# Comprehensive Conservation and Management Plan Actions
# Toxics

## T-1. Reduce municipal discharges of chemicals of concern.

**Key Elements:** Under the Clean Water Act, dischargers are required to meet secondary treatment requirements. Currently, only the Newtown Creek WPCP in New York City is not meeting these requirements but a multi-billion dollar upgrade is underway to enable the plant to comply with secondary treatment requirements. Construction completion is projected for 2013. It is expected that full implementation of secondary treatment will reduce discharges of many of the toxic chemicals of concern.

### Description of Activities to Date

The HEP Toxics Workgroup is coordinating TMDL development for several toxics of concern in the Estuary. TMDLs are expected to be completed in 2010 and this effort will limit discharges from STPs and other sources. The recently completed CARP effort (see also T-13) has provided key tools for the TMDL process: (1) environmental data collected by NJDEP and NYSDEC to quantify current inputs and ambient levels of contaminants in water, sediments, and biota, and (2) mathematical models to simulate contaminant movement in the Estuary and predict future levels of contamination. In addition, EPA is funding additional work to support TMDL development: identification of pollutants exceeding water quality standards, revision of the CARP model for Hg, to account for recent findings about methylation rates in the environment, matrices to facilitate the use of the CARP models, development of bioaccumulation factors (BAFs) based on local data, research on potential toxics loads reduction from stormwater controls and BMPs, and assessment of contaminated land sites. (HEP Office 2009; EPA—Rosella O'Connor 2009)

NYCDEP continued with the multi-phased construction upgrade of the Newtown Creek STP. Secondary treatment is expected to be fully implemented by the compliance date of May 1st, 2013. (HEP Office 2009)

NYCDEP- Industrial Pre-treatment (NYCDEP 2003). See description of the program in T-3.

NJPDES currently places limits on the discharge of metals from almost all commercial industrial and treatment plants that discharge to the Harbor Estuary area. (NJDEP 2004)

All 14 NYC WPCP are required to perform pollution minimization program for mercury if mercury results show detectable levels, and a subsequent high intensity monitoring sampling has at least one result of detectable mercury. Any plants with detectable levels of Hg in effluent were given a limit based on PQL of EPA Method 245.1 or 245.2. So far a pollutant minimization plan for mercury has not been performed. (NYSDEC 2004, NYCDEP—Lily Lee 2009)

The NJHDG worked with EPA and NJDEP to update the National Water Quality Criteria for Nickel. The standard was completed and submitted to EPA for review and approval. On December 20, 2006 the Region approved the nickel criteria subject to the results of consultation under section 7(a)(2) of the Endangered Species Act (ESA), as part of the overall approval of the State's triennial revisions. Since that time the Region has been working with the USFWS-NJ Field Office (USFWS) regarding the ongoing ESA consultation on NJ's adoption and EPA's approval of the nickel criteria for saltwater. A detailed Biological Evaluation (BE) was completed and provided to the USFWS. As a result of their review, the USFWS provided numerous comments and requests for additional information. A revised BE has recently been completed and will be provided to the USFWS.

***Planned Activities***: A meeting has been scheduled for March 2009 with the USFWS to discuss the BE and other ESA-related issues. Consultation must be successfully completed in order for EPA to be able to withdraw NJ from the National Toxics Rule (NTR) for nickel, and allow the state to implement its own adopted criteria. This has implications for the Bergen County Municipal Utilities Authority facility, which discharges to the Hackensack River and cannot meet the NTR-based nickel criteria.

(PVSC 2004; EPA—Wayne Jackson 2009)

The NJ Toxics Reduction Workplan (NJTRW) for the NY-NJ Harbor is the NJ component of the Contaminant Assessment and Reduction Program (CARP). Phase 1 included a set of ambient water quality, source loading, and hydrodynamic studies. All Phase I work has been completed and a report is available at http://www.state.nj.us/dep/dsr/njtrwp/. Phase II Special Studies involved trackdown of Hg in the Hackensack River, organic compounds above head-of-tide in the Elizabeth and Passaic Rivers, and in selected minor tributaries to the Passaic River. The USGS produced a report on Occurrence of Organic Compounds and Trace Elements in the Upper Passaic and Elizabeth Rivers and Their Tributaries. As a follow up to this report, additional sampling was conducted over the summer of 2008 in the Elizabeth River. At this point there are no plans or funds to do additional work. (NJDEP—Joel Pecchioli 2009)

All work and data collection was completed under the CARP program. A final report is available at http://www.dec.ny.gov/docs/water_pdf/carp.pdf. The data have been input to the CARP models that are being used in the development of TMDLs. The results of analyses have led to some trackdown of toxic loadings. (NYSDEC—Simon Litten 2009)

Possible/recommended targets of future trackdown efforts include PBDEs, PBDD/Fs, silver, and dioxin-like substances. Currently there are no plans to conduct additional trackdowns. (NYSDEC—Simon Litten 2009)

The NJHDG has completed Phase IV of the PCB trackdown in Linden Roselle Sewage Authority. Phase IV further narrowed the trackdown efforts to a smaller section of the sewer system. It also included one sample of stormwater entering the system. Based upon the results of Phase IV, the NJHDG have developed a workplan for Phase V. Phase V will include sampling of street dusts in the area of interest, additional stormwater monitoring and in sewer monitoring. The quality assurance project plan was approved in March 2009 and Phase V sampling is scheduled to begin in May of 2009. (PVSC—Bridget McKenna 2009)

The NJHDG will help to identify the levels of PCBs and Dioxin in municipal discharges. All POTW and CSO sampling is complete.

