



# Connecticut Department of Environmental Protection

Gina McCarthy, Commissioner

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Hartford, CT 06106-5127



Cheshire WPCF

## **Report of the Nitrogen Credit Advisory Board for Calendar Year 2007 To The Joint Standing Environment Committee Of The General Assembly**

September 30, 2008

**REPORT OF THE NITROGEN CREDIT ADVISORY BOARD  
FOR CALENDAR YEAR 2007**

**TO THE JOINT STANDING ENVIRONMENT COMMITTEE  
OF THE GENERAL ASSEMBLY**

**Concerning the**

**NITROGEN CREDIT EXCHANGE PROGRAM**

**As required by  
Section 22a-523(c) of the  
Connecticut General Statutes**

**September 30, 2008**

**Cover Photo: Microsoft Live Search Maps**

**Report of the Nitrogen Credit Advisory Board for Calendar Year 2007 to the Joint  
Standing Environment Committee of the General Assembly**

**Concerning the Nitrogen Credit Exchange Program**

**As required by  
Section 22a-523(c) of the Connecticut General Statutes**

This report has been prepared by the Nitrogen Credit Advisory Board and is respectfully submitted to the Joint Standing Environment Committee of the General Assembly pursuant to the requirement of Section 22a-523(c) Connecticut General Statutes. Such section requires that the Nitrogen Credit Advisory Board submit to the Joint Standing Environment Committee of the General Assembly a report that addresses issues associated with the implementation of the Nitrogen Credit Exchange Program. This report covers the period from January 1, 2007 to December 31, 2007.

This report provides a summary of the technical progress and financial requirements that the Nitrogen Credit Advisory Board deems necessary to achieve progress in this important program in reducing nitrogen loads to Long Island Sound. The continued success of this program is only possible if adequate funding is provided through the Clean Water Fund each year to construct new projects and through the development and application of innovative approaches and management techniques to meet nutrient reduction goals for Long Island Sound.

## Executive Summary

In accordance with Sec 22a-523(c) CGS, the Nitrogen Credit Advisory Board (NCAB) submits this 2008 Annual Report of the Nitrogen Credit Advisory Board on the progress of the Nitrogen Credit Exchange for the calendar year 2007.

***The NCAB highlights these key findings and concerns regarding the continuing success of the program:***

- Success of the program relies on implementing nitrogen removal projects.
  - a. Five project facilities were completed in 2007 (East Hartford, Cheshire, Simsbury, Suffield, Winsted).
  - b. Three more projects are anticipated for calendar year 2008 – Shelton and Westport, Phase II and an interim project at the Hartford MDC plant.
- Project implementation depends on a consistent and adequate infusion of bond funds to support Connecticut's Clean Water Fund (CWF).
  - a. In October 2007, Governor M. Jodi Rell authorized the bonding for the CWF that includes \$90 million in General Obligation bonds for each of FY08 and FY09 and \$235 million and \$180 million for FY08 and FY09 respectively in revenue bond authority actions.
  - b. Increased bonding authorization for the CWF is imperative to avoid backlogging projects and to ensure the 2014 nitrogen reduction goal is met.
  - c. It is estimated that authorizations for CWF General Obligation bonding in FY10 and FY11, to be determined in the next biennial budget, will be in the area of \$130 million per FY to keep this and other important water quality programs on track.

***Major accomplishments and activities relative to the 2007 program operations include:***

- All 79 municipalities regulated under the General Permit for Nitrogen Discharges cooperated fully in implementing the program. The nitrogen general permit limit for 2007 was 11,384 equalized pounds of nitrogen per day. Treatment plant performance for 2007 was 13,321 equalized pounds per day. This is the third consecutive year of the six-year program where more nitrogen was discharged than targeted in the permit.
- The Nitrogen Credit Advisory Board recommended a value of \$4.36 per equalized pound of nitrogen in 2007. The price of a credit in 2006 was \$3.40.
- In 2007, 52 facilities were required to purchase credits in order to remain in compliance with the General Permit. Municipalities purchasing credits contributed a total of \$5,159,019. Twenty-seven facilities received payments totaling \$2,072,001 from the sale of nitrogen credits. Hence the Nitrogen Credit Exchange netted \$3,087,018 from credit purchases and sales in 2007. In 2006 there were fewer buyers (46) than in 2007.

- Projections of project construction schedules indicate that the 2014 final TMDL limit may be in compliance. This will require the Department, with the assistance of the NCAB, to analyze the program and potentially make adjustments to assure compliance with the 2014 limit.
- With the revision of the TMDL anticipated to be completed by the fall of 2009, and the understanding that dissolved oxygen criteria attainment will require nitrogen reductions from all sources throughout the watershed, the NCAB has been monitoring permit renewals for sewage treatment facilities in Massachusetts, New Hampshire and Vermont. During discussions with EPA and in letters from DEP, the NCAB has advised EPA of the need for them to more aggressively pursue nitrogen reductions outside of Connecticut and New York.
- In 2007, Connecticut's NCE was honored with the first EPA "Blue Ribbon for Water Quality Trading" awarded to the NCAB in a ceremony in October 2007.

## **I. Introduction**

### **Background**

Long Island Sound's (LIS) most pressing water quality problem is caused by over enrichment of nutrients, specifically nitrogen, that leads to greatly reduced levels of dissolved oxygen in the bottom waters of western LIS. The overload of nitrogen fuels excessive growth of algae, which eventually dies, sinks to the bottom and decays. During decay, oxygen is consumed and the dissolved oxygen in the water falls to levels well below those allowable in State Water Quality Standards. Low oxygen levels, or "hypoxia" typically occur during the July through September period. These conditions are inadequate to support healthy populations of fish and shellfish because they disrupt the feeding, growth and reproduction of nearly all forms of aquatic life. Primary sources of nitrogen include municipal wastewater treatment plant discharges, atmospheric deposition and runoff from urban, suburban and agricultural areas.

The federal Clean Water Act requires that the State establish Total Maximum Daily Loads (TMDLs) for all waterbodies that do not meet minimum State Water Quality Standards, such as Long Island Sound. Once the State establishes a TMDL, federal law requires that the TMDL be reviewed and approved by the federal Environmental Protection Agency (EPA). In April 2001, EPA approved Connecticut and New York's jointly submitted TMDL to address the impairment to Long Island Sound water quality that results from excessive nitrogen loading. The TMDL establishes the maximum loading for nitrogen that Long Island Sound can assimilate without causing impaired water quality, apportions that maximum loading among sources, and lays out a plan to achieve the loading reductions necessary to meet Water Quality Standards.

In the TMDL, discharges from municipal sewage treatment plants (STPs), stormwater runoff and atmospheric deposition, the primary sources of nitrogen enrichment in LIS, are targeted for control. The TMDL requires the two states by 2014 to achieve a 58.5% collective reduction of nitrogen loading from point discharges and urban and agricultural runoff sources to LIS from an established baseline. A 64% reduction goal was set for Connecticut STPs through a wasteload allocation process.

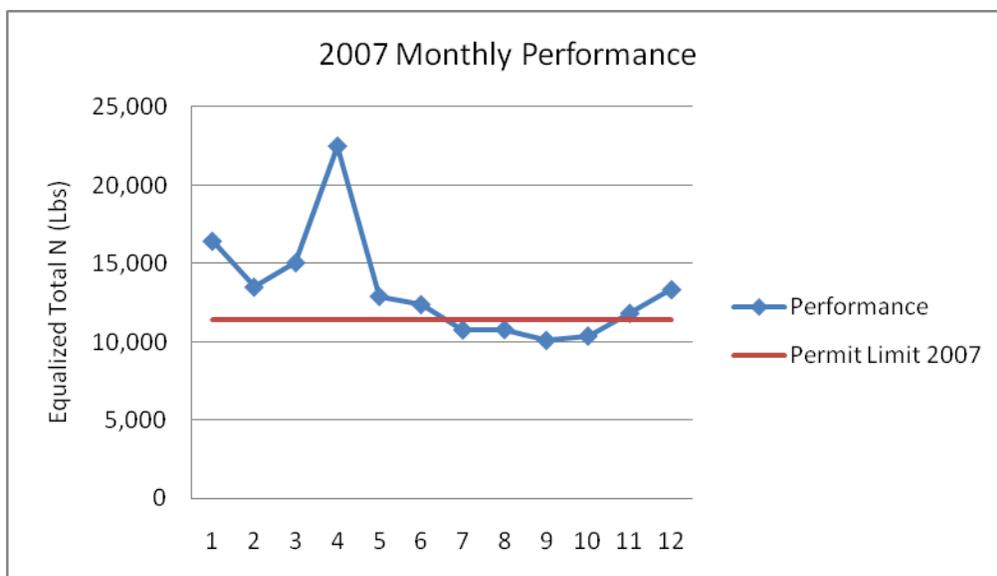
Nitrogen "trading" was identified as a mechanism for cost-effectively attaining the aggregate goal for Connecticut STPs. Public Act 01-180, codified in the Connecticut General Statutes in Sections 22a-521 through 527, established a Nitrogen Credit Exchange (NCE) overseen by a Nitrogen Credit Advisory Board (NCAB – Attachment A), and authorized issuance of a Nitrogen General Permit (NGP). Collectively, the NGP, the NCE and the NCAB form the foundation for the nitrogen-trading program instituted by Connecticut in 2002.

