

Action Plan 18: Reducing Toxic Pollution

Problem

Although most of Buzzards Bay is considered pristine compared to other more developed estuaries, severe chemical contamination exists at several sites. One of the few marine Superfund sites in the country is located in New Bedford Harbor. The Bay contains the only fishing area in Massachusetts that is closed due to chemical contamination (others are closed because of pathogens). Most of the severely contaminated areas in Buzzards Bay are located within the Acushnet River watershed, which includes New Bedford, Acushnet, and Fairhaven. Some fresh water ponds and lakes are severely contaminated as well.

Thus, chemical contamination due to toxic metals and organic compounds continues to be a significant issue for Buzzards Bay, based on water, sediment and tissue quality investigations conducted between the 1990's and the present. The MA DEP's (2003) report entitled "Buzzards Bay Watershed 2000 Water Quality Assessment Report" details specific watershed and Buzzards Bay impacts due to contaminants, as measured by sediment and water quality testing, fish consumption advisories, shellfish harvesting and shellfish bed closures, primary and secondary contact recreational uses, and aquatic life use impairments. The federal Food and Drug Administration (FDA) has also issued guidance on "action limits" for contaminants in shellfish, fish and other food animals, based on human health risks.

Under the state's 303(d) program requiring evaluation of water quality in water bodies according to their intended human uses and ecological values, there are 13 freshwater, estuarine and marine water bodies in the Buzzards Bay watershed that are classified as Category 5 (the most severely contaminated) due to either heavy metal and/or priority organic pollutants (DEP, 2002). These embayments are:

- Acushnet River, Outlet Main Street culvert to Coggeshall Street Bridge (priority organics, metals, other pollutants);
- Apponagansett Bay, Dartmouth (priority organics, other);
- Clark Cove, Clarkes Cove, New Bedford, Dartmouth (priority organics, other);
- New Bedford Harbor, Coggeshall Street Bridge to Hurricane Barrier, Fairhaven/New Bedford (priority organics, metals, others);
- Outer New Bedford Harbor, Buzzards Bay waters landward of a line drawn from Ricketson Point to Wilbur Point (priority organics, non-priority organics, metals, others);
- Cornell Pond, Dartmouth (priority organics, metals);
- Long Pond, Rochester (metals);

- Noquochoke Lake, Main Basin, Dartmouth (priority organics, metals, others);
- Noquochoke Lake, South Basin, Dartmouth (priority organics, metals, others);
- Noquochoke Lake, North Basin, Dartmouth (priority organics, metals, others);
- Snipatuit Pond, Rochester (metals);
- Turner Pond, New Bedford/Dartmouth (metals, other);

Altogether, approximately 960 acres of fresh water and over 7.6 square miles of marine and estuarine waters are classified as Category 5 waters due to priority organic pollutants and/or metal contamination (see *Atlas of Stormwater Discharges in the Buzzards Bay Watershed*, Table 3, p. 9-10 for a list of Category 5 waters). Category 5 waters require a Total Maximum Daily Load, or TMDL, to be developed for the water body, which sets a limit on the daily input of pollutants to a water body. The 303(d) program is described further below (see Regulatory Programs) and in the Atlas.

There are many potential sources of toxic compounds and chemicals within the Buzzards Bay watershed. These include both point and non-point sources. Point-source discharges include sewage treatment facilities, industrial discharges, combined sewer overflows and storm sewers. Non-point sources include atmospheric fallout of contaminated dust particles and precipitation, contaminated groundwater, untreated stormwater runoff from developed areas of the watershed and other sources. Non-point sources are numerous, small, and generally unregulated inputs that discharge directly into receiving waters such as wetlands, streams and rivers, ponds and lakes, and the waters of Buzzards Bay itself. Examples of potential toxic pollution sources include, but are not limited to, the following:

- Boats, ships and other vessels that discharge or spill oil, fuel, wastes, cleaning fluids and other toxic substances into the waters of Buzzards Bay;
- Marinas, docks and piers where boat-washing, floor drains, refueling and other activities could cause spills or runoff of toxic substances into Buzzards Bay;
- Contaminated sediments and shellfish from areas of Buzzards Bay that were contaminated through human activities and are awaiting completion of cleanup;
- Sediments and water that contain toxic red tide algae and their cysts or spores;
- Stormwater runoff from developed areas of the watershed where toxic substances are used, stored, transported or fall out from the atmosphere;