***Planned Activities:*** In December of 2007, the NJDEP modified some POTW NJPDES permits to require additional monitoring of PCBs in their plant effluents. The monitoring is being conducted over a two year period, beginning in December of 2007 and ending in December of 2008. Those POTWs with this permit requirement are monitoring their effluents six (6) times over the two year period. Three wet weather and three dry weather monitoring events are being conducted for each affected POTW. Results of the monitoring are due to NJDEP 30 months from December 2007. The NJDEP has indicated that all permittees discharging above background levels will be required to undertake a Pollutant Minimization Plan (PMP) for PCBs. All permittees in NJ discharging to a PCB impaired waterbody will have their permits include this monitoring requirement at their next renewal, if they do not have it already incorporated (see also T-8).

(PVSC—Bridget McKenna 2009)

HEP's Toxics Workgroup—which includes NJDEP, NYSDEC, EPA, and dischargers, is developing TMDLs for several toxics of concern in the Estuary. A Sub-Work Group is currently working with stakeholders to identify specific controls and management options that could be included in the toxics TMDL implementation plans to reduce toxics loads to the Estuary, which will address discharges by NPDES permit holders.

***Planned Activities***: TMDLs and corresponding implementation plans are expected to be completed in 2010. (HEP Office 2009)

## T-2. Reduce industrial discharges of chemicals of concern.

**Key Elements:** Permits for direct industrial dischargers to the Harbor/Bight contain technology-based limits expected to minimize the discharge of toxic chemicals. Indirect industrial discharges to the Harbor/Bight are subject to the Industrial Pretreatment Program.

### Description of Activities to Date

The HEP Toxics Workgroup is coordinating TMDL development for several toxics of concern in the Estuary that will limit discharges from direct industrial dischargers and other sources. See also description in T-1. (HEP Office 2009; EPA—Rosella O'Connor 2009)

NJPDES Point Source Permitting Region I handles most of the permits in the Harbor with Region II handling the Raritan and the Arthur Kill. (NJDEP 2004)

NYSDEC regional staff conducts regular inspections of their pre-treatment programs. (NYSDEC 2004)

The Pretreatment and Residuals Bureau deals with all the dischargers and their pretreatment programs in the Harbor Estuary Area. (NJDEP 2004)

NJPDES requires permits and sets limits on all dischargers for everything that is currently covered in NJ's Surface Water Quality Standards and any other contaminants of concern. (NJDEP 2004)

IEC conducts unannounced 24-hour industrial effluent surveys to check compliance of SPDES or NJPDES permit limitations. Concurrently, the Water Quality Regulations of IEC are checked for compliance. (IEC 2004)

HEP's Toxics Workgroup—which includes NJDEP, NYSDEC, EPA, and dischargers, is developing TMDLs for several toxics of concern in the Estuary. A Sub-Work Group is currently working with stakeholders to identify specific controls and management options that could be included in the toxics TMDL implementation plans to reduce toxics loads to the Estuary, which will address discharges by NPDES permit holders.

***Planned Activities***: TMDLs and corresponding implementation plans are expected to be completed in 2010. (HEP Office 2009)

## T-3. Minimize the discharge of toxic chemicals from CSOs, stormwater, and non-point sources (Note: see section on Rainfall-Induced Discharges)

**Key Elements:** In order to minimize the discharges of toxic chemicals from CSOs and stormwater effective abatement must occur to reduce the levels of metals and organic chemicals of concern. Full implementation of the final National CSO Control Policy and currently planned NY and NJ CSO abatement programs are expected to reduce discharges of toxics chemicals. Implementation of municipal and industrial stormwater permit programs is expected to reduce stormwater discharges.