### **2007 Performance of the Nitrogen Credit Exchange**

The aggregate nitrogen discharge for the 79 treatment facilities participating at the NCE was 13,321 equalized pounds per day, which exceeded the equalized aggregate permit limit of 11,384, by 1,937 equivalent lbs/day (Attachment B). The intense rainfalls in January, March and April were one of the primary factors having an adverse impact on nitrogen removal in 2007. In fact, the reported equivalent nitrogen load in April 2007 was the highest recorded

during the six-year history of the NCE at 22,472 eq lbs/day in attachment B. That load exceeded the previous monthly high of 20,324 eq lbs/day observed in June of 2003. The effect can be seen in Figure 1, as the monthly average nitrogen loadings were the highest during those three months. Nevertheless, good operating in the following months of 2007, including the lowest equivalent nitrogen load recorded in September of 10,098 eq lbs/day in attachment B still resulted in the lowest annual aggregate load for the 12-month rolling average, resulting in a reduction of 1,937 equalized pounds below 2006 performance. The drier and warmer weather that occurred during the summer and fall of 2007 enhanced nitrogen removal.

A second effect on 2007 nitrogen removal is related to the level of funding available for the Clean Water Fund. The general permit limits are based on the anticipated increase in the ability of Connecticut wastewater treatment systems to remove additional nitrogen, which is a direct result of the number of nitrogen removal upgrade projects that become operational during the year. Although five plants came on line in 2007 with nitrogen process upgrades, more projects per year will need to be implemented if the final 2014 permit limit is to be met on schedule. The generous increase in bond allocations for fiscal years 2008 and 2009 will help, and have greatly reduced the backlog of projects awaiting CWF awards.



**Figure 1. Monthly aggregate performance of 79 facilities during 2007.**

### Condition of Long Island Sound

As highlighted in this report, nitrogen trading has led to measurable reductions in Connecticut’s nitrogen load to the Sound. Although signs of improvement in hypoxia are evident, more reductions are needed to meet management goals and attain a healthy Long Island Sound, including sources from out of state and stormwater and nonpoint sources, which include atmospheric deposition.

One measure of improvement is the area affected by hypoxia each summer (Figure 2). Although annual variation is large, subject to changing weather conditions that affect the severity of hypoxia each year, there is a downward trend in hypoxic area. Over the 20 years

of monitoring, the affected area has averaged 201 square miles. During the last ten years, only one year's event (2003) exceeded the 20-year average area of hypoxia, this despite several of the warmest years on record, which would tend to exacerbate hypoxic conditions in the Sound by intensifying stratification. Yet, as the conclusion of the 2008 hypoxia season nears, it appears that it will be one of the more severe events on record. This can be attributed to weather, which set up a stronger than average and extended period of stratification, along with a wetter than average summer, which contributed higher than average nitrogen loads from stormwater and nonpoint sources

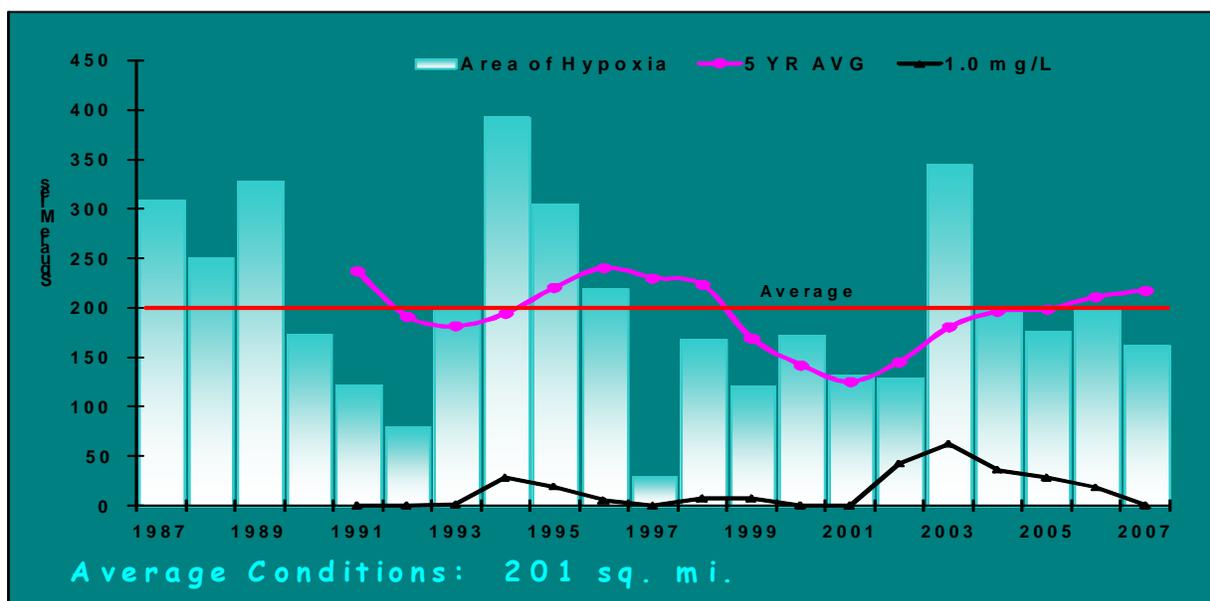


Figure 2. Area and trend of hypoxia in Long Island Sound, 1987-2006.

## II. The 2007 Nitrogen Credit Exchange

### Credit Price

A major task of the Nitrogen Credit Advisory Board (NCAB) each year is establishing the value, or price, of an equalized nitrogen credit. Each year, the NCAB proposes the annual value for equalized nitrogen credits to the Commissioner of the Department of Environmental Protection (DEP). The Board calculates this value by dividing the total annual project costs by the reduction in equalized pounds of nitrogen. The statute further identifies the total project cost as: 1) capital expenditures for construction of nitrogen removal facilities and 2) ongoing operation and maintenance costs for nitrogen removal treatment.

Therefore, the cost of an equalized credit is:

$$\text{Capital Costs} + \text{Operational Costs} / \text{Total amount of equalized nitrogen reduced from project facilities} = \text{The value of an equalized credit}$$

A "Nitrogen Removal Project" is defined as any alteration of the physical structure of a wastewater treatment facility specifically constructed to remove nitrogen that was financed by the Clean Water Fund. A "Project Facility" is further defined as any facility with a fully operational nitrogen removal system of any scale on January 1 of the trading year. Under this definition, 38 facilities were considered to be Project Facilities during 2007 (see Attachments C and D).

"Capital Costs" were established by the Board as the annual Clean Water Fund repayment amount associated with construction of nitrogen treatment facilities as set forth in the loan agreement between the municipality and DEP. Financing derived from grants to municipalities are not considered to be a capital cost for purposes of setting credit prices. Using this procedure, the Board established the annual capital cost for nitrogen treatment in 2007 at \$7,489,246 (Attachment E). This figure represents the annual interest and repayment of principal on the 2% loans for nitrogen removal processes.

"Operation and maintenance costs" were estimated by means of a survey sent to all Project Facilities. Department staff reviewed all survey data for consistency and reasonableness and an estimate of \$9,754,813 was adopted by the Board as the annual operation and maintenance costs for nitrogen removal in 2007. Combining capital and operation and maintenance costs yielded a total cost for nitrogen removal in 2007 of \$17,244,059 (Attachment E). Operation and maintenance costs increased substantially in 2007 because of a 28% increase in electricity and an increase in the cost of chemicals such as methanol used in the denitrification process.