- Agricultural activities involving the use of pesticides, fungicides, insecticides, herbicides and fertilizers based on sewage sludge which can contain high concentrations of heavy metals and organic pollutants;
- Landscaped areas, plant nurseries, and landscaping activities where pesticides, lawn care chemicals and fertilizers are used or stored;
- Contaminated groundwater, surface water or soils resulting from spills from underground storage tanks (USTs), industrial and commercial facilities and residences that use chemicals and fuel;
- MTBE-contaminated groundwater from service stations and refueling facilities;
- Transportation facilities where spills from fuel storage, refueling and service activities have occurred or where runoff carries toxic substances into wetlands or water bodies;
- Wastewater treatment facilities that discharge secondary treated wastewater into wetlands or water bodies, and septic systems that discharge wastes containing toxic substances into groundwater;
- Utilities, industries and vehicles that emit heavy metals, organic contaminants, nutrients, greenhouse gases and other pollutants into the atmosphere, followed by fallout into Buzzards Bay and its watershed;
- Medical and research institutions that generate hazardous waste that is not properly disposed of;
- Household and institutional hazardous waste that is not properly disposed of;
- Leachate or spills of heavy metals and other contaminants from point sources such as waste management facilities and landfills;
- Explosives, lead and other contaminants in soil and groundwater at munitions disposal sites and testing ranges (e.g., Massachusetts Military Reservation, Nomans); and
- Illegal dumpsites and discharges.

There is a growing body of evidence that such contaminants are contributing to the cumulative stress upon aquatic and marine ecosystems. Outside of the Superfund sites, the human health and ecological impacts of the contaminants found within the Buzzards Bay watershed are still not well understood. In part, this is because existing data are not readily available and in part because more information needs to be collected concerning sources, concentrations of contaminants generated by these sources, and the efficacy of existing state programs to mitigate or clean up contaminated materials.

Regulatory Programs

Toxic contamination is regulated through several national and state programs. Severe contamination involving highly toxic materials is regulated by the U.S.

EPA Superfund Program (under CERCLIS and RCRA) and the Massachusetts DEP. The U.S. EPA regulates both shallow and deep underground injection wells under the federal Safe Drinking Water Act amendments of 1996 (underground injection control, or UIC). Although there are no deep injection wells in Massachusetts, shallow injection wells used for disposal of industrial and commercial wastewater exist. The Massachusetts UIC regulations have been in place since 1982, and among the types of shallow injection wells of concern are floor drain discharges. Floor drain discharges are suspected of contaminating several water supplies in Massachusetts, and illicit floor drain discharges are not uncommon. The MA Division of Water Supply regulates and oversees injection wells, and provides guidance and assistance to owners of facilities with such discharges. The MA DEP Bureau of Waste Site Cleanup (BWSC) regulates underground storage tanks through its "Leaking UST Release Prevention Program" and requires operators of facilities that handle and store contaminants to prepare Spill Prevention Control Plans (SPCPs).

Point-source discharges above a certain discharge threshold require a permit from EPA's National Pollutant Discharge Elimination System (NPDES). Almost all industrial discharges are regulated by NPDES permits or their waste streams are discharged into public sewers. The NPDES Phase II program now regulates non-point sources including stormwater runoff, and communities must develop and implement stormwater management, stormwater pollution prevention plans (SWPPPs) and other control measures under the Phase II program (see Action Plan 2 – Stormwater Management). The U.S. Coast Guard oversees the emergency response to spills occurring on the water, and typically coordinates with local Harbormasters, the DEP, and Boards of Health (see Action Plan 19 concerning oil spill prevention and response).