### Description of Activities to Date

The HEP Toxics Workgroup is coordinating TMDL development for several toxics of concern in the Estuary that will limit discharges from CSOs, stormwater, non-point sources and other sources. See also description in T-1. (HEP Office 2009; EPA—Rosella O'Connor 2009)

NYCDEP has been the federally authorized Control Authority for the Industrial Pretreatment Program (IPP) within the City of New York since March 1987. The IPP was mandated by the Clean Water Act to apply uniform wastewater discharge limits for heavy metals, organic and inorganic chemicals, and other toxic components from industrial sources. NYCDEP currently regulates 231 facilities that discharge into its sewer system. (NYCDEP 2003, NYCDEP—Lily Lee 2009)

NYCDEP convened the Pollution Prevention Citizens Advisory Committee for more than 10 years. Its focus was on pre-treatment of industrial wastewater discharges to the NYC sewer system. This CAC was vital to the development of Best Management Practices to significantly reduce the discharges of toxic contaminants into the sewer system. (NYCDEP 2003) The last and final meeting of NYCDEP's CAC was held at the end of 2007 (NYCDEP—Lily Lee 2009)

NYCDEP has cooperated with the HEP CARP program to monitor toxic contaminants in treatment plant effluents, CSOs and stormwater. Sampling has identified where elevated levels of contaminants occur requiring further evaluation. A significant industrial source of PCB was identified and eliminated. (NYCDEP 2003)

All NYCDEP activities to reduce wet-weather discharges (see Section on Rainfall-Induced Dischargers) contribute to minimizing the discharge of toxic chemicals from CSOs, stormwater and non-point sources. (NYCDEP 2003)

The NJDEP is in the process of closing some CSOs in the Harbor Estuary area. The NJDEP implemented new Stormwater Regulations in 2004 and reissued municipal permits in 2009. These permits will greatly reduce the amounts of contaminants that reach the Harbor. (NJDEP 2004, NJDEP—Barry Chalofsky 2009)

Phase I of the NJTRW for the NY-NJ Harbor (see description in T-1) included sampling and analysis of. CSO/SWO data. This has been completed and a report prepared. (NJDEP 2004, NJDEP—Joel Pecchioli 2009)

HEP's Toxics Workgroup—which includes NJDEP, NYSDEC, EPA, and dischargers, is developing TMDLs for several toxics of concern in the Estuary. A sub-Work Group is currently working with stakeholders to identify specific controls and management options that could be included in the toxics TMDL implementation plans to reduce toxics loads to the Estuary, which will include discharges from stormwater, CSOs, and nonpoint sources.

***Planned Activities***: TMDLs and corresponding implementation plans are expected to be completed by the end of 2009. (HEP Office 2009)

NJDEP CNPCP's Clean Marina Program encourages marina owners, yacht clubs, boatyards and boaters to prevent and reduce nonpoint sources of pollution through education and outreach (see NPS-1) (CMP website http://www.state.nj.us/dep/cmp/czm_cnpp.html 2009).

## T-4. Reduce air emissions of chemicals of concern.

**Key Elements:** Current Clean Air Act requirements, such as the National Emission Standards for Hazardous Air Pollutants (NESHAP) and New Source Review (NSR), will significantly reduce toxic loadings into the air. NESHAPs cover air emissions from industrial sources. NSR rules limit emissions of criteria pollutants and many volatile organic compounds, and, in addition, regulate dioxin and furans from municipal waste incinerators. Both NY and NJ have 70 to 99 percent control requirements for many hazardous pollutants under their state implementation plan programs.

### Description of Activities to Date

NJDEP's New Jersey Atmospheric Deposition Network (NJADN) conducted a discrete sampling project that included PCBs, PAHs, organochlorine pesticides, and heavy metals. The project was completed and a final report issued in 2004 (http://www.state.nj.us/dep/dsr/njadn/). NJDEP continues to collect ambient data on certain air toxics, including mercury at several sites in the state. Some information on DEP's air toxics data and mercury emissions are available in the Trends Report (http://www.state.nj.us/dep/dsr/trends2005). There is also a mercury wet deposition site, funded by NJDEP operating in New Brunswick. Data are reported through the national Mercury Deposition Network (MDN) program, which is part of the National Atmospheric Deposition Program (NADP). Some of NJDEP's ambient mercury data were summarized by Aucott et al. in a report titled Ambient Elemental, Reactive Gaseous, and Particle-bound Mercury Concentrations in New Jersey, U.S.: Measurements and Associations with Wind Direction, Environmental Monitoring and Assessment (in press; see http://www.ncbi.nlm.nih.gov/pubmed/18951140). (NJDEP—Michael Aucott 2009)

Since Nov 01, the USACE, as part of the Regional Air Team, has worked towards compliance with the Clean Air Act's General Conformity Rule as it applies to the 50-ft Harbor Deepening Project. An unprecedented conditional statement of conformity was signed in Apr 02. New emissions inventories for the region are being compiled.

***Planned Activities:*** Develop mitigation strategies to reduce project emissions and offset emissions elsewhere within the non-attainment area. These include: repowering tugs, electrifying dredges, and retrofitting Staten Island ferries with selective catalytic reduction devices. In Spring 04 the statement of conformity for the first year of construction, detailing the specifics of the strategies, will be signed.

(USACE 2004)

Coordination with NYSDEC and NJDEP to rectify the omission of Corps Civil Works projects in the SIPS (State Implementation Plans).