The reduction in equalized pounds of nitrogen was calculated by subtracting the actual end-of-pipe pounds of nitrogen discharged by each of the Project Facilities from the "baseline" loading established for the facility in the TMDL for Long Island Sound. The baseline loading represents the loading of nitrogen each facility would have discharged if no nitrogen treatment were provided. Load reductions for each facility were multiplied by the equalization factor for the facility (converting the pounds reduced to equalized pounds reduced) and the statewide reduction calculated by summing the equalized pounds reduced for all Project Facilities. Using this procedure, a total of 10,831 equalized pounds per day of nitrogen was reduced by the 38 project facilities that were on line in 2007 (See Attachment D).

Based on these analyses, the Board formally submitted a recommendation to the Commissioner that she establish the value of an equalized nitrogen credit at \$4.36 for trading in 2007. The cost was determined by dividing the Total Project Cost of \$17,244,059 by 10,830.99 pounds of equalized nitrogen removed during the year. The Commissioner accepted this recommendation and issued a draft ruling pursuant to CGS Section 22a-527 (Attachment G). No municipality petitioned for a review of the Commissioner's draft ruling during the statutory 15-day review period and the draft ruling became final establishing the value of an equalized nitrogen credit at \$4.36 for 2007.

### **Numbers of Credits Traded and Final Balances**

In 2007, 52 facilities were required to purchase credits in order to remain in compliance with the General Permit. Municipalities purchased equalized credits at a total of \$5,159,019. Twenty-seven facilities received payments totaling \$2,072,001 from the sale of 5,637

equalized nitrogen credits. To date, nearly 12 million credits have been bought and sold on the NCE at a total value of nearly \$30 million. Because less nitrogen was removed than required in the nitrogen general permit in 2007, payments from credit purchasers are greater than monies paid out by sellers. (Attachment C).

**Table 1. Credit Price and Value Sales and Purchases, 2002 - 2007.**

Year	Credit Price	Credits Bought by the NCE	Credits Sold by the NCE	Surpluses/ (Deficits) <sup>(1)</sup>
2002	\$1.65	\$2,757,323	\$1,317,223	\$1,440,100
2003	\$2.12	\$2,429,419	\$2,116,758	\$312,661
2004	\$1.90	\$2,659,804	\$1,786,736	\$873,068
2005	\$2.11	\$1,315,392	\$2,466,725	(\$1,151,333)
2006	\$3.40	\$2,394,956	\$3,828,114	(\$1,433,158)
2007	\$4.36	\$2,072,001	\$5,159,019	(\$3,087,018)

<sup>(1)</sup> *Surplus = surplus value of credits purchased by the NCE. Deficits = excess value of credits sold by the NCE.*

Credit prices have risen from \$1.65 to \$4.36 over the five years of operation of the NCE (Table 1). From 2002 through 2004, there were surpluses of credits purchased by the NCE, but during the last three years, the NCE ran deficits of \$1,151,333 in 2005, \$1,433,158 in 2006 and \$3,087,018 in 2007 as overall facilities performance based on projections did not meet the nitrogen general permit targets. Fluctuations above and below the aggregate limits are expected and acceptable in the trading program provided the conditions of the TMDL are met (See Section IV).

### **III. Finances**

#### **Clean Water Fund Advisory Work Group**

The difficult process of adopting the FY06 and FY07 Priority List due to limited Clean Water Funds (CWF), led Governor M. Jodi Rell to request that Commissioner Gina McCarthy convene a work group to “evaluate the Clean Water Fund with due consideration for the potential impact to the environment and the possible ramifications in the State.” Therefore, a Clean Water Fund Advisory Work Group (CWFAWG) was convened in 2006 to evaluate creative options for the CWF to provide a sustainable level of funding to assist municipalities in addressing known and emerging water quality issues and the enhancement of wastewater infrastructure. Their evaluation gave due consideration to nitrogen removal needs and attainment of the 2014 TMDL goal for nitrogen.

As reported in last year’s report, the CWFAWG published its final report in February 2007 titled “The Clean Water Fund Dilemma: Increasing Demands with Diminishing Fiscal Resources” [http://www.ct.gov/dep/lib/dep/water/municipal\\_wastewater/cwf\\_a\\_g\\_report.pdf](http://www.ct.gov/dep/lib/dep/water/municipal_wastewater/cwf_a_g_report.pdf). With respect to funding needs, and essential to progress towards meeting the goals for nitrogen management as well as development of the fiscal years 2008 and 2009 priority list, the CWFAWG concluded and recommended among other things:

- Additional general obligation bond authority would be necessary to provide grants for new projects (CSO, denitrification, small community, etc.) financed each year. Best estimates for the next five years are general obligation needs of \$130 million/year.
- Lack of adequate state funding drives up inflationary costs, saps resources, and shifts responsibility onto the municipalities with further reliance on the property tax as the revenue source.
- Lack of adequate subsidized funding results in the overall degeneration of publicly owned facilities and the corresponding ongoing, unaddressed threat to the environment and public health.
- The achievement of water quality goals for Long Island Sound by 2014 will not be met without a significant increase in CWF funding.

In general, the CFWAWG concluded that the state must re-prioritize its obligations and place the CWF much higher in the order of expenditure of the state bonding capacity if the 20-year needs for clean water infrastructure projects are to be met.

### **Funding for FY08 and FY09 CWF Activity**

In October 2007 the Connecticut Legislature passed Senate Bill 1502 (the bond implementation package). Shortly thereafter, Governor M. Jodi Rell signed the bill into law. The bonding authorization for the Clean Water Fund was very favorable. It includes \$90 million in General Obligation bonds for each of FY08 and FY09 and \$235 million and \$180 million for FY08 and FY09 respectively in revenue bond authority actions. This level of new funding authorizations for the CWF program was sufficient to address many of the backlogged projects that were awaiting CWF financing, including awarding funds in 2007 for a full denitrification project at the Meriden plant and interim projects at MDC-Hartford (2008), Southington (2010) and Danbury (2010) (Attachment F). The FY08 and FY09 Priority List, adopted in January 2008, included denitrification projects at Ansonia, Glastonbury, Windham and Plainville that could be funding in fiscal year 2008, and the expectation to fund projects in Norwalk and West Haven in fiscal year 2009.

### **Use of NCE Surplus Funds**

The total amount of surplus funds created from the purchase and sale of equivalent nitrogen credits in 2005 through 2007 was in excess of \$5.5 million. As noted above, 2007 was the third year that the limit in the general permit has been exceeded. According to Sec. 22a-524(b)(11) of the Connecticut General Statutes, the Commissioner, in consultation with the NCAB, shall: "Establish accounts of funds created from the purchase and sale of equivalent nitrogen credits to be used for administration of the nitrogen credit exchange program and which may be used for nitrogen removal projects, habitat restoration projects and research". Further, in Sec. 22a-524(b)(12) of the Connecticut General Statutes, the Commissioner, in consultation with the NCAB, shall: "Established any other policies or procedures the commissioner may deem necessary to carry out the nitrogen credit exchange program" and Sec. 22a-524(b)(13) "established a technical assistance program" to educate and assist municipalities in implementing the nitrogen credit exchange program.

During 2007, the NCAB recommended that some of the surplus funds be used for:

- Training and providing technical assistance \$240,000. New England Interstate Water Pollution Control Commission (NEIWPCC) has been retained to work with CT DEP and selected municipalities to train operators on the topics of nitrogen removal, the Biological Nitrogen Removal process, and better management of wet weather/cold weather conditions that have an adverse impact on nitrogen removal. This will help ensure that the maximum benefit from existing upgrades is attained.
- The NCAB has set aside \$100,000 as a placeholder for a study of combined sewer overflows (CSO), sanitary sewer overflows (SSO) and stormwater separation effects on nitrogen loads. The objective of the study is to evaluate the relative benefits and impacts of sewer separation and delivery of nitrogen to the receiving water via the POTW and direct storm sewer discharge.
- The NCAB is funding enhanced nutrient monitoring statewide by partnering with the USGS \$180,000. Supplemental monitoring will be conducted on rivers throughout the state to better determine nitrogen loads from within and outside of Connecticut and a special nitrogen loading study of the Connecticut River will be conducted for two years. Because the Connecticut River is tidal, the loads along the river from Thompsonville to Long Island Sound are poorly understood. The USGS will produce a final report on loadings, covering the past 10 years at regularly monitored stations.
- The Advisory Board has also recommended a second year's membership (2008-2009) in the Water Environment Research Foundation (WERF) at a cost of \$10,000 per year. WERF keeps members informed on the latest technology, technical discussion groups, seminars, and workshops relevant to treatment plant operations and nitrogen removal. WERF is also embarking on a nitrogen research initiative that will be very useful to nitrogen management in Connecticut and plans to use the NCE's data and experiences in their evaluations.

