

NJDEP Monitoring in the Barnegat Bay Watershed

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Bureau of Freshwater & Biological Monitoring
Water Monitoring & Standards

www.state.nj.us/dep/wms

NJ Water Monitoring Council

DRBC

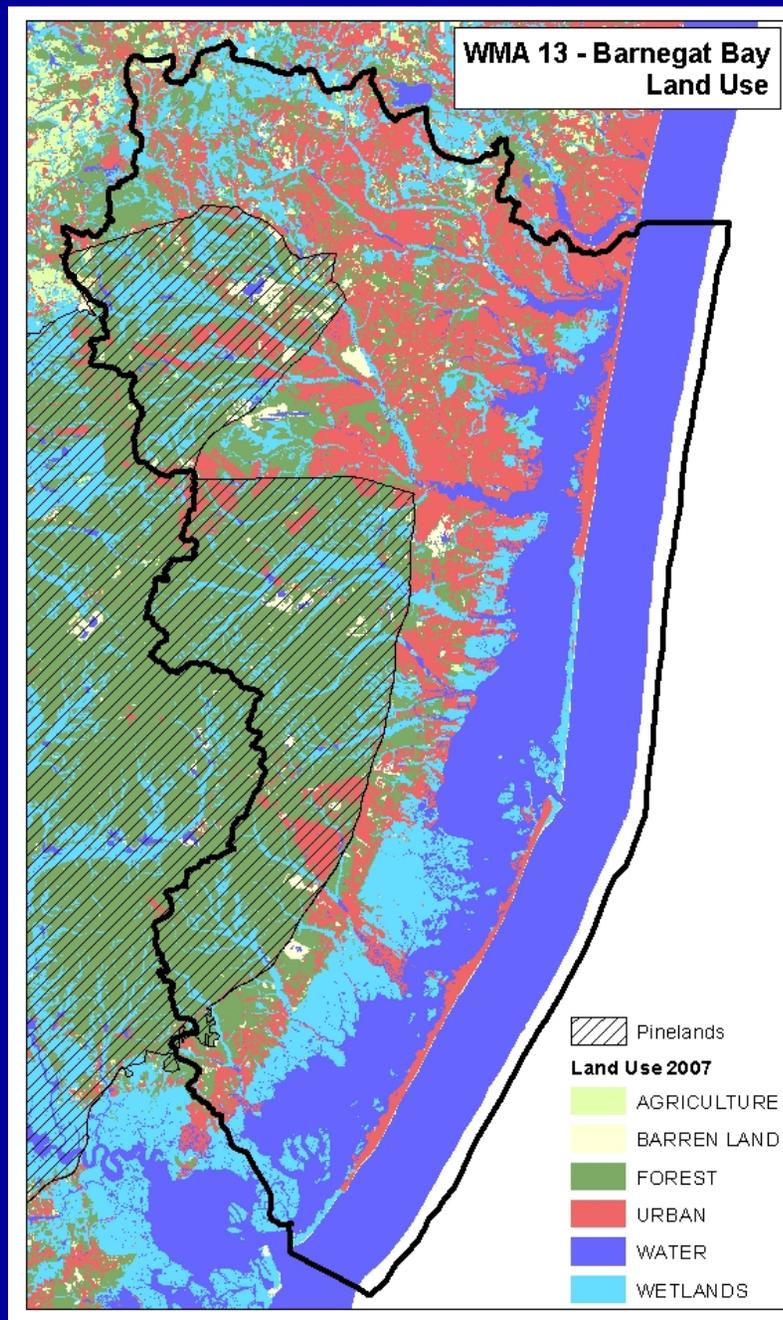
May 25, 2011



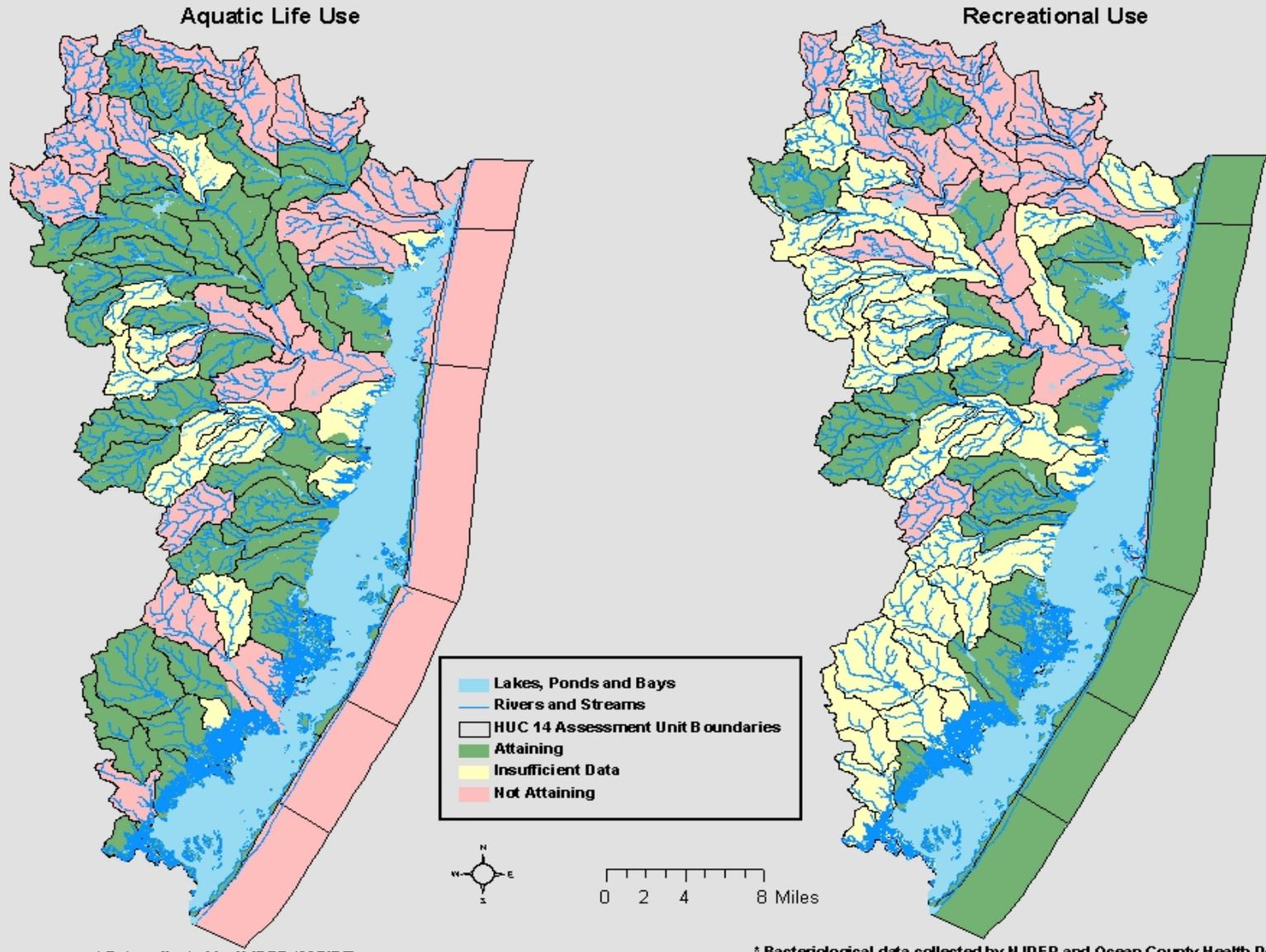
NJDEP Freshwater Monitoring in the Barnegat Bay Watershed (WMA13)

- **Chemical/Physical** Monitoring (January, 2002 – December, 2010)
28 stations monitored as part of various networks;
 - Ambient Surface Water Network (cooperative w/ USGS)
 - Supplemental Ambient Surface Water Network
 - Potable Water Intake Monitoring
