick Township MUA



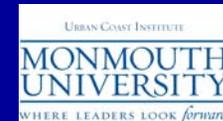
DEP: Freshwater Monitoring (Trib), Marine Water Monitoring (Bay), Forest Resource Education Center (Sample Processing Host)



EPA Region 2



Monmouth University/Urban Coast Institute



Ocean County Health Department



Ocean County Utilities Authority



Ocean County Vocational Technical School - MATES



Pinelands Commission

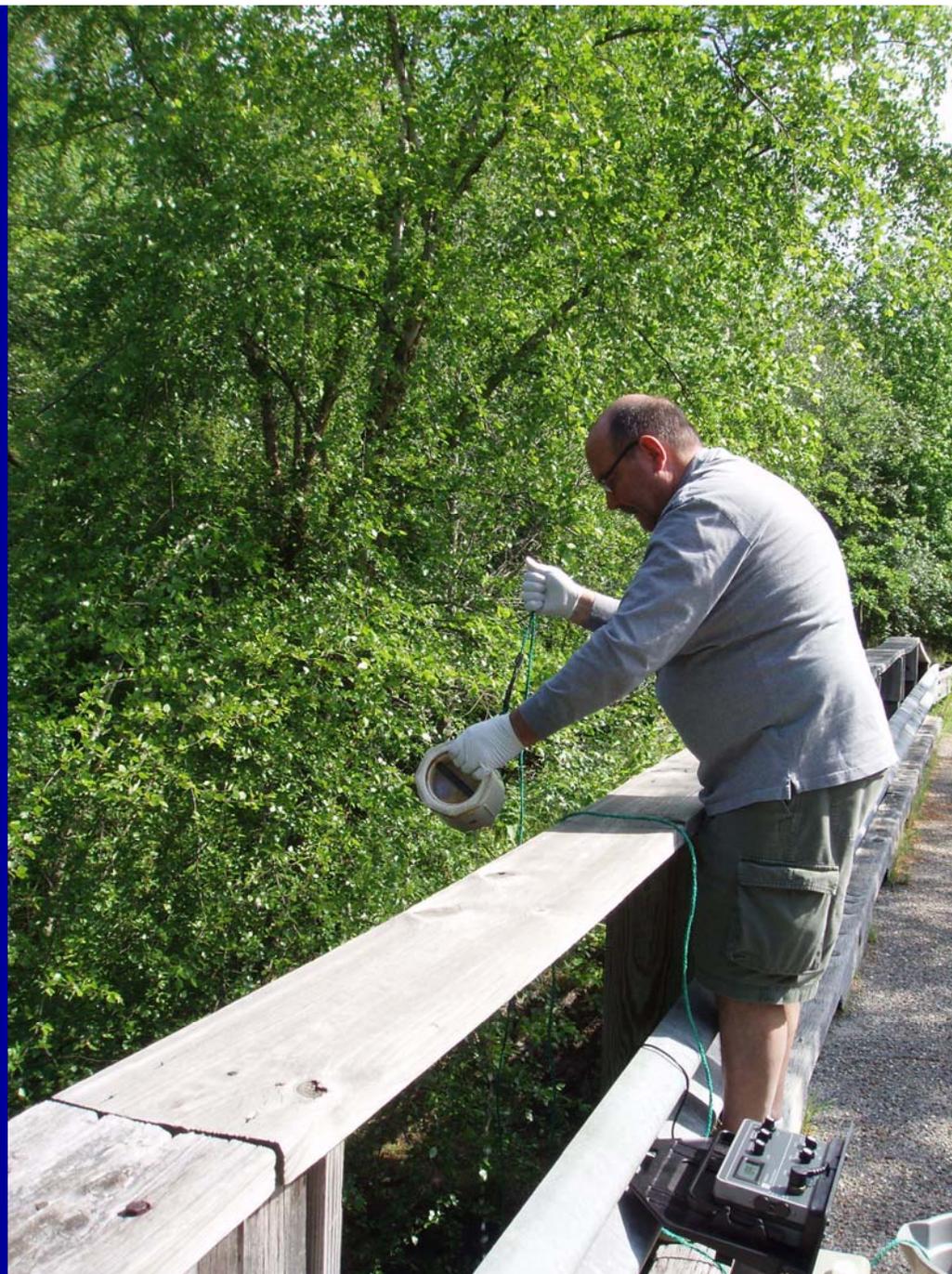


US Geological Survey



Barneгат Bay Tributary Sampling

Tom Vernam
NJDEP Bureau of Freshwater
and
Biological Monitoring



Barnegat Bay Tributary Sampling

- 13 stations for water quality monitoring and flow determination.
- 7 partners performing sample collection or flow measurement : Barnegat Bay Partnership, Brick MUA, Marine Academy of Technology and Environmental Sciences (MATES), Ocean County Health Department, Pinelands Commission, USGS and DEP.
- Initial sampling event 6/6/11, 7 sampling events completed to date.