***Planned Activities:*** Continuing coordination with the States and USEPA in the preparation of an Air Management Plan Phase I Report, discussing outcomes of coordination efforts to date and proposing preliminary guidance for General Conformity for Civil Works projects.

(USACE 2004)

In addition, there are ongoing efforts under the Harbor Air Management Plan associated with the Harbor Deepening Project to re-power harbor craft and retrofit ferries (see action D-2 for further details). (PANYNJ 2009)

## T-5. Remediate identified solid and hazardous waste sites.

**Key Elements:** Active and inactive solid and hazardous waste sites may contaminate the Harbor/Bight, but the available information has not been analyzed to determine which sites are contributing chemicals of concern. HEP recommends using available information to help set priorities for clean closures or remediation of sites contributing contamination to the Harbor/Bight.

### Description of Activities to Date

The NJDEP's Site Remediation Program is currently running their EQUIS Database, which is a GIS based program that has an inventory of active and inactive solid and hazardous waste sites in NJ contributing or potentially contributing toxics to the environment. (NJDEP 2004)

The Regional Dredging Team for NY-NJ Harbor has been working successfully to manage a program that encourages the beneficial use of all material dredged from navigation projects in the Harbor for use as capping and filling material at contaminated sites in the region. This is a multi-agency cooperative effort that has successfully placed over 13 million cubic yards of dredged material from public and private dredging projects. The amended dredged material has helped to remediate more than a dozen sites (Bayonne, Elizabeth, Penn and Fountain, Fresh Kills, Linden, Avon, Rutherford, Bellmawr, and Keegan Landfills; Koppers Seaboard; DuPont Grasselli; among others).

Dredged material is dewatered and mixed with pozzolanic additives to facilitate its use in the remedial process. This serves to stabilize the contaminants in the dredged material, and creates a low permeability fill that reduces leachate generation and stormwater erosion. The placement of dredged material also provides economic aid to the remedial process because a tipping fee is charged to take the material onto the site. This fee is used to fund the engineering controls required by the environmental agencies.

***Planned Activities:*** Continuation of the beneficial use of dredged material unsuitable for HARS to fill and cap landfills and Brownfields.

(NJDOT/OMR—Scott Douglas 2009)

## T-6. Track-down and clean-up chemicals of concern.

**Key Elements:** Track-down of chemicals of concern in the environment. HEP recommends that USEPA, NYSDEC, and NJDEP conduct screening for ambient levels of organic chemicals of concern and mercury, in the proximity to potential sources, using sensitive sampling techniques. They will also initiate procedures to track-down and eliminate the sources of the chemicals, giving priority to the most significant sources.

### Description of Activities to Date

NJDEP Activities- See NJ Toxics Reduction Workplan for NY-NJ Harbor activities discussed under Task T-1 (NJDEP 2004)

EPA provided funding to NYSDEC and NJDEP (total $412K over two years) for bi-state Harbor-wide effort. NYSDEC also committed approximately $575K under Environmental Protection Fund over three years to continue trackdown program. NYSDEC conducted various trackdowns, including DDT in the Wallkill River and pentachloro furan. One of these efforts led to the discovery of a pigment manufacturer as the source of PCB 11 to a POTW and to the facility discontinuing production of the pigment. (NYSDEC 2004, NYSDEC—Simon Litten 2009, HEP Office 2009)

The NJDEP and NYSDEC collected PISCES data from approximately 100 sites in the Harbor Estuary Area to find possible contaminated sites. A report was produced titled “Hudson River Toxics Trackdown Project: Contaminant Identification and Source Trackdown Utilizing Passive Sampling Techniques”. (NJDEP 2004, NYSDEC—Simon Litten & Chandler Rowell 2009)

The USACE has participated through the HEP in the CARP effort. (USACE 2004)

SPDES permits require all 14 NYC WPCPs to perform monitoring, trackdown and remediation of PCBs. This is a requirement of the pollutant minimization plan and monitoring is conducted during the annual priority pollutant scan for each WPCP. (NYSDEC 2004, NYCDEP—Lily Lee 2009)

The NJHDG has completed Phase IV of the PCB trackdown in Linden Roselle Sewage Authority and developed a workplan for Phase V. See details in T-1. (PVSC—Bridget McKenna 2009)

NYCDEP conducted a trackdown effort and developed a Pollutant Minimization Plan (PMP) for chlordane at the Oakwood Beach and Port Richmond WPCPs in 2006 as part of their SPDES requirements (see T-8). (NYSDEC 2004, NYCDEP—Lily Lee 2009

## T-7. Improve chemical/oil spill response and prevention.

**Key Elements:** In response to several large oil spills in the Harbor, in 1989 and 1990, the Governors of NY and NJ and the responsible federal agencies joined with industry to form the NY Harbor Bi-State Oil Spill Response and Prevention Conference. The Bi-State Conference prepared a final report, including findings and recommendations, to prevent oil spills and to more effectively respond when they do occur. Subsequently, in March 1994, the US Coast Guard adopted an Area Contingency Plan, incorporating the recommendations of the Bi-State Conference.