 - **Biological - Benthic Macroinvertebrate** Monitoring (1999 – 2006)
63 stations monitored as part of the Ambient Biomonitoring Network (AMNET)
 - 25 of the above stations have been monitored for both chemical and biological components.
- (**Note:** Pinelands Commission also monitors for pH, specific conductance and biology. For additional information visit: <http://www.state.nj.us/pinelands/>)





Use Assessments from the Integrated Water Quality Monitoring and Assessment Report (2008)

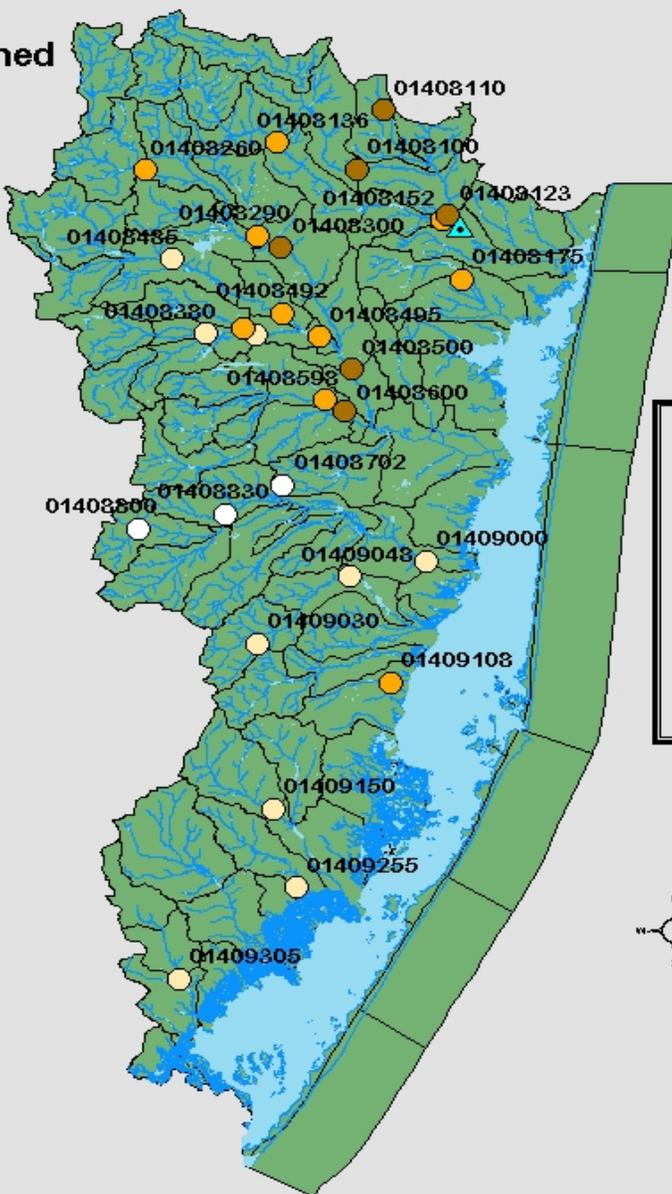


* Data collected by NJDEP (AMNET)

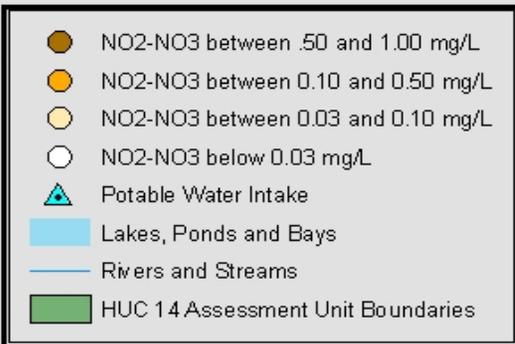
* Bacteriological data collected by NJDEP and Ocean County Health Dept.