Section 305(b) of the federal Clean Water Act requires states to report to the EPA, Congress and the public on the water quality of freshwater and coastal water resources in terms of whether they support their designated uses such as aquatic life support, fish and shellfish consumption, drinking water supply, and recreation (swimming, boating). Section 303(d) of the Clean Water Act also requires states to list waters that do not meet water quality standards and schedule them for development of a TMDL. A TMDL (Total Maximum Daily Load) establishes the maximum amount of a pollutant that can be introduced into a water body and still allow attainment of water quality standards. A TMDL also allocates acceptable pollutant loads among all potential sources. The sum total of all pollutant load allocations, including point and nonpoint sources, natural background loads and a margin of safety, cannot exceed the total maximum allowable pollutant load calculated for the water body (MA EEA, MA Year 2002 Integrated

List of Waters, September 2003). States can submit an Integrated List of Waters under both Sections 305(b) and 303(d). The five categories of water quality classification are:

NEEDS STYLE – CCMP NUMBERED

- 1) Unimpaired and not threatened for all designated uses;
- 2) Unimpaired for some uses and not assessed for others;
- 3) Insufficient information to make assessments for any uses;
- 4) Impaired or threatened for one or more uses but not needing a TMDL; and
- 5) Impaired or threatened for one or more uses and requiring a TMDL.

As mentioned above, Buzzards Bay has 13 freshwater, marine and estuarine water bodies that are classified as Category 5 waters due to metal and/or organic pollutants.

Reducing the sources and generation of toxic pollutants represents one of the most cost-effective ways to control toxic pollution. *“Pollution prevention can be defined as source reduction and other practices that reduce or eliminate the creation of pollutants through increased efficiency in the use of raw materials, energy, water, or other resources, or protecting resources through conservation. Source reduction allows for the greatest and quickest improvements in environmental protection by avoiding the generation of waste and harmful emissions and discharges. Source reduction makes the regulatory system more efficient by reducing the need for end-of-pipe environmental control.”* (WA DEC). Reduction of toxic sources also reduces the need for mitigation of impacts due to toxic pollution.

The Buzzards Bay Project’s work on toxic pollution has been limited to two areas: 1) the indirect benefits of our stormwater remediation program, which, although focused on fecal coliform bacteria, also reduces the discharge of many toxic contaminants. 2) a toxics use reduction program for businesses in the greater New Bedford area.

In 1993, the Buzzards Bay Project implemented the “Buzzard Bay Project Toxics Use Reduction Program” (BBP/TURP) with four years of funding support from the EPA through the Toxics Use Reduction Act (TURA) program. A steering committee of local and state officials and representatives from citizen monitoring groups led the effort. The program focused on providing outreach on the availability of technical resources for manufacturing and service sector businesses contributing waste streams to the New Bedford Publicly Owned Treatment Works (POTW), which treats municipal domestic and industrial wastewater. Outreach tools included a monthly newsletter (“Options”) and workshops.

A total of 15 different workshops targeted local industries and their toxic use reduction needs. Workshop topics included Materials Management and Chemical Reporting, Sustainable Manufacturing, Impacting Water Use, Clean Air Conference for Dry Cleaners, Metals Recovery and Abatement, Fats, Oils and Greases in the Waste Stream, Making Compliance Work for You, Pollution Prevention for Marinas and Boat Repair Facilities, Pollution Prevention Day, Solvent Degreasers, Wastewater Treatment in New Bedford and BOD Discharge into the Waste Stream for Fish Processors.

The BBP Toxics Use Reduction Program has helped to reduce toxic pollution in significant ways:

Businesses in the New Bedford area became aware of state regulations and technical assistance programs, including grant opportunities and awards;

A pretreatment program for industrial wastewater at the New Bedford POTW and elimination of dry weather discharges was successful, resulting in dramatic reductions of toxic discharges to Buzzards Bay.

The BBP TURP program helped a textile dye facility (Brittany Dye in New Bedford) to obtain a U.S. Department of Energy NICE³ grant for \$425,000 that enabled the business to modernize their textile production process, reduce toxic discharges, increase energy efficiency and increase production.

Containment of the PCB hot spot in New Bedford Harbor has helped to reduce dispersal of toxics into Buzzards Bay.

Companies significantly reduced their toxic waste streams and several were recognized through the Governor’s Award for Toxic Use Reduction; The program created a repository of useful information from EPA and State environmental agencies;

The successes in New Bedford have raised awareness of the value of reducing toxics use and the environmental benefits of pollution prevention and waste reduction.

In 1997, the BBP ended its Toxic Use Reduction program due to cutbacks in federal funds. Nevertheless, there is a need to continue the Toxic Use Reduction program.

This Action Plan addresses control, management and reduction of toxic pollutants from a variety of point and non-point sources (excluding stormwater management, see Action Plan 2). Contamination issues related to the New Bedford superfund site are addressed largely in the Action Plan for reducing toxic pollution in New Bedford (see Action Plan 21).