### Description of Activities to Date

No activities have been reported.

## T-8. Focus pollution prevention activities on chemicals of concern

**Key Elements:** Pollution prevention activities focus on eliminating the generation of waste at the source. HEP's plans for pollution prevention aims to focus programs both geographically and on HEP's chemicals of concern. Pollution prevention activities for sources close to the Harbor/Bight should target the most significant emitters of chemicals of concern. HEP will, given sufficient funding, assess the load reductions of chemicals of concern expected with implementation of HEP's plan for pollution prevention.

### Description of Activities to Date

HEP office worked with EPA to review TRI in order to identify the largest emitters of chemicals of concern. (HEP Office 2003)

NJPDES and the new Municipal Stormwater regulations that were adopted in 2004 will look at TRI and other data for industrial facilities in areas draining to the Harbor core area to identify the largest emitters of chemicals of concern. (NJDEP 2004)

SPDES permits require all 14 NYC WPCPs to perform monitoring, trackdown and remediation of PCBs. This is a requirement of the pollutant minimization plan and monitoring is conducted during the annual priority pollutant scan for each WPCP. (NYSDEC 2004, NYCDEP—Lily Lee 2009)

The NJDEP has a Best Management Practices Manual that is a non-regulatory tool aimed at reducing water pollution. (NJDEP 2004)

SPDES permits require all 14 NYC WPCPs to perform an annual priority pollutant scan that includes metals and organic chemicals. If pollutants are found at detectable levels in this scan, subsequent high intensity monitoring sampling is performed. If at least one result is at detectable levels, a pollutant minimization plan (PMP) must be developed. So far, only one PMP has been conducted for chlordane at the Oakwood Beach and Port Richmond WPCPs in 2006. (NYCDEP—Lily Lee 2009)

In accordance with NJ 7:14A-11.13, NJPDES permits require dischargers to PCB listed waterbodies to monitor PCB levels. If above background levels, dischargers need to develop and implement pollution minimization plan (PMP). Data is due to be submitted to NJDEP by the end of 2009. (EPA—Maureen Krudner 2009).

TMDLs for several toxics of concern in the Estuary are expected to be released shortly. Work has started to develop the corresponding implementation plans, which are likely to rely heavily on pollution prevention measures.

***Planned Activities***: TMDLs and corresponding implementation plans are expected to be completed in 2010. (HEP Office 2009)

## T-9. Identify and remediate selected contaminated sediments.

**Key Elements:** Contamination of sediments of the Harbor/Bight from past discharges contributes to adverse ecological effects. Based on the recently completed CARP model, contaminated sediments are significant sources of chemicals of concern, including dioxin, PCBs, and mercury. HEP endorses a comprehensive management approach to address these contaminants. To assess the public health and ecological significance of all sources of contaminants of concern.

## Description of Activities to Date

Reduction in sediment contamination is a Target Ecosystem Characteristic (TEC) highlighted within the Draft HRE CRP. Goals and restoration opportunities for isolation or removal of contaminated sediments within the HRE have been identified and will be consistent with recommendations of HEP's Regional Sediment Management Plan and Work Group. (USACE 2009)

The Lower Passaic River Restoration Project, a partnership formed in 2003 among the USEPA, USACE, NOAA, NJDOT, USFWS, and NJDEP, has been working to improve conditions in the lower 17 miles of this river. The project will provide plans to comprehensively restore the Lower Passaic River through Superfund and Water Resource Development Programs. This project is developing in parallel an "early action" or accelerated plan to address the most heavily contaminated sediments of the lower eight miles of the river. Activities that have been carried out to date include: a draft Focused Feasibility Study (FFS), sediment sampling and bathymetry survey to update & refine the conceptual site, adaptation of the CARP model for the Passaic River (including use of recent sediment data and calibration of the sediment movement model), the USACE/NJDOT Environmental Dredging Pilot, and Treatability Studies (thermal destruction and sediment washing technologies) and restoration planning efforts conducted by the USACE. Additionally, an agreement was recently signed with one of the potentially responsible parties (PRPs) to remove the most heavily dioxin-contaminated sediments from a small section of the river in front of the Diamond Alkali site.