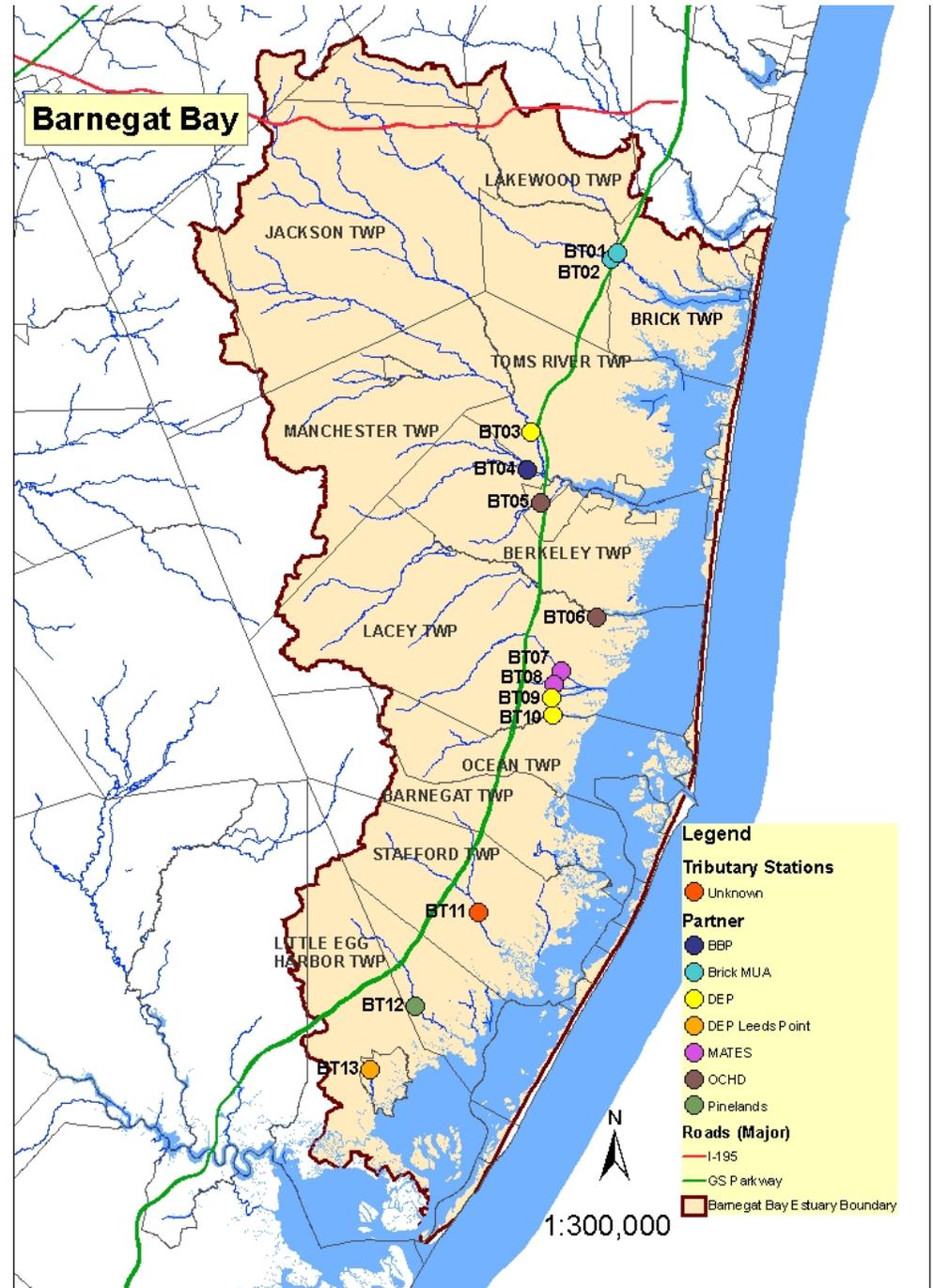


Barnegat Bay Tributary Sampling

- Sample filtration / preservation at DEP's Forest Resource Education Center (FREC) in Jackson and Marine Water Monitoring Laboratory in Leeds Point.



Fresh Water Tributaries Sampling Locations



Barnegat Bay – Tributary Sampling Locations

Site #	Description	Flow-Measurement Type	Flow Site Partner	Water Quality Site Partner
BT01	North Branch Metedeconk R near Laurelton	Extrapolate from existing gage	NA	Brick MUA
BT02	SB Metedeconk River near Laurelton (Chambers Bridge Rd)	Gage (new) Measure phase 1 (if wadeable and until relationship established with gage site)	USGS	Brick MUA
BT03	Toms River near Toms River	Gage (existing)	NA	DEP
BT04 ¹	Wrangle Brook near South Toms River	Measure	NJDEP	BBP
BT05	Jakes Branch at South Toms River (route 619)	Measure	NJDEP	OCHD
BT06	Cedar Creek at Lanoka Harbor	Gage (existing)	NA	OCHD
BT07	NB Forked R at Forked River	Measure	NJDEP	MATES
BT08	Middle Br Forked River (upstream Rt 9)	Measure	NJDEP	MATES
BT09	South Br Forked River (upstream Rt 9 @ JCPL)	Measure	NJDEP	DEP
BT10	Oyster Creek (upstream Rt 9 @ JCPL)	Gage (new) Measure Phase 1	NJDEP	DEP
BT11	Mill Ck at Manahawkin (Bay Avenue)	Gage (new) Measure Phase 1	USGS	Pinelands
BT12	Westecunk Ck at Railroad Ave at West Ck	Measure	USGS	Pinelands
BT13	Tuckerton Creek at Tuckerton*	Measure	USGS	DEP-Leeds Pt.