The Advisory Board continues to explore other ideas for the use of the surplus funds for training and improvements in treatment plants to ensure that the program will achieve the TMDL limit.

### **Projects on Line/ Grant Loan Portion**

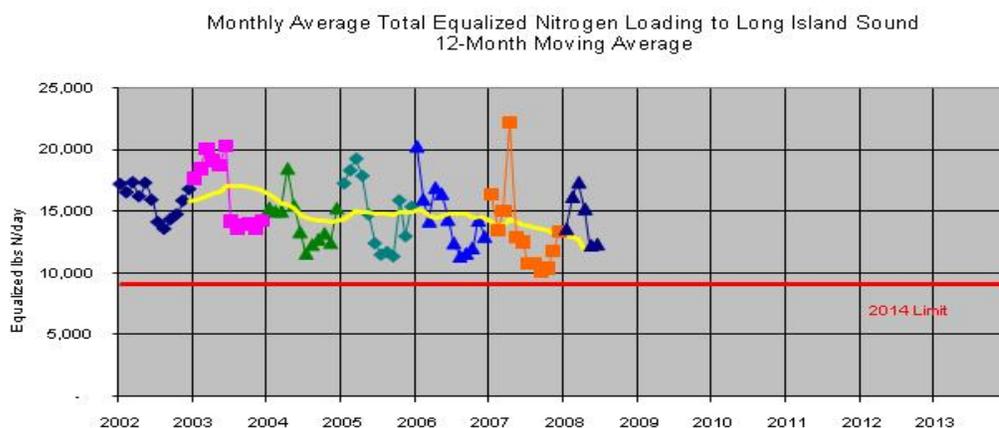
Five additional nitrogen removal projects came on line during the 2007 trading period (Cheshire, East Hartford- interim project, Simsbury, Suffield, and Winsted). There are two facilities expected to be finished in 2008 (Shelton, Westport-phase 2) and an interim project at MDC-Hartford. The 2007 - 2008 projects have a total cost of \$100 million with \$36 million going towards the nitrogen removal capital portion of the upgrades. The complete list of nitrogen removal projects that have been completed or currently approved for funding by the Clean Water Fund is provided as Attachment F.

## **IV. Progress towards TMDL goal**

### **Nitrogen Loading Trend and Scheduled Projects**

Despite the effect of intense storms, wet weather, and cold periods that impair nitrogen removal capability at municipal facilities and the financial limitations that have reduced the number of nitrogen removal projects below anticipated levels, steady progress has been made towards achieving the 2009 and 2014 TMDL allocations.

Data reported for the last six and one half years indicate that by 2009 the aggregate nitrogen removal performance will be below the 2009 permit limit of 13,149 equalized pounds per day provided extreme weather conditions and operational failures are not encountered. The twelve-month moving nitrogen load average through June 2008 was 11,804 equalized pounds (yellow line in Figure 3). Coupling this with the five nitrogen removal projects that came on line in 2007 and qualify as 2008 project facilities by operating as of January 1, 2008 and the two full denitrification projects at Westport (Phase II) and Shelton and one more interim project at MDC-Hartford in 2008, should allow attainment of the 2009 limit. The principal factor moderating the rate of progress in reducing nitrogen loads is the availability of financing through the Clean Water Fund to complete nitrogen removal upgrades to municipal sewage treatment facilities. The improved performance necessary to achieve future limits will require construction of upgraded treatment technology at a number of facilities in Connecticut. The final waste-load allocation (WLA) limit to be achieved in 2014 for nitrogen is 9,141 equalized pounds per day (Red line in Figure 3).



**Figure3. Monthly Average Total Nitrogen Load**

### Meeting the 2014 Wasteload Allocation

The Department has made projections to see how the 2014 target load allocation could be attained. The project facilities to be added in 2008 (Cheshire, East Hartford, Simsbury, Suffield, Winsted) will removed approximately 447 equalized pounds of nitrogen per day. This will bring the average annual equalized nitrogen load down below 12,873 pounds per day. By the end of 2009 it is expected that the state will be discharging 11,783 with the planned interim upgrade at the Hartford Metropolitan District Commission (MDC) plant, Milford Beaver Brook, Milford Housatonic, Plainville and Stratford.

### Potential Denitrification Projects Between 2010 and 2014

Some sewage treatment facilities are being funded to complete nitrogen removal upgrades such as Windham, Groton Town, Ansonia, Glastonbury and Meriden. Several denitrification projects are in various project development stages and are being considered to be funded other than those identified above. Those include but may not be limited to Stafford, Danbury, Southington, South Windsor, West Haven, Cromwell-Mattabassett, Killingly, Rocky Hill, Norwalk, New Haven, Plainfield North.

## **Achievement of the 2014 Permit limits**

With all of the identified projects listed above for construction in FY2008 through 2014, it is anticipated that the 79 wastewater treatment facilities will discharge 8,668 equalized lbs of nitrogen. At that load, the facilities will be in compliance with the final permit limit of 9,141 equalized lbs. However, this prediction is based on project facilities that are planned for completion provided there is adequate funding through 2014, and cannot account for variations in weather that can affect nitrogen removal operations.

## **Proposed Revisions to the Program**

Although it appears that the program with current project upgrade plans may be on track to meet the aggregate 2014 wasteload allocation required under the Nitrogen General Permit, some additional assessments and revisions to the program may be necessary. The Department and Nitrogen Credit Advisory Board members will continue to work with municipalities that plan to host projects to ensure their projects are implemented. If warranted, the DEP and NCAB members will evaluate the potential benefits of making market adjustments by adjusting the price of the nitrogen credit and other actions that will help maintain progress towards the goal. Strategies (either incentive or enforcement-based) may need to be developed to encourage municipalities with key projects to improve their facilities in a timely manner.

The Nitrogen General Permit (NGP) is also due to expire at the end of 2010 and will need to be renewed for the next five-year permit cycle. This process will have to begin early in 2010. It is expected that, by that time, more will be known about potential changes in the revision of the TMDL, planned for 2009, that may affect nitrogen reduction targets, trading ratios, and the role of out of state sources. Before finalizing the renewed permit, consideration will be given to changes in the TMDL that might affect goals and schedule for the NGP.

In the interim, technical assistance will be provided to the wastewater treatment operators to better manage wet and cold weather conditions that have an adverse impact on nitrogen removal (See Section II- Use of NCE Surplus Funds). This will help ensure that the maximum benefit from existing upgrades is attained.

For the 2007 trading year, the program was modified to include a private discharger category. Although Cytec Corp. in Wallingford expressed interest in becoming the first private entity to trade on the NCE, they were not able to have their expired permit reissued by the December 31, 2007 deadline and were, therefore, ineligible to trade. Cytec has expressed interest in trading in the 2008 exchange. They will be eligible provided their permit is reissued prior to December 31, 2008.

## **V. Upper Connecticut River and Revisions to the TMDL**

The Total Maximum Daily Load (TMDL) for nitrogen, adopted in 2001, was scheduled for revision in 2003 to include changes related to anticipated changes in Connecticut and New York water quality standards, a new System-wide Eutrophication Model (SWEM) being developed for Long Island Sound, and to include more specific nitrogen reduction targets for

Upper Connecticut River Sources in Massachusetts, New Hampshire and Vermont and for atmospheric deposition. Lengthy delays in the completion of and scenario testing with the SWEM model, as well as implementation of studies of nitrogen loading and delivery in the Upper Connecticut River have put off the TMDL revision until the fall of 2009.

With coordination by the New England Interstate Water Quality Pollution Control Commission, the watershed states have been meeting regularly and evaluating the data being generated by the studies of the Upper Connecticut River to develop an equitable and reasonable nitrogen management plan. In particular, a new watershed model has been developed that allows managers to identify nitrogen loads from all point and nonpoint sources, the delivery efficiency of that nitrogen to Long Island Sound, and the costs and feasibility of reductions.