***Planned Activities***: The following activities/deliverables are expected in the near future: a sediment characterization report (fall 09), data from the bathymetry survey to be submitted to EPA once the QA/QC is completed, ecological risk data collection and water quality monitoring are expected to take place in 2009 and 2010 after submittal and approval of quality assurance project plans (QAPPs), sediment stability evaluation and update of the conceptual site model (2009), FS work plan (March 09), final dredging pilot report (June 09), results of different remedial scenarios using the adapted CARP model (March 09), Focused Ecosystem Restoration Plan (summer 09). As part of the sediment removal agreement, in a first phase, 40,000 cubic yards of sediment from the Passaic River in the area most heavily contaminated with dioxins will be dredged and shipped off-site for proper disposal or treatment. During a second phase, another 160,000 cubic yards of sediment from adjacent areas will be dredged and placed in a confined disposal facility (CDF) within the site. Currently the PRP is working on the project design and work plan for phase I; field work for phase I is expected to start in summer 2010.

(HEP Office 2009, EPA—Alice Yeh 2009, USACE—Lisa Baron 2009)

The USEPA signed an agreement with Occidental Chemical Corporation in 2004 to perform a Newark Bay Study under the authorities of the Superfund program. This study will assess the nature and extent of contamination in the area and develop cleanup plans. Activities performed since the inception of the study include: two rounds of sediment sampling, a bathymetry survey and sediment profile imagery work to determine the biologically active zone; preliminary risk assessment work; development of a hydrodynamic and sediment transport model; development of several reports documenting these processes; community outreach; and development and upkeep of a website where all documents and materials, as well as other updates are posted.

***Planned Activities***: An evaluation of the data from the two rounds of sediment sampling is on-going. A deposition report, which will include an evaluation of the radiochemistry data from those two rounds, is due to be submitted in March 2009. Once that report is reviewed and approved, the work will begin to develop a data assessment report, which is expected to be submitted in the fall of 2009. Any remaining data gaps identified in that report will be addressed in a third round of sediment sampling.

(www.ournewarkbay.org, EPA—Elizabeth Butler 2009)

The NJDEP's Site Remediation Program is currently working on hundreds of active known contaminated sites that are located within the Harbor Estuary Area. Each site is being appropriately acted upon based on the levels and types of contamination. This program includes activities at the Lower Passaic River site (see below).

***Planned Activities***: continuation of the program.

(NJDEP 2004, NJDEP—Suzanne Dietrick 2009)

Phase II of the NJTRW included collection of bottom sediment samples in the Hackensack River for metals analysis. See also description under T-1. (NJDEP—Joel Pecchioli 2009)

At the request of HEP's Toxics Workgroup, the USACE NY District funded and performed a study of various contaminants of concern in 7 federal channels and 5 drydock areas.

***Planned Activities:*** Under the Hudson-Raritan Estuary effort, studies specific to the Gowanus Canal and Lower Passaic River (also identified under the Urban Rivers Restoration Initiative) will identify and assess strategies for remediation and restoration of benthic habitats through environmental dredging, decontamination, and capping. (USACE 2004, Malcolm Pirnie—*Draft Source Control Early Action Focused Feasibility Study, Lower Passaic River Restoration Project* Prepared for USEPA 2007)

One of the modules of the Toxics TMDL Implementation Plan Sub-Work Group (see description under T-1, T-2 and T-3) focuses on in-place sediments. This module, which includes agencies, NGOs, and other stakeholders, is charged with 1) Identifying the most prominent of these sites, 2) Determining their current remediation status, 3) Coordinating with appropriate regulatory agencies on remedial options and timeframes, and 4) Identifying maintenance and construction dredging projects that are expected to take place within the watershed over the next few years.

***Planned Activities***: TMDLs and corresponding implementation plans are expected to be completed by the end of 2009. (HEP Office 2009)

## T-10. Establish consistent methodology to assess risk and improve communication of fish advisories.

**Key Elements:** The States of NY and NJ set fishing advisories and restrictions intended to protect the public, including local fishing communities, from health risks due to consumption of locally caught seafood which may be contaminated with toxic chemicals. Effective communication of advisories is essential to minimize public health risks.

## Description of Activities to Date

NJDEP's Toxics in Biota Committee has worked with NYSDOH to determine the differences and similarities in advisory methodologies. Discussions and meetings have been held between NJ and NY, and data has been shared. NJDEP collected additional fish and blue crab data in shared waters of the harbor in 2004. Data were shared with NYSDOH and used to update advisories in 2006. Fish contaminant data generated by NYSDEC were also used by NJDEP for issuing fish advisories in the harbor area. Both states participated on a multi-state team examining the potential for consistent PCB advisories for striped bass and bluefish in coastal waters.

***Planned Activities***: Continued discussions and data sharing between NY and NJ to foster consistent advisories are planned.