Background

Many kinds of contaminants can harm ecosystems and/or humans. Scientists often divide contaminants into two major classes: 1) metals and other inorganic elements and compounds that lack carbon atoms, and 2) organic compounds characterized by having at least one carbon atom in their structure. Organic contaminants include hydrocarbons, petroleum products, organic solvents, pesticides, PCBs, dioxin, and many other substances that can harm living organisms, humans and ecosystems through direct toxic effects on physiological functions. Since the 1940s, mankind has released over 70,000 synthetic chemicals into the environment. Although there are many beneficial uses for these chemicals, their effects may include cancer, genetic changes, and birth defects in human and marine organisms. The EPA has designated certain contaminants as “Priority Pollutants” due to their toxicity to humans and ecosystems. These chemicals have multiple routes of entry into the aquatic and marine environment, which complicates identification of the relative contribution of toxicants from specific sources.

A second toxic contaminant category includes naturally formed biological toxins, such as the toxins formed by red tide-causing dinoflagellates, certain blue-green algae, and other harmful algae. For toxic substances, toxicity varies depending on the nature of the toxin or poison and how it affects physiology, concentration (dose), the exposure mechanism, species-specific sensitivity, and the speed at which the toxic effects become manifested.

A third contaminant category includes various substances that are not necessarily toxic at low concentrations but which may cause toxic impacts on aquatic ecosystems at higher concentrations or if they are suddenly introduced into an ecosystem. Examples in this category include road salt, de-icing agents, and additives to drinking water or wastewater (e.g., copper sulfate, alum, hydroxides, chlorine, others).

Yet a fourth contaminant category includes so-called “emerging pollutants”; that is, substances suspected of causing biological and/or ecological impacts but needing further research to confirm the extent of effects in nature (e.g., endocrine disrupting compounds or estrogens, found in many pharmaceuticals, personal care products, organic chemicals and wastewater; surfactants; and others).

Methyl-tertiary-butyl-ether (MTBE): MTBE was a gasoline additive which was required in order to increase fuel efficiency and cut down on internal combustion emissions to the atmosphere. However, the use of MTBE resulted in widespread MTBE contamination of groundwater throughout the nation due to its high mobility in groundwater. This unanticipated effect caused it to be withdrawn from use, but MTBE-contaminated groundwater plumes may still exist in the Buzzards Bay

watershed, as such plumes are known to exist outside the watershed. Typically such groundwater plumes are associated with refueling stations or activities where MTBE-fuel was formerly sold or utilized. The operation, maintenance, and sale of such facilities is subject to state standards, including the Massachusetts Contingency Plan (MCP) regulations, known as 21E, which require site investigations in the event of a spill or change of ownership.

Regulation of Toxic Contaminants

Broad changes in state policies, including the enactment of TURA in 1989 and stricter state enforcement of discharges of toxic materials, have resulted in a tremendous reduction in the use and discharge of toxic materials. In 1989, the Massachusetts legislature enacted the Massachusetts Toxics Use Reduction Act (TURA) to help the industrial and commercial sectors to reduce their use of toxic substances in order to reduce toxic contamination. TURA required Massachusetts companies and industries that use large quantities of toxic chemicals to inventory their toxics and to develop a plan to reduce toxics use and storage. Such companies were also required to evaluate their efforts and update their toxics use reduction plans every other year. TURA set the following goals for users of toxic substances:

- Reduce the generation of toxic waste by 50 percent statewide (this was accomplished in 1998),
- Establish Toxics Use Reduction (TUR) as the preferred means for achieving compliance with federal and state environmental, public health and work safety laws and regulations;
- Provide and maintain competitive advantages for Massachusetts businesses, both large and small, while advancing innovation in cleaner production techniques;
- Enhance and strengthen environmental law enforcement across the state; and
- Promote coordination and cooperation among all state agencies that administer toxics-related programs.

Toxic compounds regulated under TURA include those compounds listed in Section 313 of the Emergency Planning and Community Right to Know Act (EPCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or “Superfund”), excluding compounds that have been delisted by the Administrative Council on Toxics Use Reduction. There are more than 300 listed compounds (see “Massachusetts Toxics Use Reduction Act, Reportable Chemical List, available at <http://www.mass.gov/dep/toxics/tura/reportsum.htm#chemicals>).