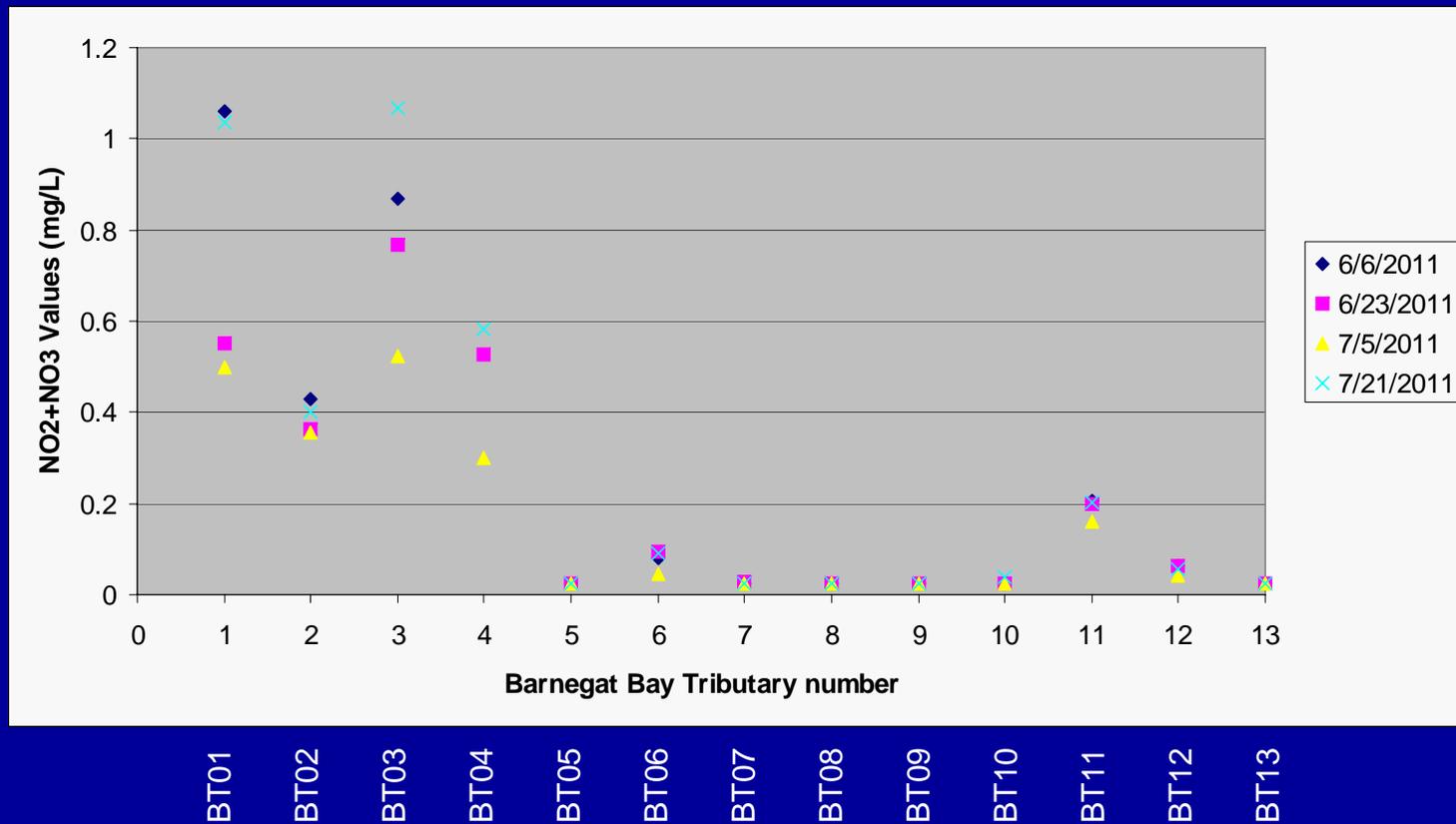


Updates

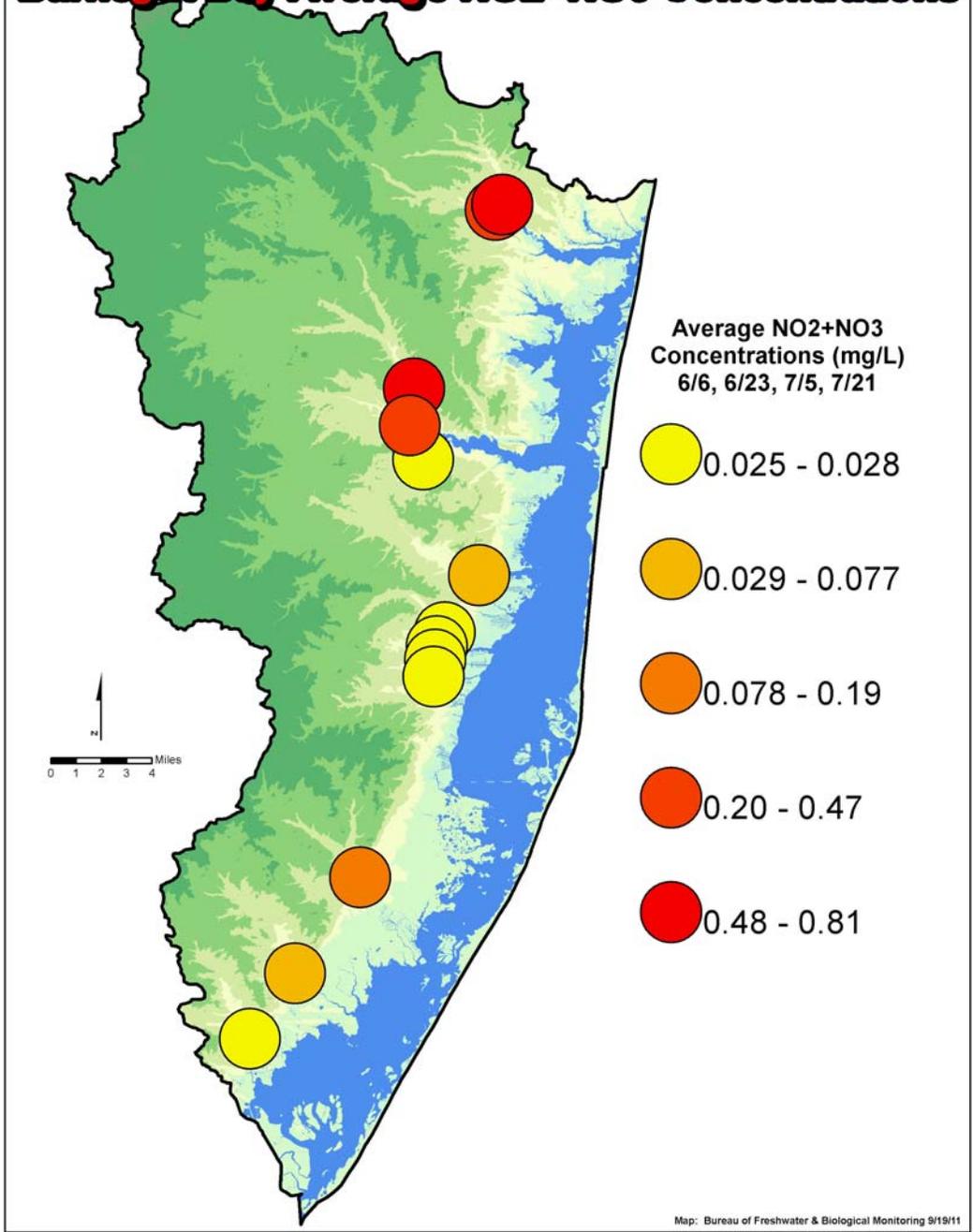
- Monitoring at site BT13 (Tuckerton Creek) has been eliminated due to reconstruction of the dam at the outlet of Lake Pohatcong
- Macroinvertebrate monitoring has been added at 11 of 13 monitoring locations