While the studies and evaluations were being completed, EPA Region I, which has permitting authority over the states of Massachusetts and New Hampshire, began taking some initial steps to regulate nitrogen loads from permitted Publicly-Owned Treatment Works in Massachusetts based on the preliminary targets for out of state sources set in the 2001 TMDL. Upon renewal EPA is including requirements for monitoring, plant process evaluations in permits, and an eventual cap on nitrogen loads once the monitoring and evaluations have been conducted for a year. This will help set the stage for eventual permit limits that may require modification based on the revised TMDL.

## **VI. EPA Blue Ribbon for Water Quality Trading**

In October, 2007, Connecticut was awarded EPA's first Blue Ribbon award for Water Quality Trading at a ceremony held in Mystic, Connecticut. In an EPA Press Release, EPA's Assistant Administrator for Water Issues, Benjamin H. Grumbles said, "Our blue ribbon winner is setting a shining example for reducing pollution, restoring ecosystems, and saving money." Joining DEP Commissioner Gina McCarthy to accept the award from Region I Administrator Robert Varney were NCAB members Sharon Dixon-Peay, Astrid Hanzalek, Robert Moore, and Betsey Wingfield. Also attending were DEP support staff to the Board, Iliana Ayala and Thom Haze. (Attachment H).

## **VII. Recommendations for Statutory Change**

Until there is further assessment of the program, and ramifications of the revised TMDL, there is no recommendation to make any statutory changes at this time.

## **VIII. Attachments**

- A. Nitrogen Credit Advisory Board Members 2007
- B. Total nitrogen Balance Sheet - Monthly Averages by plant 2007
- C. Nitrogen Exchange Balance Sheet 2007
- D. Equalized lbs reduced by project facilities 2007
- E. Total Annual Project Costs 2007
- F. Nitrogen Removal Projects Financed by the CWF through 2010
- G. Draft Ruling
- H. Blue Ribbon Award Notification
- I. Nitrogen Credit Advisory Board 2008 Meeting Schedule



Attachment A  
LIST OF APPOINTEES 2007

Name	Current Appointing Authority	Term	Term Expires
1. Dominick DiGangi Greater New Haven WPCA 345 East Shore Parkway New Haven, CT 06512	Martin M. Looney Senate Majority Leader	3 Years	November 2009 (Resigned September 2008)
2. John Mengacci Under Secretary Office of Police Management 450 Capitol Avenue Hartford, CT 06106 Phone: (860) 418-6374	Robert M. Genuario Secretary Office of Policy and Management	No specific Term	
3. Robert Moore The MDC PO Box 800 555 Main St. Hartford, CT 06142-0800 Phone: 278-7850	Donald E. Williams, Jr. Senate President Pro Tem (Sullivan appointee)	3 year	November 2005 *
4. Betsey Wingfield Bureau Chief DEP 79 Elm St Hartford, CT 06016 Phone: (860) 424-3704	Gina McCarthy Commissioner Environmental Protection	No specific term	

5.	Sharon Dixon-Peay Office of the Treasurer 55 Elm Street Hartford, CT 06106 Phone: (860) 702-3134	Nappier Denise Secretary Office of the Treasurer	No specific Term	
6	Astrid T. Hanzalek 31 Abraham Terrace Suffield, CT 06078 Phone: (860) 668-2739	Larry F. Cafero House Minority Leader (Ward Appointee)	3 years	September 2010*
7.	Brian Armet Executive Director Mattabassett Director 245 Main Street Cromwell, CT 06416 Phone: (860) 635-5550	Christopher G. Donovan House Majority Leader (Pudlin Appointee)	3 years	June 2008 *
8.	Richard Cellar 83 Lawrence Road Fairfield, CT 06824-3039 Phone: (203) 255-5017	John McKinney Senate Minority Leader (DeLuca Appointee)	3 year	November 2005 *
9.	Carl Almquist Town of Groton WPCA 134 Groton Long Point Road Groton, CT 06340 - 4873 Phone: (860) 448-4083	M. Jodi Rell Governor	3 year	November 2007

10.	Jeanette Brown Stamford WPCF Harbor View Avenue Stamford, CT 06902 (203) 977-5809	Christopher G. Donovan House Majority Leader	3 years	November 2009
11.	William Norton, Director City of West Haven WPCA 355 Main Street West Haven, CT06516 (203) 937-3706	James A. Amann Speaker of the House	3 year	February 2008
12.	Vacant Senate Majority Leader	Martin M. Looney	3 years	

\* Appointees remain active until removed by their appointees authority

# Total Nitrogen Balance Sheet - Monthly Averages by Plant, 2007

	<u>Limit '07</u>	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>	<u>AVG</u>
<b>ZONE: 1</b>														
GROTON CITY WPCF	124	140	148	118	83	144	143	119	114	147	112	140	144	129
GROTON TOWN WPCF	191	528	451	490	545	414	356	292	330	331	356	452	501	421
JEWETT CITY WPCF	19	10	10	6	11	15	13	10	7	8	11	16	19	11
KILLINGLY WPCF	163	232	184	173	209	218	175	142	98	110	89	119	145	158
LEDYARD WPCF	9	9	7	5	6	3	3	3	3	4	4	6	4	5
MONTVILLE WPCF	147	70	99	100	79	96	51	58	65	54	46	68	47	69
NEW LONDON WPCF	481	668	539	454	606	527	423	263	352	301	226	285	318	414
NORWICH WPCF	250	551	660	927	990	741	651	596	623	638	660	658	510	684
PLAINFIELD NORTH WPCF	43	143	154	161	157	115	79	69	72	58	66	106	119	108
PLAINFIELD VILLAGE WPCF	30	46	62	70	62	36	31	33	34	23	19	41	50	42
PUTNAM WPCF	66	222	267	309	211	213	152	137	151	182	158	296	172	206
SPRAGUE WPCF	9	17	17	17	20	13	13	14	12	16	11	13	10	14
STAFFORD SPRINGS WPCF	75	139	127	103	90	123	135	119	106	105	110	157	127	120
STONINGTON BOROUGH	17	37	15	15	27	20	16	29	31	17	17	18	20	22
STONINGTON MYSTIC WPCF	34	35	39	33	40	49	27	32	29	20	19	23	25	31
STONINGTON PAWCATUCK	30	42	26	23	18	19	16	15	10	10	10	13	12	18
THOMPSON WPCF	13	17	17	27	20	38	31	26	24	30	40	39	29	28
UCONN WPCF	55	100	77	93	87	35	35	22	25	79	110	73	68	67
WINDHAM WPCF	157	164	229	296	325	221	163	135	101	108	102	115	124	174
<b>ZONE: 2</b>														
BRISTOL WPCF	497	561	650	841	1028	635	404	322	476	307	297	424	434	532
CANTON WPCF	30	112	89	88	123	132	107	82	65	69	73	84	76	92
EAST HAMPTON WPCF	67	130	113	134	132	143	133	86	83	58	57	102	143	110
EAST HARTFORD WPCF	365	456	310	399	442	451	391	416	387	342	356	389	348	391
EAST WINDSOR WPCF	74	38	26	38	65	33	31	32	22	21	22	24	27	32
ENFIELD WPCF	347	257	220	274	343	241	207	191	183	174	152	187	192	218
FARMINGTON WPCF	221	394	349	368	483	513	628	535	253	394	413	435	426	433
GLASTONBURY WPCF	122	289	264	313	340	291	250	256	278	334	289	331	303	295
HARTFORD WPCF	2964	6602	5539	6807	7056	5797	5497	4660	5163	4987	5170	5851	6934	5839
MANCHESTER WPCF	389	802	735	765	985	776	600	621	875	705	566	592	552	715
MATTABASSETT WPCF	1040	1163	1019	1160	1857	1065	1094	885	937	918	992	1049	1410	1129
MIDDLETOWN WPCF	277	459	492	521	675	507	375	325	230	239	281	318	338	397