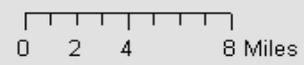
**Median NO₂-NO₃ Concentrations
(mg/L) in the Barnegat Bay Watershed
(January, 2002 - December, 2010)**



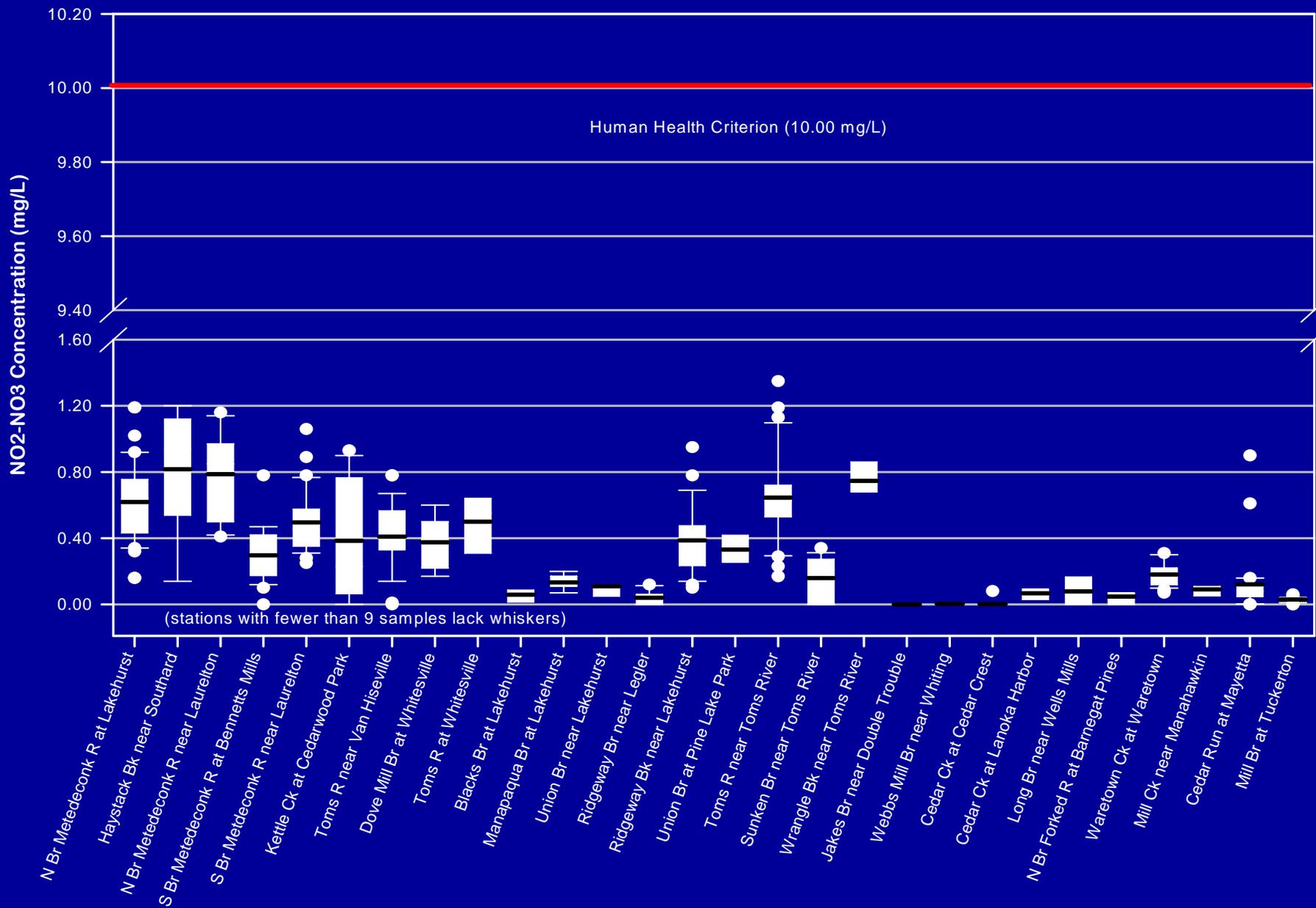
**Surface Water Quality Standard
Human Health Criterion = 10.0 mg/L**



Station #	Name
01408100	N Br Metedeconk R at Lakehurst
01408110	Haystack Bk near Southard
01408123	N Br Metedeconk R near Laurelton
01408136	S Br Metedeconk R at Bennetts Mills
01408152	S Br Metedeconk R near Laurelton
01408175	Kettle Ck at Cedarwood Park
01408260	Toms R near Van Hiseville
01408290	Dove Mill Br at Whitesville
01408300	Toms R at Whitesville
01408380	Blacks Br at Lakehurst
01408460	Manapaqua Br at Lakehurst
01408462	Union Br near Lakehurst
01408485	Ridgeway Br near Legler
01408492	Ridgeway Bk near Lakehurst
01408495	Union Br at Pine Lake Park
01408500	Toms R near Toms River
01408598	Sunken Br near Toms River
01408600	Wrangle Bk near Toms River
01408702	Jakes Br near Double Trouble
01408800	Webbs Mill Br near Whiting
01408830	Cedar Ck at Cedar Crest
01409000	Cedar Ck at Lanoka Harbor
01409030	Long Br near Wells Mills
01409048	N Br Forked R at Barnegat Pines
01409108	Waretown Ck at Waretown
01409150	Mill Ck near Manahawkin
01409255	Cedar Run at Mayetta
01409305	Mill Br at Tuckerion