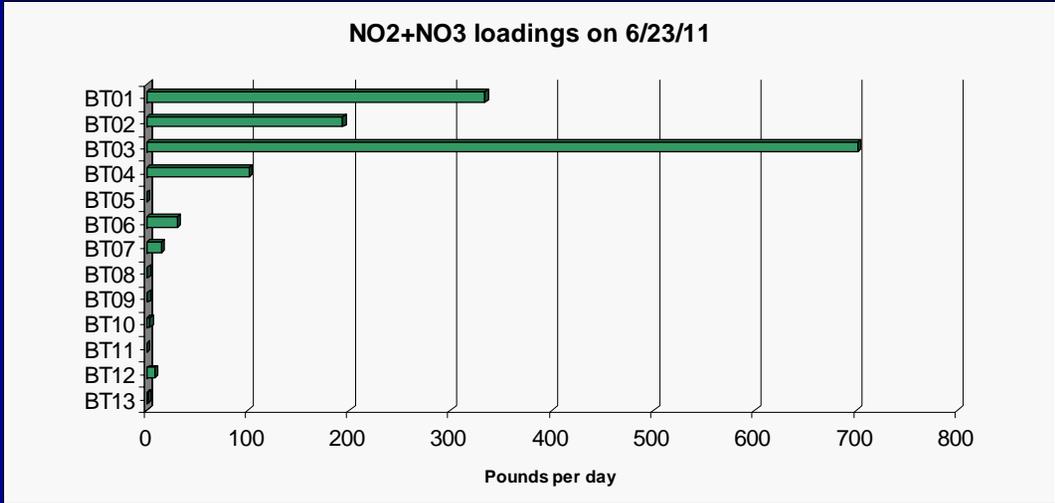
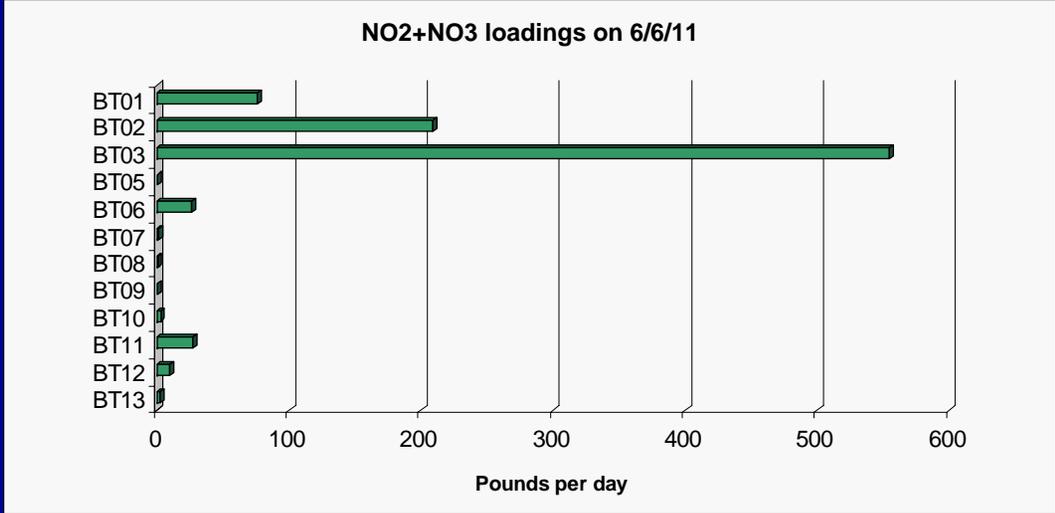