Report Date: 9/24/2008

# Total Nitrogen Balance Sheet - Monthly Averages by Plant, 2007

	<u>Limit '07</u>	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>	<u>AVG</u>
PLAINVILLE WPCF	126	245	232	272	381	411	284	285	259	241	220	225	301	280
PLYMOUTH WPCF	52	100	40	38	117	70	54	60	48	49	102	90	83	71
PORTLAND WPCF	39	26	22	35	65	43	24	22	15	11	16	15	18	26
ROCKY HILL WPCF	359	706	442	694	1159	680	693	410	453	424	592	426	643	610
SIMSBURY WPCF	133	67	75	114	168	132	121	78	51	74	46	43	39	84
SOUTH WINDSOR WPCF	132	313	263	315	403	343	365	305	332	307	331	288	295	322
SUFFIELD WPCF	56	43	81	85	93	85	77	68	61	65	68	75	84	74
VERNON WPCF	229	580	605	606	657	529	458	402	321	293	326	459	396	469
WINDSOR LOCKS WPCF	82	89	95	130	159	114	110	76	66	69	75	67	74	94
WINDSOR POQUONOCK	122	450	440	422	416	502	493	366	416	381	398	331	408	419
WINSTED WPCF	80	176	171	223	222	137	111	78	68	74	48	63	73	120
<b>ZONE: 3</b>														
BRANFORD WPCF	239	95	125	148	186	79	98	197	133	83	57	52	80	111
CHESHIRE WPCF	128	67	52	66	160	74	61	52	89	73	55	59	83	74
MERIDEN WPCF	560	985	854	692	1189	566	641	682	876	687	692	833	1027	810
NEW HAVEN EAST WPCF	1954	4231	2473	2646	4485	1347	2396	1414	1915	1292	1269	1159	1785	2201
NORTH HAVEN WPCF	197	256	234	277	287	236	192	183	193	162	155	175	215	214
SOUTHINGTON WPCF	254	861	932	798	1027	931	827	793	924	848	802	798	877	868
WALLINGFORD WPCF	335	614	397	477	568	358	233	204	210	218	233	276	287	340
WEST HAVEN WPCF	440	446	530	526	747	392	428	420	334	482	398	623	655	498
<b>ZONE: 4</b>														
ANSONIA WPCF	143	467	356	288	297	318	255	165	132	136	154	114	167	237
BEACON FALLS WPCF	15	52	57	58	61	62	51	32	42	43	46	56	45	50
DANBURY WPCF	551	1728	1711	1728	1969	1811	1902	2005	1757	1502	1705	1670	1843	1778
DERBY WPCF	89	64	51	78	159	83	61	47	44	44	40	44	40	63
LITCHFIELD WPCF	29	38	32	59	73	46	25	26	21	23	30	35	42	38
MILFORD BEAVER BROOK	117	162	104	137	258	213	156	128	102	78	82	74	86	132
MILFORD HOUSATONIC	384	1031	657	755	1168	659	571	361	354	435	733	508	712	662
NAUGATUCK TREATMENT	307	314	384	548	356	192	131	158	144	188	234	160	192	250
NEW MILFORD WPCF	30	94	85	79	96	92	60	77	94	100	92	93	95	88
NEWTOWN WPCF	20	65	60	38	46	28	12	8	6	14	7	12	13	26
NORFOLK WPCF	14	20	15	38	39	68	30	32	25	16	18	37	43	32
NORTH CANAAN WPCF	16	27	22	40	41	26	24	22	27	18	16	17	17	25
SALISBURY WPCF	26	27	28	27	46	29	24	33	29	28	29	24	16	28

Report Date: 9/24/2008

# Total Nitrogen Balance Sheet - Monthly Averages by Plant, 2007

	<u>Limit '07</u>	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>	<u>AVG</u>
SEYMOUR WPCF	76	99	97	85	99	54	53	53	49	38	35	40	42	62
SHELTON WPCF	132	393	406	465	563	483	543	575	563	506	251	80	130	413
SOUTHURY TR. SCHOOL	19	12	9	14	11	5	6	4	3	4	4	5	8	7
STRATFORD WPCF	443	604	436	521	839	699	441	414	582	546	597	768	946	616
THOMASTON WPCF	52	46	34	29	34	21	18	31	32	31	34	39	36	32
TORRINGTON WPCF	309	191	159	329	534	236	170	256	188	171	173	259	292	247
WATERBURY WPCF	1259	1060	1207	1506	2201	1000	897	782	766	575	621	690	1100	1034

## ZONE: 5

BRIDGEPORT EAST WPCF	451	308	304	315	516	280	263	209	213	211	175	215	241	271
BRIDGEPORT WEST WPCF	1298	1242	1038	1057	1657	915	962	1102	823	923	956	1852	1220	1146
FAIRFIELD WPCF	507	406	282	377	795	390	404	378	366	327	335	372	465	408
WESTPORT WPCF	108	108	91	90	131	76	56	54	43	46	47	44	52	70

## ZONE: 6

GREENWICH WPCF	598	820	376	578	2336	458	509	478	511	497	552	604	648	697
NEW CANAAN WPCF	80	43	30	38	135	34	21	19	18	19	27	31	42	38
NORWALK WPCF	895	1238	1350	1401	1546	1461	1142	794	636	719	668	770	794	1043
RIDGEFIELD SOUTH ST.	36	20	31	39	48	32	26	20	25	27	31	40	44	32
STAMFORD WPCF	1154	1133	761	828	1625	573	522	430	426	412	485	626	889	726

## End-Of-Pipe Total

36,591    31,163    35,231    47,280    30,993    29,224    25,306    25,917    24,292    24,895    27,753    31,298

## Equalized Total

16,412    13,488    15,042    22,472    12,895    12,376    10,762    10,788    10,098    10,375    11,816    13,325

End-Of-Pipe Permit = 22,981

End-Of-Pipe Avg. = 30,829

Equalized Permit = 11,384

Equalized Avg. = 13,321

**Attachment C  
LIS Total Nitrogen Credit Exchange Final Balance - 2007**

**SELLING Credits**

<u>Facility Name</u>	
★ STAMFORD WPCF	\$681,119
★ BRIDGEPORT EAST WPCF	\$243,484
★ WATERBURY WPCF	\$214,839
★ BRIDGEPORT WEST WPCF	\$205,609
★ FAIRFIELD WPCF	\$133,916
★ BRANFORD WPCF	\$122,220
★ NEW CANAAN WPCF	\$66,839
★ TORRINGTON WPCF	\$59,200
★ NAUGATUCK TREATMENT Co.	\$54,426
★ WESTPORT WPCF	\$51,402
★ CHESHIRE WPCF	\$42,108
★ ENFIELD WPCF	\$39,005
★ DERBY WPCF	\$27,722
★ MONTVILLE WPCF	\$22,343
★ NEW LONDON WPCF	\$19,192
★ THOMASTON WPCF	\$19,097
★ SEYMOUR WPCF	\$14,927
★ SIMSBURY WPCF	\$14,036
★ EAST WINDSOR WPCF	\$12,699
★ SOUTHBURY TR. SCHOOL WPCF	\$8,785
★ RIDGEFIELD SOUTH ST. WPCF	\$6,366
★ PORTLAND WPCF	\$4,138
★ STONINGTON PAWCATUCK WPCF	\$3,246
★ JEWETT CITY WPCF	\$2,164
★ LEDYARD WPCF	\$1,146
★ KILLINGLY WPCF	\$1,114
★ STONINGTON MYSTIC WPCF	\$859

**BUYING Credits**

<u>Facility Name</u>	
HARTFORD WPCF	\$915,055
DANBURY WPCF	\$898,218
SOUTHINGTON WPCF	\$478,789
SHELTON WPCF	\$299,613
★ MILFORD HOUSATONIC WPCF	\$296,414
★ NEW HAVEN EAST WPCF	\$235,845
★ NORWALK WPCF	\$235,527
★ MERIDEN WPCF	\$194,947
★ STRATFORD WPCF	\$184,459
★ GREENWICH WPCF	\$157,549
★ NORWICH WPCF	\$124,320
★ ANSONIA WPCF	\$100,226
★ MANCHESTER WPCF	\$98,571
★ WINDSOR POQUONOCK WPCF	\$89,803
★ ROCKY HILL WPCF	\$79,888
★ VERNON WPCF	\$72,568
★ GROTON TOWN WPCF	\$65,884
★ FARMINGTON WPCF	\$60,728
★ SOUTH WINDSOR WPCF	\$57,450
★ WEST HAVEN WPCF	\$55,381
★ GLASTONBURY WPCF	\$55,062
★ PLAINVILLE WPCF	\$44,114
★ NEW MILFORD WPCF	\$42,459
★ MIDDLETOWN WPCF	\$38,194
★ BEACON FALLS WPCF	\$37,318
★ PUTNAM WPCF	\$31,191
★ MATTABASSETT WPCF	\$28,327
★ CANTON WPCF	\$17,760
★ NORTH HAVEN WPCF	\$16,232
★ MILFORD BEAVER BROOK WPCF	\$15,994
★ PLAINFIELD NORTH WPCF	\$14,482
★ EAST HAMPTON WPCF	\$13,686
★ WINSTED WPCF	\$11,458
★ STAFFORD SPRINGS WPCF	\$10,742
★ BRISTOL WPCF	\$10,026
★ NORFOLK WPCF	\$10,026
★ EAST HARTFORD WPCF	\$7,862
★ PLYMOUTH WPCF	\$5,443
★ SUFFIELD WPCF	\$5,443
★ LITCHFIELD WPCF	\$5,013
★ NORTH CANAAN WPCF	\$5,013
★ WALLINGFORD WPCF	\$4,774
★ NEWTOWN WPCF	\$4,392
★ THOMPSON WPCF	\$4,297
★ WINDHAM WPCF	\$4,058
★ WINDSOR LOCKS WPCF	\$3,628
★ UCONN WPCF	\$2,865
★ PLAINFIELD VILLAGE WPCF	\$2,674
★ GROTON CITY WPCF	\$1,432
★ STONINGTON BOROUGH WPCF	\$1,432
★ SPRAGUE WPCF	\$1,273
★ SALISBURY WPCF	\$1,114