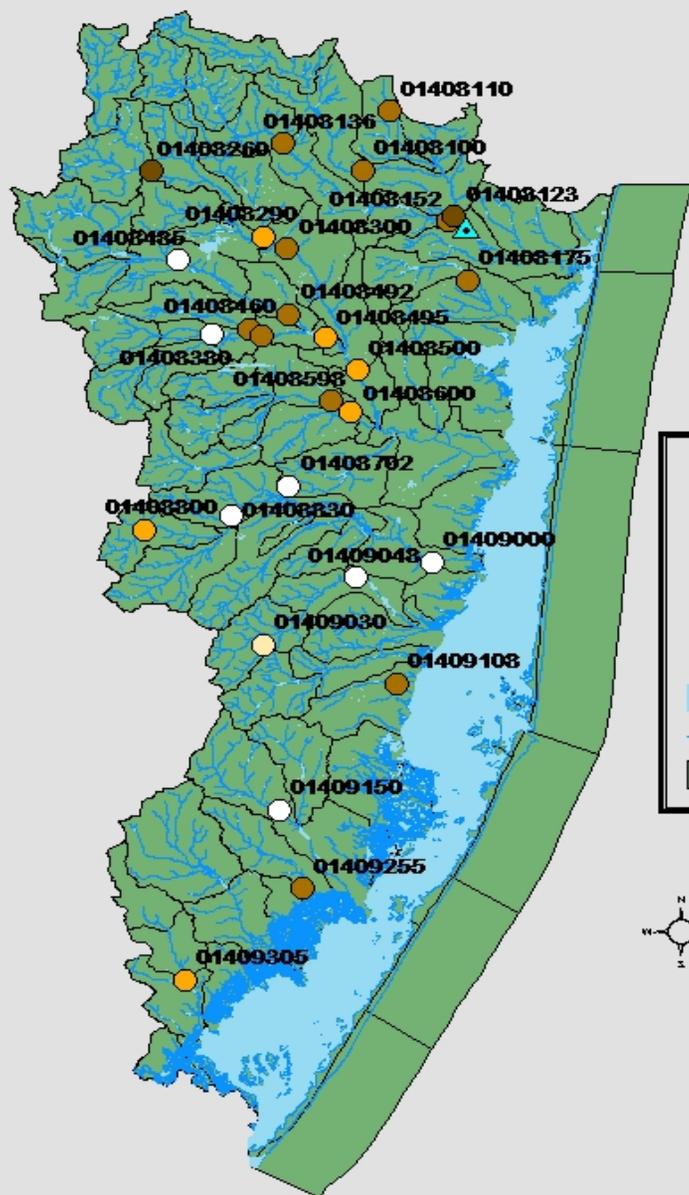


NO₂-NO₃ Concentrations (mg/L) at Selected Stations (January, 2002 - December, 2010)

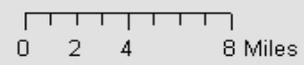
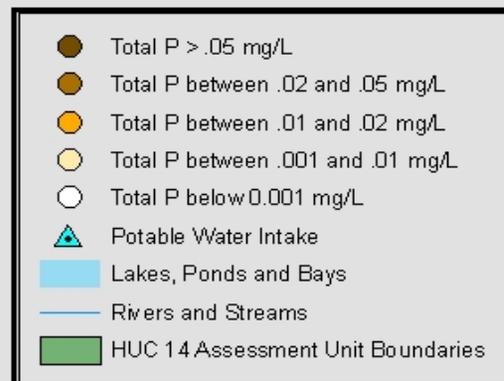


Median Total Phosphorus Concentrations (mg/L) in the Barnegat Bay Watershed (January, 2002 - December, 2010)