Barnegat Bay Tributaries NO₂+ NO₃ Concentrations

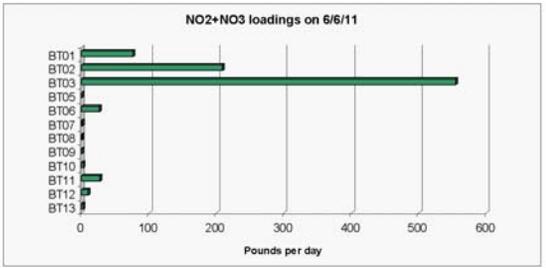
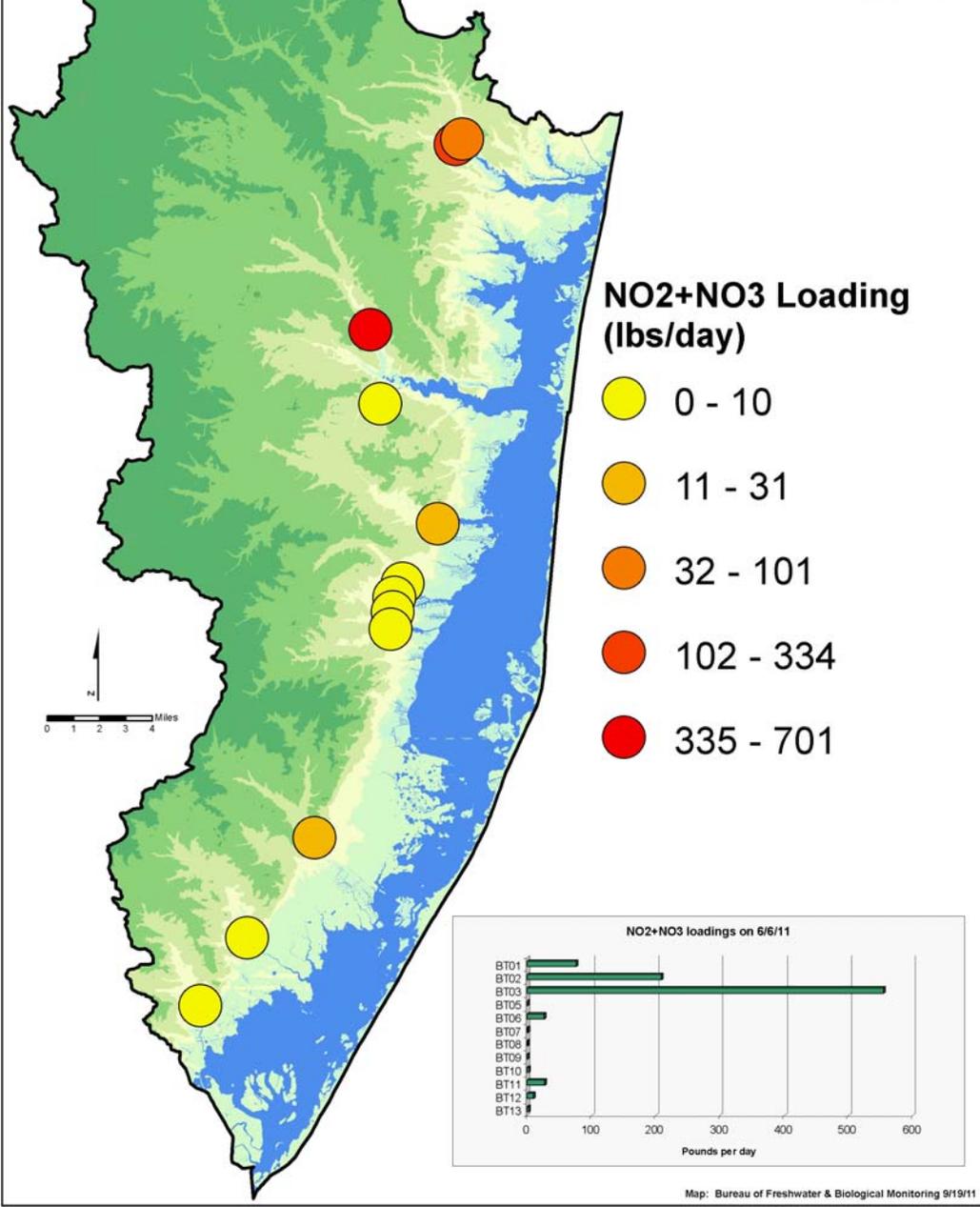