**TOTAL \$2,072,001**

**TOTAL \$5,159,019**

**Difference: Selling - Buying = (\$3,087,018)**

★ = Clean Water Fund Nitrogen Project Facility

The final balance (annual dollar amount) for each facility was calculated by subtracting the facility's 2007 TN loading as reported to DEP, from the facility's General Permit 2007 limit; The difference was then multiplied by the E-factor for that facility to determine the number of credits available to sell or needed to purchase. Credits were then multiplied by the value of a credit (\$4.36) to calculate the annual balance shown above.

## E Pounds Reduced by Project Facilities - 2007

<b>Project Facilities</b>	<b>Baseload</b>	<b>Average TN</b>	<b>EOP Reduced</b>	<b>E Factor</b>	<b>E Pounds Reduced</b>
BRANFORD WPCF	526	111	415	0.60	249.00
BRIDGEPORT EAST WPCF	991	271	720	0.85	612.00
BRIDGEPORT WEST WPCF	2852	1146	1706	0.85	1,450.10
BRISTOL WPCF	1091	532	559	0.18	100.62
CHESHIRE WPCF	281	75	206	0.49	100.94
DERBY WPCF	195	63	132	0.67	88.44
EAST HAMPTON WPCF	148	110	38	0.20	7.60
EAST HARTFORD WPCF	801	395	406	0.19	77.14
EAST WINDSOR WPCF	163	32	131	0.19	24.89
ENFIELD WPCF	763	224	539	0.19	102.41
FAIRFIELD WPCF	1113	408	705	0.85	599.25
GREENWICH WPCF	1313	697	616	1.00	616.00
JEWETT CITY WPCF	42	10	32	0.17	5.44
LEDYARD WPCF	20	5	15	0.18	2.70
LITCHFIELD WPCF	64	38	26	0.35	9.10
MILFORD BEAVER BROOK WPCF	258	132	126	0.67	84.42
MILFORD HOUSATONIC WPCF	844	662	182	0.67	121.94
NEW CANAAN WPCF	175	38	137	1.00	137.00
NEW HAVEN EAST WPCF	4294	2201	2093	0.60	1,255.80
NEW LONDON WPCF	1057	414	643	0.18	115.74
NEWTOWN WPCF	45	26	19	0.46	8.74
NORTH HAVEN WPCF	433	218	215	0.60	129.00
NORWALK WPCF	1967	1043	924	1.00	924.00
PORTLAND WPCF	86	26	60	0.20	12.00
RIDGEFIELD SOUTH ST. WPCF	80	32	48	1.00	48.00
SEYMOUR WPCF	167	62	105	0.67	70.35
SIMSBURY WPCF	293	93	200	0.18	36.00
STAMFORD WPCF	2536	726	1810	1.00	1,810.00
STRATFORD WPCF	974	616	358	0.67	239.86
SUFFIELD WPCF	123	73	50	0.19	9.50
THOMASTON WPCF	114	32	82	0.60	49.20
UCONN WPCF	120	67	53	0.15	7.95
WALLINGFORD WPCF	737	340	397	0.60	238.20
WATERBURY WPCF	2766	1034	1732	0.60	1,039.20
WEST HAVEN WPCF	967	498	469	0.60	281.40
WESTPORT WPCF	238	70	168	0.85	142.80
WINDSOR LOCKS WPCF	180	94	86	0.19	16.34
WINSTED WPCF	175	131	44	0.18	7.92

<b>TOTAL:</b>	<b>10,830.99</b>
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Projects Cost      \$17,244,059

Credit	
Cost:	\$4.36

**Attachment E**  
**Total Annual Project Cost 2007**

<b>Project Facilities</b>	<b>Total Annual Capital Cost</b>	<b>Total Annual O&amp;M Cost</b>	<b>Total Annual Project Cost</b>
BRANFORD WPCF	\$168,661	\$317,901	\$486,562
BRIDGEPORT EAST WPCF	\$51,755	\$503,415	\$555,170
BRIDGEPORT WEST WPCF	\$155,266	\$1,020,514	\$1,175,780
BRISTOL WPCF	\$28,759	\$126,357	\$155,116
CHESHIRE WPCF*	\$317,316	\$252,640	\$569,956
DERBY WPCF	\$31,785	\$65,750	\$97,535
EAST HAMPTON WPCF	\$30,144	\$53,999	\$84,143
EAST HARTFORD WPCF*	\$82,707	\$155,146	\$237,853
EAST WINDSOR WPCF	\$61,136	\$35,125	\$96,261
<b>ENFIELD WPCF*</b>	<b>\$0</b>	<b>\$200,000</b>	<b>\$200,000</b>
FAIRFIELD WPCF	\$514,885	\$400,488	\$915,373
GREENWICH WPCF	\$0	\$139,685	\$139,685
JEWETT CITY WPCF	\$65,659	\$99,306	\$164,965
LEDYARD WPCF	\$18,062	\$22,597	\$40,659
LITCHFIELD WPCF	\$45,829	\$47,292	\$93,121
MILFORD BEAVER BROOK WPCF	\$9,074	\$40,826	\$49,900
MILFORD HOUSATONIC WPCF	\$0	\$169,691	\$169,691
NEW CANAAN WPCF	\$56,656	\$46,232	\$102,888
NEW HAVEN EAST WPCF	\$151,122	\$867,571	\$1,018,693
NEW LONDON WPCF	\$54,978	\$444,876	\$499,854
NEWTOWN WPCF	\$72,954	\$225,066	\$298,020
NORTH HAVEN WPCF	\$54,418	\$251,351	\$305,769
NORWALK WPCF	\$276,853	\$641,193	\$918,046
PORTLAND WPCF	\$44,740	\$67,069	\$111,809
RIDGEFIELD SOUTH ST. WPCF	\$0	\$39,311	\$39,311
SEYMOUR WPCF	\$14,654	\$78,590	\$93,244
SIMSBURY WPCF*	\$211,063	\$24,248	\$235,311
STAMFORD WPCF	\$2,238,236	\$1,175,989	\$3,414,225
STRATFORD WPCF	\$0	\$361,636	\$361,636
SUFFIELD WPCF*	\$0	\$493,823	\$493,823
THOMASTON WPCF	\$56,408	\$70,353	\$126,761
<b>UCONN WPCF</b>	<b>\$0</b>	<b>\$38,525</b>	<b>\$38,525</b>
WALLINGFORD WPCF	\$122,125	\$241,220	\$363,345
WATERBURY WPCF	\$737,935	\$462,418	\$1,200,353
WEST HAVEN WPCF	\$0	\$342,000	\$342,000
<b>WESTPORT WPCF*</b>	<b>\$1,688,193</b>	<b>\$46,000</b>	<b>\$1,734,193</b>
<b>WINDSOR LOCKS WPCF</b>	<b>\$84,200</b>	<b>\$150,010</b>	<b>\$234,210</b>
WINSTED WPCF*	\$43,673	\$36,600	\$80,273
<b>TOTAL</b>	<b>\$7,489,246</b>	<b>\$9,754,813</b>	<b>\$17,244,059</b>