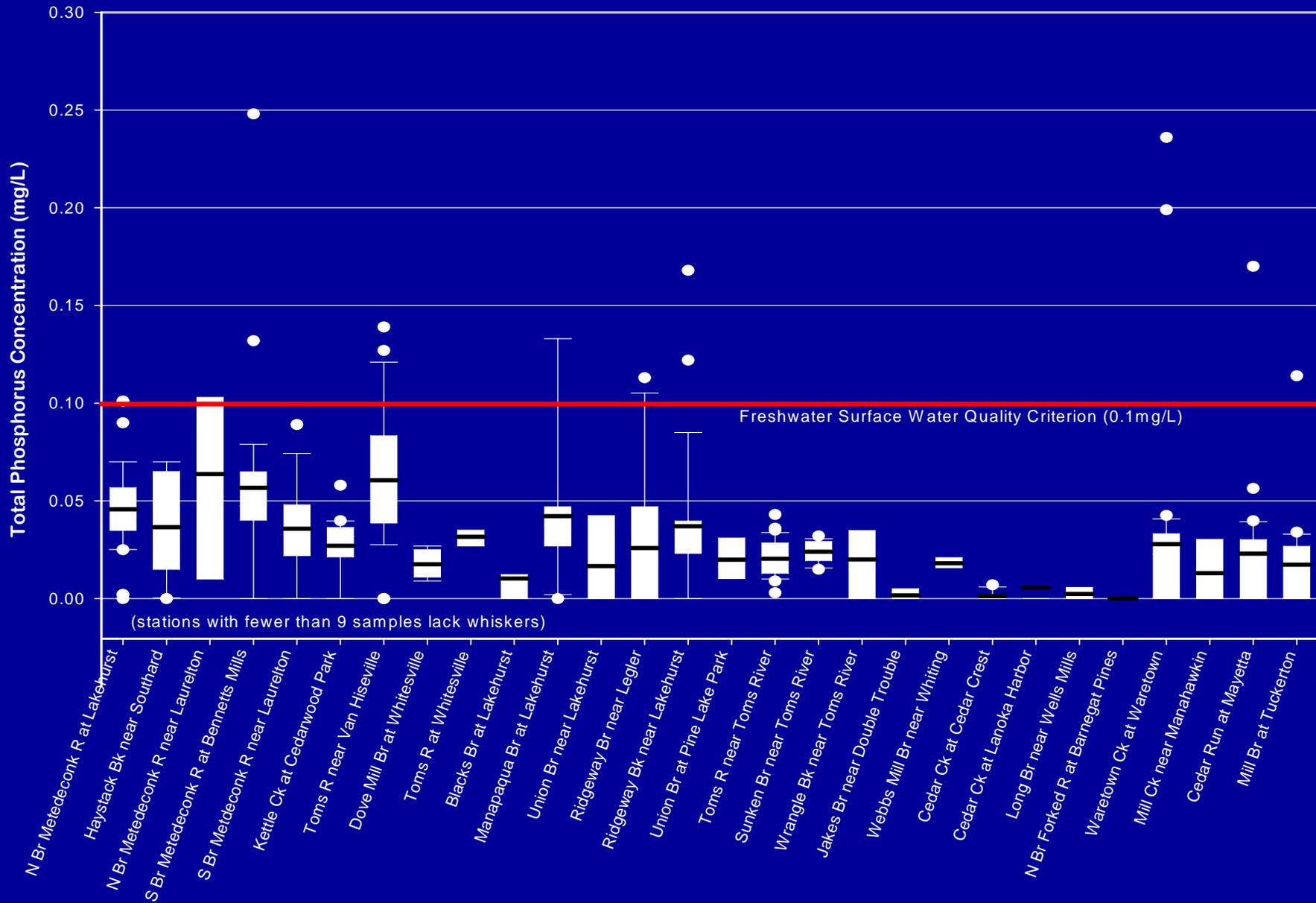
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Surface Water Quality Standard
Aquatic Life = 0.1 mg/L

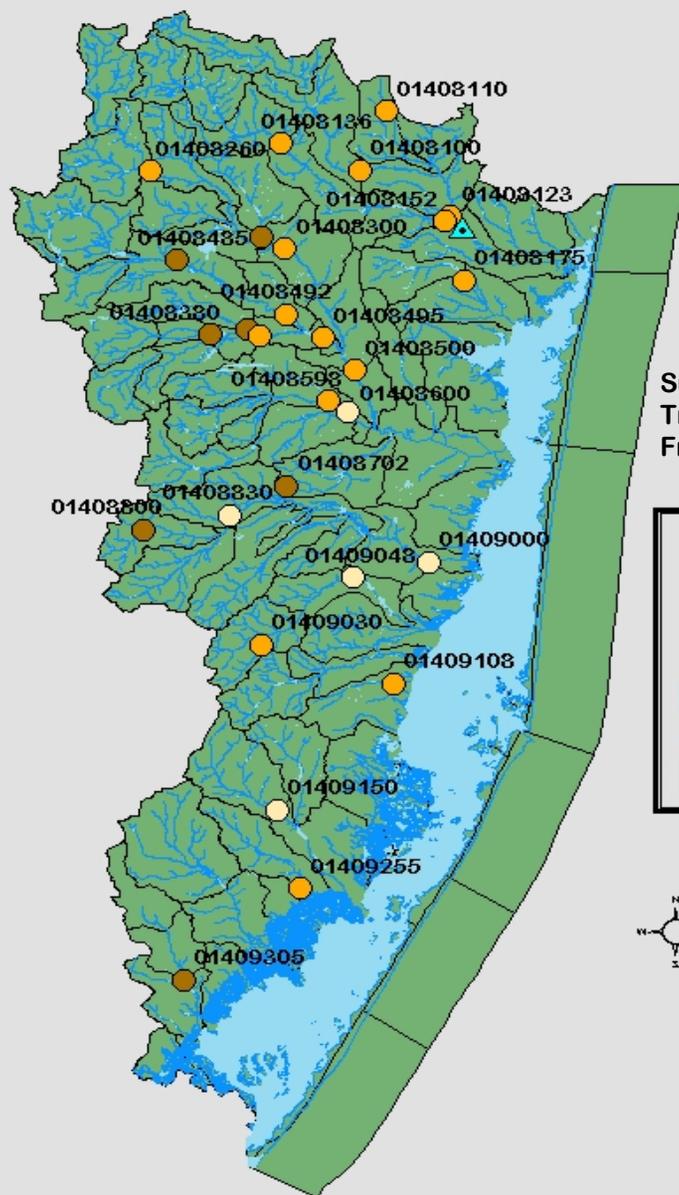


Total Phosphorus Concentrations (mg/L) at Selected Stations (January, 2002 - December, 2010)

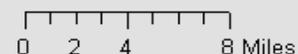
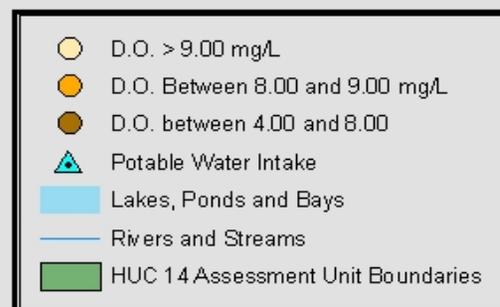