(NJDEP—Gary Buchanan 2009)

Fish advisories for PCBs were revised in January 2003 based on revised criteria using EPA-guidance for risk-based assessments. NJ revised the criteria for dioxins, furans and pesticides in 2006. (NJDEP—Gary Buchanan 2009)

A brochure targeting women of childbearing age, pregnant women, nursing mothers and young children that may consume fish from the Newark Bay Complex was completed and distributed by NJ. Additional outreach efforts targeting crab consumers from the Newark Bay Complex were also completed in 2002 and 2003. These efforts included a press conference, public service announcements, sign postings, and grants to local groups for outreach efforts. Grants to local groups for outreach efforts in the Newark Bay Complex were issued in 2003, 2004 and 2005. Angler surveys were conducted in the Newark Bay Complex (2005) and in the Raritan Bay Complex (2006) to assess advisory knowledge and effectiveness, and fish consumption. The results indicate that even though anglers are still eating blue crabs in the Newark Bay Complex, the number has decreased considerably. In 1995, over 41% of respondents ate locally caught blue crabs; in 2005, less than 12% ate locally caught blue crabs. We believe this is due to outreach efforts by NJ. In the Raritan Bay Complex almost 80% of those surveyed consume what they catch.

***Planned Activities:*** Continued distribution of outreach materials by NJDHSS and NJDEP.

(NJDEP—Gary Buchanan 2009)

HEP CAC members have expressed concern about subsistence fishers not following fish advisories. A meeting has been proposed to involve, NJDEP, NYSDEC, the health sector, advocacy groups, and other interested parties in the discussion. (HEP Office, 2009).

## T-11. Review and develop criteria for copper and other priority chemicals.

**Key Elements:** Criteria need to be developed in regards to copper and other chemicals of concern in the Harbor/Bight. There are no generally accepted regulatory criteria for sediment quality. The USEPA has recommended that the states consider adoption of water quality criteria for dissolved metals.

Adoption of aquatic life-based criteria for metals has been completed by both NY and NJ. These criteria are expressed as the dissolved form of the metal. With regard to human health-based criteria, EPA and the States of NY and NJ have recently initiated an effort to develop site-specific bioaccumulation factors (BAFs) for a number of identified pollutants of concern. These BAFs can be applied to the current Statewide standards for these pollutants in order to tailor site-specific criteria which are more applicable to the waters of the NY/NJ Harbor. Following evaluation of these site-specific BAFs the States will determine whether or not potential revisions to the State water quality standards are merited.

### Description of Activities to Date

NYS adopted a site-specific standard for copper in 1998 for the Harbor. (NYSDEC 2004)

NYSDEC completed statewide adoption of WQS for dissolved metals and for a range of other substances, including bioaccumulative chemicals, based on Great Lake Water Quality Guidance. (NYSDEC 2004)

NJ proposed adoption of WQS Regulation including dissolved metals, but action was withdrawn. Adoption will be complete by FY 2000. NJDEP completed the adoption of aquatic life based criteria for metals, expressed as the dissolved form of the metal, in October 2006 (NJDEP- obtained from HEP tracking files, EPA—Wayne Jackson 2009)

Draft Wildlife Criteria were developed for PCBs, mercury and DDT and metabolites. Draft criteria were proposed in the NJ Register in November 2002. The draft criteria were not adopted pending efforts on developing implementation details. To date NJDEP has not re-proposed the wildlife criteria that were previously developed. (NJDEP 2004, EPA—Wayne Jackson 2009)

NYS adopted standards for dissolved lead and nickel in 1998. (NYSDEC 2004) and NJ has adopted standards for Nickel in 2006 (EPA—Wayne Jackson 2009).

## T-12. Assess ambient levels, loadings, and effects of chemicals.

**Key Elements:** This includes assessing whether a particular chemical is of concern in water, biota, and sediments, and assessing relative loadings. HEP is currently assessing sediment quality as well as levels of toxic contaminants in edible fish, crustacea, and shellfish throughout the Harbor. Additional information on continuing loads of organic chemicals of concern to the Harbor/Bight is needed.

### Description of Activities to Date

NJDEP's Division of Science, Research and Technology sponsored fish biomarker research to develop indicators of fish health and ecosystem quality to be used for long-term monitoring. The project was completed and the final report can be found at http://www.state.nj.us/dep/dsr/ecological/biomarker-final%20report%20yr2.pdf. (NJDEP—Gary Buchanan 2009)

Comparison of historical sediment and water contaminant data to ecological benchmarks has indicated potential adverse ecological effects. Toxicity testing has also indicated adverse effects of sediment contaminants on aquatic organisms. Comparison of NJTRWP contaminant data against ecological benchmarks, as well as the results of other evaluations (NOAA), has indicated there is risk to ecological receptors.(NJDEP—Gary Buchanan 2009)

HEP Toxics Workgroup completed its review of the CCMP (1996) water and biota chemicals of concern lists and revised them as needed; no action taken on the sediment list. (NJDEP 2004)

The USEPA assessed the sediment quality in the NY-NJ Harbor in 1993, 1994, and 1998 through REMAP. In 2003 this study was conducted again in order to look at the current conditions and trends in the data. A report is currently being prepared and is expected to be released in April 2009 and posted online at http://www.epa.gov/emap/remap/html/two/index.html. (HEP Office 2003, EPA—Darvene Adams 2009)