**BOLD=ESTIMATED**

## Attachment F

## Nitrogen Removal Projects Financed by the CWF through 2010

City or Town	Total Project Cost (\$)	Nitrogen Cost Portion (\$)	Year project Completed	Baseline lbs/day	2007 lbs/day
Seymour	9,800,000	250,000	1993	167	62
East Windsor	10,000,000	1,000,000	1996	163	32
Fairfield Phase 1	4,700,000	4,700,000	1996	1113	408
Greenwich	500,000	500,000	1996	1313	697
Milford BB Phase 1	1,000,000	1,000,000	1996	258	132
Milford H Phase 1	650,000	650,000	1996	844	662
Norwalk Phase 1	1,100,000	1,100,000	1996	1967	1043
Ridgefield	200,000	200,000	1996	80	32
Stratford Phase 1	800,000	800,000	1996	974	120
Univ. of Conn	12,000,000	1,058,000	1996	120	67
West Haven Phase 1	750,000	750,000	1996	967	498
Westport Phase 1	400,000	400,000	1996	238	70
Ledyard	3,500,000	3,500,000	1997	20	5
New Haven Phase 1	8,200,000	8,200,000	1997	4294	2201
Newtown	12,000,000	1,058,000	1997	45	26
Stamford Phase 1	3,500,000	3,500,000	1997	2536	726
Derby	2,763,000	2,763,000	2000	195	63
New Canaan	14,000,000	1,235,000	2000	175	38
Norwalk Phase 2	56,000,000	5,538,000	2000	1967	104
Waterbury	120,000,000	17,359,000	2000	2766	1034
East Hampton	690,000	690,000	2001	148	110
Thomaston	9,313,000	1,164,000	2001	114	32
New London	3,069,000	2,889,000	2002	1057	414
Portland	5,200,000	1,047,000	2002	86	26
Branford	21,542,000	3,158,000	2003	526	111

City or Town	Total Project Cost (\$)	Nitrogen Cost Portion (\$)	Year project Completed	Baseline	2007 lbs/day
Fairfield Phase 2	40,551,000	12,046,000	2003	1113	697
Windsor Locks	2,349,000	1,841,000	2003	180	180
Bridgeport E Phase 1	2,090,000	2,090,000	2004	991	991
Bridgeport W Phase 1	2,375,000	2,375,000	2004	2852	1146
Bristol Phase 1	584,000	584,000	2004	1091	532
Enfield	2,390,000	2,390,000	2004	763	218
Litchfield	4,000,000	1,000,000	2004	64	38
Jewett City	10,000,000	1,500,000	2005	42	11
Stamford Phase 2	97,223,000	59,500,000	2006	2536	726
North Haven	1,000,000	1,000,000	2006	433	214
Wallingford	2,276,000	2,276,000	2006	737	340
East Hartford	1,965,000	1,965,000	2007	801	391
Cheshire	5,775,000	5,775,000	2007	281	74
Simsbury Phase 1	21,231,000	4,044,000	2007	293	84
Suffield	4,075,000	3,370,000	2007	122	74
Winsted	1,100,000	1,100,000	2007	175	120
Westport Phase 2	37,131,000	8,253,000	2008	238	70
Shelton	21,642,000	4,293,000	2008	290	413
Hartford Interim Project	6,900,000	6,900,000	2008	6512	5839
Milford BB Phase 2	11,700,000	1,613,000	2009	258	132
Milford H Phase 2	34,900,000	10,038,000	2009	844	662
Stratford Phase 2	54,000,000	10,116,000	2009	974	616
Plainville	25,541,000	6,217,000	2009	277	280
Ansonia	41,731,000	10,015,000	2010	314	237
Danbury	5,000,000	5,000,000	2010	1211	1778
Groton Town	16,551,000	4,842,000	2010	420	421
Southington Interim Project	13,000,000	13,000,000	2010	433	868
Stafford	12,100,000	1,581,000	2010	164	120
Windham	22,917,000	1,638,583	2010	344	174

<b>City or Town</b>	<b>Total Project Cost (\$)</b>	<b>Nitrogen Cost Portion (\$)</b>	<b>Year project Completed</b>	<b>Baseline</b>	<b>2007 lbs/day</b>
<b>Glastonbury</b>	30,611,000	6,671,854	2011	268	295
<b>Meriden</b>	42,455,000	32,517,000	2011	1230	810
<b>West Haven</b>	55,000,000	13,200,000	2011	967	498



STATE OF CONNECTICUT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



Notice of Proposed Value of an Equivalent Nitrogen Credit for 2007

To: Connecticut Municipalities with Sewage Treatment Facilities  
From: Gina McCarthy, Commissioner Department of Environmental Protection  
Betsy Wingfield, Chair, Nitrogen Credit Advisory Board

The Connecticut Department of Environmental Protection, working with the Nitrogen Credit Advisory Board, implements a nitrogen credit exchange program and General Permit for nitrogen discharges to reduce nitrogen loadings from sewage treatment plants.

Under the exchange program, the cost of a credit is calculated on an annual basis. Accordingly, pursuant to Section 22a-527(b), the Nitrogen Credit Advisory Board hereby gives notice that it proposes an annual value for an equivalent nitrogen credit of \$4.36 for calendar year 2007. This value was derived, as specified in Section 22a-527(b), by dividing the total annual project cost for nitrogen removal projects at Connecticut sewage treatment facilities by the reduction in equivalent pounds of nitrogen achieved.

The Commissioner of the Department of Environmental Protection hereby issues a draft ruling accepting the Board's proposal of a value of \$4.36 for an equivalent nitrogen credit in calendar year 2007. Pursuant to Section 22a-527(c), the Commissioner's draft ruling shall become final if no municipality or group of municipalities petition for a review of the proposed value of an equivalent nitrogen credit within 15 business days after the issuance date of the Commissioner's draft ruling.

Enclosed with this notice is a table that lists the facilities that will be buying and selling nitrogen credits under this program for the year 2007. Should you have any questions please contact Ms. Iliana Ayala of the Department's Water Management Bureau at 860-424-3758 or email Ms. Ayala at [iliana.ayala@po.state.ct.us](mailto:iliana.ayala@po.state.ct.us).

Sincerely,  
  
Betsy Wingfield, Chair  
Chairman, Nitrogen Credit Advisory Board

Sincerely,  
  
Gina McCarthy  
Commissioner  
1/29/08  
Date

- Carl Almquist, Groton
- Brian Armet, Mattabasset District
- Jeannette Brown, Stamford
- Richard Cellar, Fairfield
- Astrid T. Hanzalek, Suffield
- Dominic DeGangi, New Haven
- John Mengacci, Connecticut Office of Policy and Management
- Robert Moore, Metropolitan District Commission
- William Norton, West Haven
- Sharon Dixon-Peay, Connecticut Office of the Treasurer



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
WATER

Ms. Betsy Wingfield, Chief  
Connecticut Department of Environmental Protection  
Bureau of Water Protection and Land Reuse  
79 Elm Street  
Hartford, Connecticut 06106-5127

Dear Ms. Wingfield:

Congratulations! On behalf of the Environmental Protection Agency (EPA) and the Office of Water, I am pleased to inform you that the Connecticut Nitrogen Credit Exchange has been recognized as the award recipient in EPA's 2007 Blue Ribbon Water Quality Trading Awards. Your organization is to be commended for its exceptional commitment to reducing pollution through water quality trading.

As you know, the Blue Ribbon Water Quality Trading Awards recognize excellence in water quality trading. One goal of the EPA is national adherence to water quality standards. We believe that your organization's commitment to water quality trading not only moves us closer to that goal, but will also set an impressive example for others to follow.

You have already demonstrated that you are up to the challenge, so I encourage you to continue to effectively reduce the cost associated with meeting water quality standards through water quality trading. In the meantime, we will be in touch with you regarding the 2007 Awards process, which may include an awards event in the Long Island Sound area.

Thank you for your leadership in demonstrating that trading can improve water quality, while obtaining economic benefits.

Sincerely,

A handwritten signature in black ink that reads "B. H. Grumbles".

Benjamin H. Grumbles  
Assistant Administrator

**Attachment I**

**Nitrogen Credit Advisory Board 2009 Meeting Schedule**

All meetings are schedule for 10:00 am in the Holcombe Room on the 5<sup>th</sup> floor at 79 Elm Street, Hartford

January 28, 2009

February 25, 2009

March 18, 2009

April 15, 2009

May 20, 2009

June 17, 2009

July 15, 2009

August 19, 2009

September 16, 2009

October 21, 2009

November 18, 2009

December 16, 2009