Median Dissolved Oxygen Concentrations (mg/L) in the Barnegat Bay Watershed (January, 2002 - December, 2010)

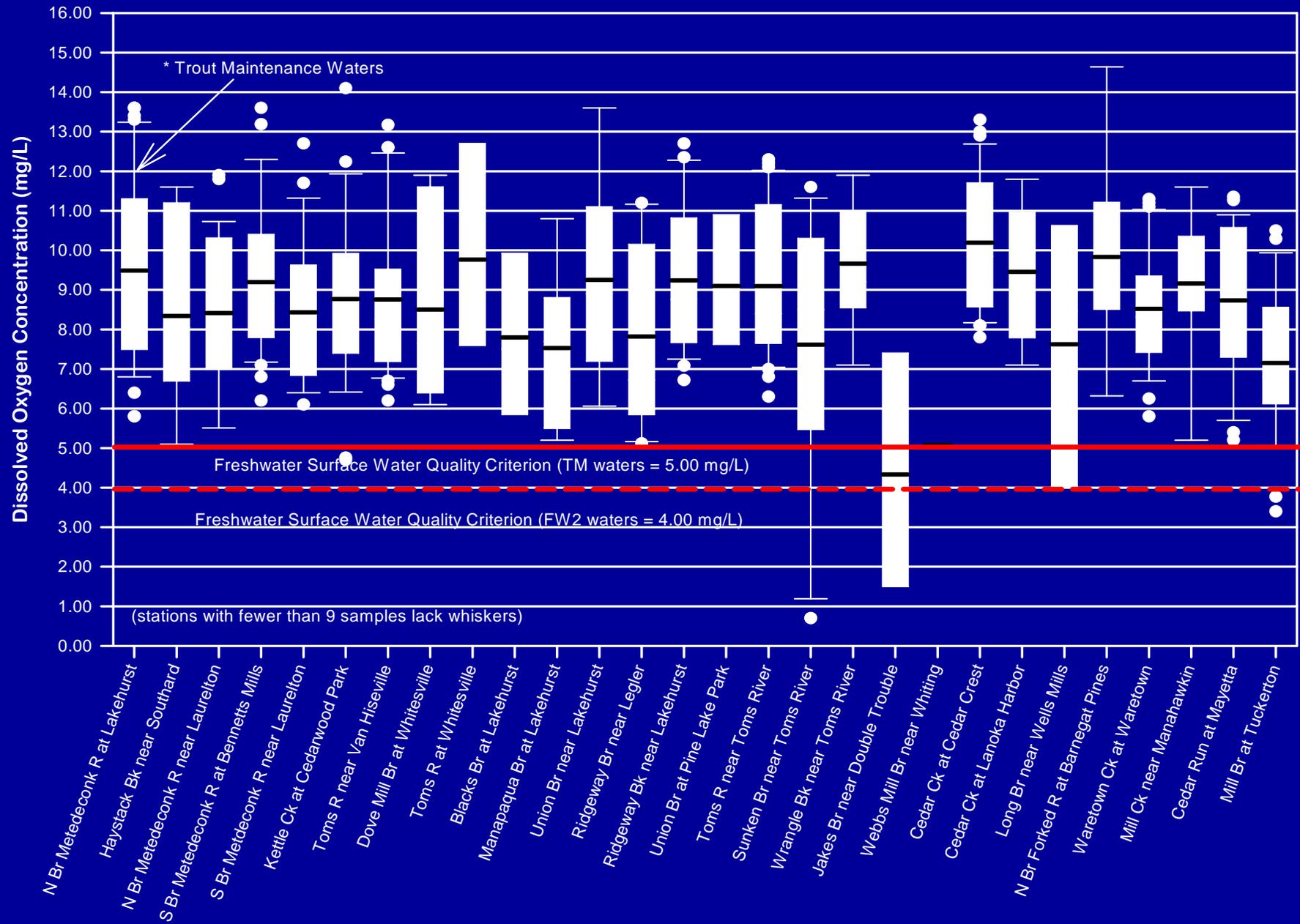
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Surface Water Quality Standards
 Trout Maintenance Waters = 5.00 mg/L
 Freshwater (FW2 non-trout) = 4.00 mg/L



Dissolved Oxygen Concentrations (mg/L) at Selected Stations (January, 2002 - December, 2010)