NY's 1999-2000 HEP tissue data was evaluated by NJ for NJ waters. Additional sampling was conducted for fish, shellfish and crustacean tissue in 2004 by NJDEP. Both data sets were used to update fish/crab advisories for NJ waters within the greater NY-NJ Harbor area in 2006. (NJDEP—Gary Buchanan 2009)

Data collection needs to support fish advisories were evaluated subsequent to collection and analysis of tissue data collected in 2004. Fish monitoring should be conducted on a routine basis to revise fish advisories and to monitor the effectiveness of contaminant cleanup and other management actions. (NJDEP—Gary Buchanan 2009)

NYCDEP continues the New York Harbor Water Quality Survey at current levels of efforts. The NY Harbor Water Quality Report is conducted annually and can be seen at http://www.nyc.gov/html/dep/html/news/hwqs.shtml. (NYCDEP—Lily Lee 2009)

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| NJDEP Activities- See NJ Toxics Reduction Workplan for NY-NJ Harbor activities discussed under Task T-1. New and improved low-level sampling and analytical methods developed and implemented. Loadings to be developed by Hydroqual as part of the CARP modeling effort. (NJDEP 2004) |
| NYCDEP has donated its System-Wide Eutrophication Model (SWEM) of NY/NJ Harbor and adjacent regions to the HEP CARP program to help assess ambient levels and effects of chemicals. (NYCDEP 2003) |
| NYCDEP's Harbor-wide Use and Standards Attainment Project is measuring water column and sediment toxicity in Flushing Bay and Creek, the Bronx River, Westchester Creek, Gowanus Canal and Newtown Creek. Other water bodies will be selected and analyzed for toxicity. (NYCDEP 2004) |
| NYCDEP has cooperated with electrical generators and users to inventory transformers as possible sources of PCBs. (NYCDEP 2003) |
| NYCDEP measures toxic metals and organic priority pollutants in the influent and effluent of the City's 14 wastewater treatment plants. For Bioaccumulation Chemicals of Concern at detectable levels, NYCDEP will conduct a High Intensity Monitoring Program and develop a Pollutant Minimization Plan as necessary. (NYCDEP 2004) This is an on-going requirement as per NYCDEP's SPDES permits (NYCDEP—Lily Lee 2009) |
| As part of a SPDES requirement, NYCDEP conducted a special monthly sampling at the Hunts Point, Newtown Creek, 26th Ward and Port Richmond wastewater treatment plants to evaluate contaminant levels and EPA analytical methodologies for PCBs. (NYCDEP 2004, NYCDEP—Lily Lee 2009) |
| NYCDEP carried out a stormwater monitoring and sampling plan for PCBs, toxic metals and other contaminants and developed trackdown programs as necessary. This led to identification and elimination of a significant industrial source of PCBs. (NYCDEP 2004, NYCDEP—Lily Lee 2009) |
| NJDEP Activities- See NJ Toxics Reduction Workplan for NY-NJ Harbor activities discussed under Task T-1. Loadings were developed by Hydroqual as part of the CARP modeling effort. Various reduction activity scenarios are being evaluated and potential load reductions estimated using the CARP matrix, a series of user-friendly, interactive spreadsheets based on the CARP model. (NJDEP 2004, HEP Office 2009) |

## T-13. Develop mass balances for metals and organic chemicals.

**Key Elements:** HEP recommends development of mass balances to assess the significance of current sources of organic chemicals and bioaccumulative mercury, as well as sediment flux, in causing exceedances of criteria.

## Description of Activities to Date

NJDEP Activities- See NJ Toxics Reduction Workplan for NY-NJ Harbor activities discussed under Task T-1. This data and the CARP model will be used to develop Phase II TMDLs, as needed. (NJDEP 2004)

The Contamination Assessment and Reduction Project (CARP) is a multi-agency program that is led by the Port Authority of NY/NJ and involves the USACE, EPA, NYSDEC, NJDEP, NJDOT- Office of Maritime Resources, NYS Empire State Development Corp., and Hudson River Foundation. This project involved a vast data collection effort for the Estuary to quantify current inputs and ambient levels of various contaminants that impact the quality of sediments, water, and biota within the Estuary. Models have been developed and calibrated against data, which simulate contaminant movement in the Estuary and can be used to predict future levels of contamination. (PANYNJ 2009).

Great Lakes Environmental Center (GLEC) received a HEP grant for $50,000 in 2003 to develop a PCB mass balance in 2 collection systems in the Harbor. GLEC performed this work in 2006 and the Final Report was submitted in March of 2007. The study included sampling at a large municipal wastewater treatment plant that includes industrial sources to its influent and the at a small municipal wastewater treatment plant that does not have an industrial source component. The results suggest that PCBs are distributed somewhat evenly throughout the environment and recommended further research into the transport of PCBs from the environment into municipal sewer systems. (HEP Office 2004, PVSC—Bridget McKenna 2009)