Barnegat Bay Average NO₂+NO₃ Concentrations



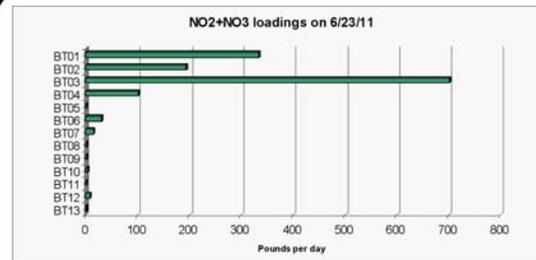
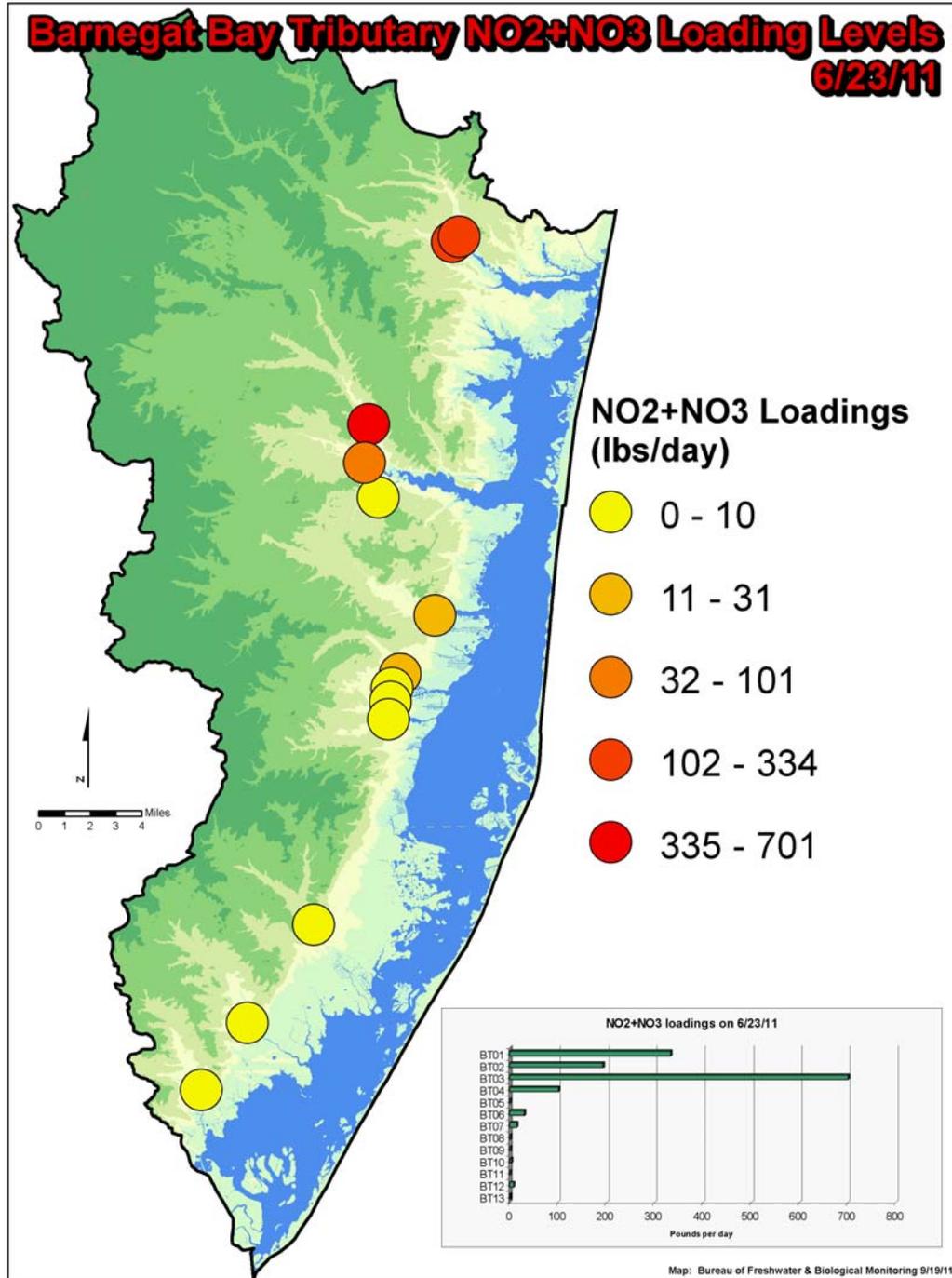


Barnegat Bay Tributary NO₂+NO₃ Loading Levels 6/6/11



Map: Bureau of Freshwater & Biological Monitoring 9/19/11

Barnegat Bay Tributary NO₂+NO₃ Loading Levels 6/23/11



Barnegat Bay Tributary Macroinvertebrate Sampling

- 11 of 13 BT sites wadeable for macroinvertebrate sampling.
- 4 BT sites at exact location of AMNET site.
- 3 BT sites within 1000 ft of representative AMNET site



BT Sites Sampled To Date For Macroinvertebrates

BT #	Stream	Date of macro sample	2011 rating	Closest AMNET SITE	AMNET 2010 rating
BT01	North Branch Metedeconk River			AN0506	Fair
BT02	South Branch Metedeconk River	9/15/11		AN0512	Fair
BT03	Toms River			AN0535	Fair
BT04a	Wrangle Brook	9/15/11		none	
BT05	Jakes Branch			AN0543	Fair
BT06	Cedar Creek	8/25/11	Good	AN0549	Excellent
BT07	North Branch Forked River			none	
BT08	Middle Br	8/25/11	Fair	none	
BT09	South Br Forked River	8/25/11	Excellent	none	
BT10	Oyster Creek	8/25/11	Good	none	
BT11	Mill Ck			AN0555	Poor
BT12	Westecunk Creek			AN0558	Excellent
BT13	Tuckerton Creek			none	