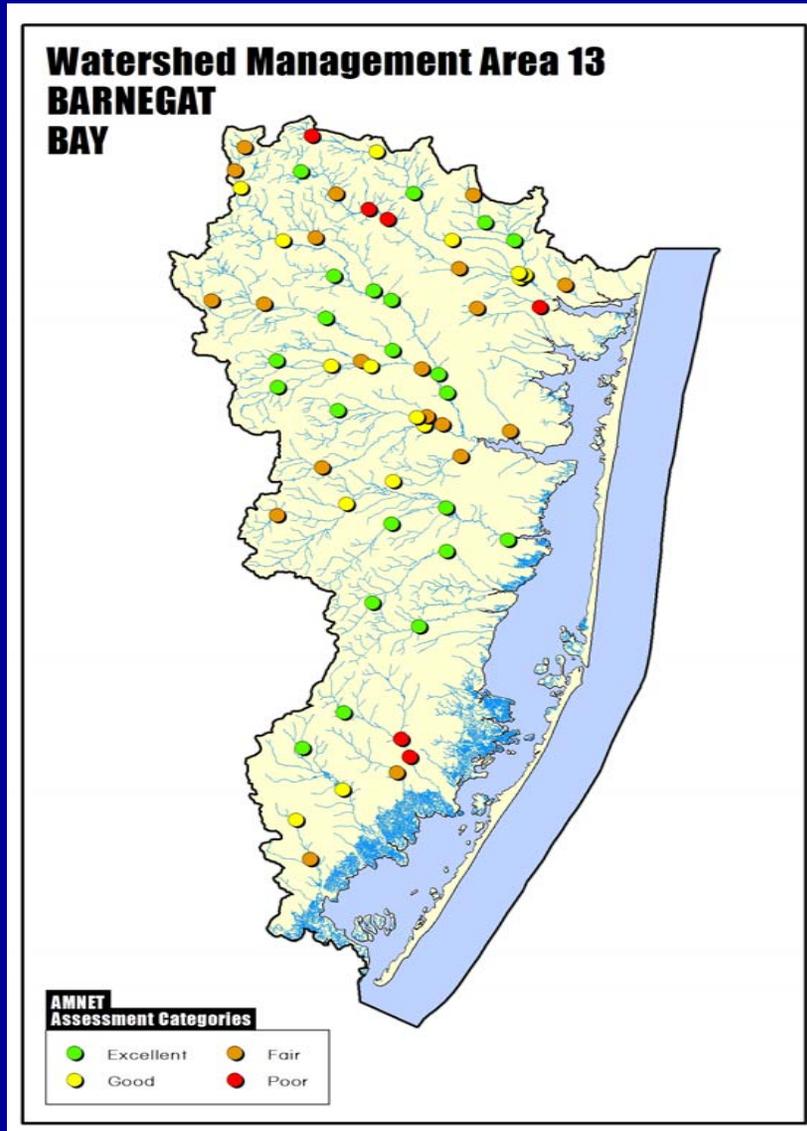
Continuous Monitoring (Diurnal D.O.) 2003 -2008

Station #	Station Name	Date(s)	Min (mg/L)	Median (mg/L)	Max (mg/L)
01408136	S Br Metedeconk R at Bennetts Mills	6/12/2007-6/14/2007	8.8	9.00	9.38
01408136	S Br Metedeconk R at Bennetts Mills	8/14/2007-8/17/2007	8.00	8.24	8.78
01408260	Toms River near Van Hiseville	8/14/2007-8/17/2007	7.17	7.52	8.26
01408260	Toms River near Van Hiseville	9/11/2007-9/14/2007	7.26	8.26	8.98
01408285	Maple Root Br	7/22/2003-7/24/2003	2.9	4.21	6.07
01408460	Manapaqua Br at Lakehurst	7/22/2003-7/24/2003	5.04	6.06	7.42
01408460	Manapaqua Br at Lakehurst	6/26/2007-6/28/2007	5.32	6.71	8.85
01408460	Manapaqua Br at Lakehurst	7/11/2007-7/16/2007	4.84	5.80	7.25
01408598	Sunken Br near Toms River	6/26/2007-6/28/2007	1.35	4.49	7.73
01408598	Sunken Br near Toms River	7/11/2007-7/16/2007	0.63	1.85	4.62
01408702	Jakes Br near Double Trouble	7/8/2003 7/10/2003	0.98	1.08	1.56
01408702	Jakes Br near Double Trouble	9/30/2005-10/7/2005	6.6	7.7	8.3
none	Cedar Creek at Double Trouble	7/8/2003 -7/10/2003	6.74	7.24	7.86

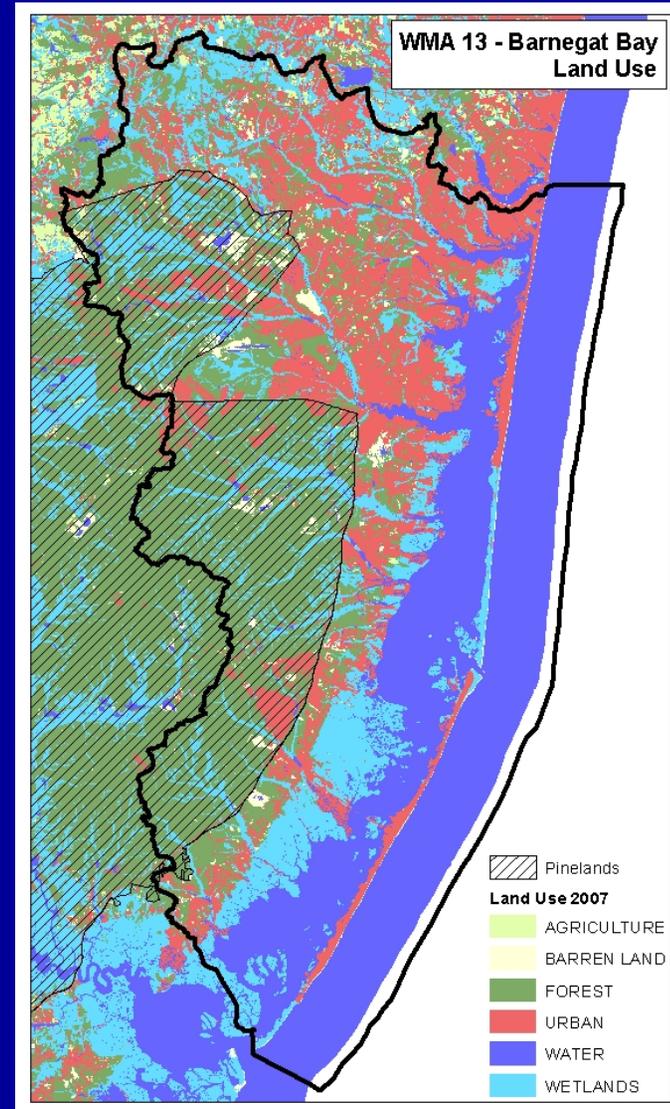


Biological Results (Macroinvertebrates) & Land Use

AMNET Ratings - Rd 3 (2005-2006)

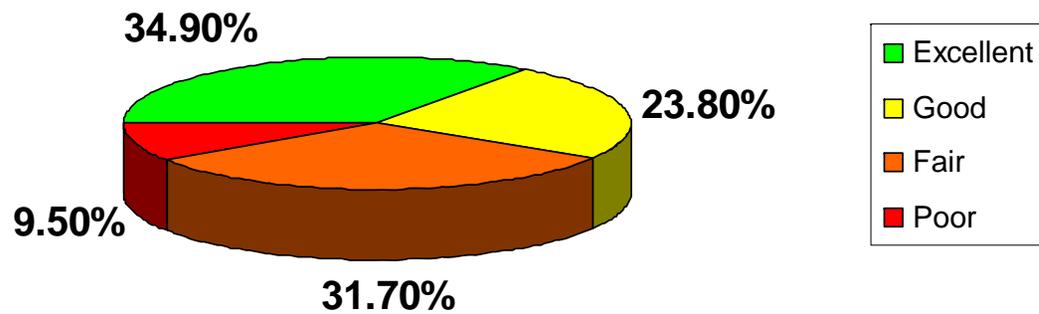


Land Use (2007)



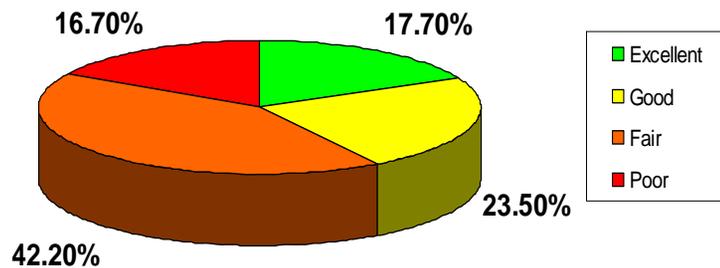
AMNET Macroinvertebrate Results

WMA 13 Round 3 (2005-2006)
63 total sites

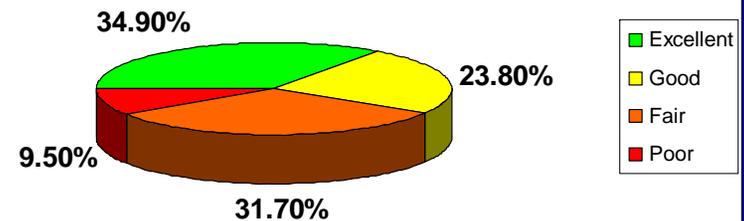


AMNET Results Comparison Statewide vs. WMA 13

Statewide (2002-2006)



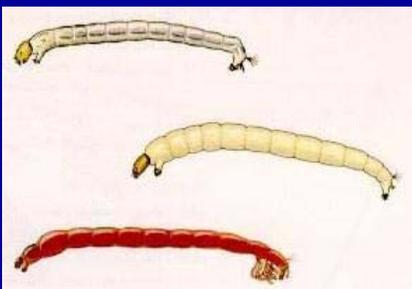
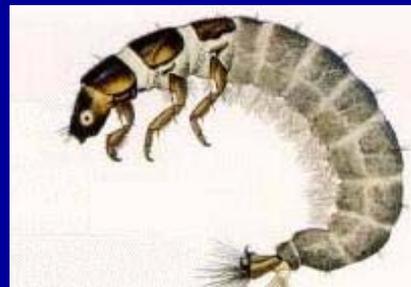
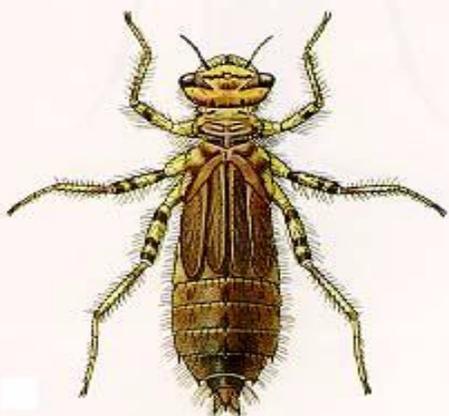
WMA 13 Round 3 (2005-2006)



	Excellent	Good	Fair	Poor	Total Sites
WMA 13	34.90%	23.80%	31.70%	9.50%	63
Statewide	17.70%	23.50%	42.20%	16.70%	759



Barnegat Bay Watershed (WMA 13) AMNET Round 2 (1999-2000) and Round 3 (2004-2006) Results



Bio Rating	Round 2		Round 3	
	Count	Percentage	Count	Percentage
Excellent	22	34.9%	22	34.9%
Good	8	12.7%	15	23.8%
Fair	24	38.1%	20	31.7%
Poor	9	14.3%	6	9.5%
Total sites	63		63	



SUMMARY OF FRESHWATER MONITORING IN BARNEGAT BAY WATERSHED

- **28** stream stations – **chemical/physical** monitoring
- **63** stream stations – **biological monitoring**
- **Nitrite-nitrate** – all results substantially less than current human health criterion (10 mg/L)
- **Total phosphorus** - few values exceeding aquatic life criterion (0.1 mg/L)
- **Grab DO samples** - few results exceeding DO criteria. Limited diurnal, continuous DO sampling - several more excursions
- **Biological results** - almost 60% of sites – excellent or good. Generally stable or improving between two (2) rounds of sampling (1999-2006)