Other Pollution Prevention Approaches

Other pollution prevention approaches that help to reduce the waste stream of toxics include recycling of reusable solid waste, and providing proper disposal facilities for household hazardous waste and used motor oil. Most communities in the Buzzards Bay watershed appear to provide recycling services (both curbside and/or central drop-off facility), which may vary from community to community in the type of recyclables collected. Not all communities provide central facilities for the drop-off of household hazardous wastes and used motor oil; hazardous waste drop-off facilities are located in Acushnet, Bourne, Dartmouth, Fairhaven, Falmouth, Massachusetts Military Reservation, New Bedford and Rochester. A number of commercial auto service businesses also provide drop-off facilities for used oil, such as AutoZone (East Wareham, Fairhaven), Napa Auto Parts (Wareham, Falmouth), and others.

Major Issues

Some specific toxic contamination issues in Buzzards Bay are being addressed or reviewed by regulatory agencies. These include remediation of the Superfund site in the Upper Acushnet River and attention to sewage treatment problems in New Bedford. The latter includes upgrade of the treatment facility from primary to secondary, development of a plan for controlling combined sewer overflows, and aggressive pursuit of a pretreatment program. Ongoing review of NPDES permits allows for incorporation of best available technology or best management practices to reduce wastes in discharges. This technology-based approach must be balanced with water quality-based controls. Sometimes effluent limitations by themselves will not be stringent enough to meet water quality standards. In these cases, pollutant-specific standards will be necessary to achieve or maintain the beneficial uses of the Bay.

Once toxic chemicals get into the marine environment, they are difficult to remove. One estimated cost for remediation of PCBs from the New Bedford area range from \$30 million for removal, treatment, and incineration of the hot spot sediments to more than \$300 million for a similar effort to remove, treat, and/or cap sediments contaminated down to 1 ppm. Most speculate total cleanup costs will be closer to \$100 million. Preventing contaminants from reaching the marine environment is cheaper and more protective. Massachusetts has recently passed a Toxics Use Reduction Act that requires a 50% reduction in hazardous wastes in discharges by the year 1997 and provides for a funding mechanism to do so. A pilot project in the Taunton and Fall River areas was successful in reducing metal discharges from jewelry manufacturers. Other areas of the country have implemented toxic audit program to assist small businesses and industries in reducing both the use and generation of toxic materials.

Toxic contaminants associate with particles and accumulate in the sediments, where they remain for long periods. Human activity or natural processes may bury, or resuspend these sediments. Marine organisms may eat sediments and the contaminants absorbed directly.

In 1993 Massachusetts adopted the Massachusetts Contingency Plan (MCP) and supporting regulations (310 CMR 40) to create a regulatory framework for cleaning up existing and future hazardous waste sites in Massachusetts. The purposes of the Massachusetts Contingency Plan are to "provide for the protection of health, safety, public welfare and the environment by establishing requirements and procedures" for the cleanup and evaluation of hazardous waste sites.

It outlines the schedule and procedures to be followed at disposal sites to undertake necessary and appropriate response actions to provide protection of health, safety, public welfare and the environment. Massachusetts has adopted criteria for sediment contamination under the Massachusetts Contingency Plan. The development of chemical-specific cleanup standards for use under the Massachusetts Contingency Plan (MCP) represents an important piece of the effort to streamline the site assessment and remediation program. The MCP Numerical Standards provide a simple means to determine whether remediation is necessary at a site and when no further remedial response action is necessary.

There are a number of critical unknowns in defining risk to humans from eating contaminated seafood. Based on the conclusions from the Symposium on Chemically Contaminated Aquatic Food Resources and Human Cancer Risk held by the National Institute of Environmental Health Sciences, some basic approaches are available that are more appropriate than our past approaches. The recommendations include, but are not limited to, locating sources of carcinogens in water, suspended and sedimented particles; identifying biochemical markers in seafood as indicators of organisms of concern; and pursuing specific research studies that link environmental neoplasms (cancerous tissues) to specific causes. Many of these recommendations require resources at a national level. Nonetheless, some of the actions will be of direct benefit to Buzzards Bay communities and are included in this section.

TURA facilities should continue to be monitored. Regarding statistics on compliance, MA DEP (personal communication, June 2006) states that "Most TURA enforcement actions are taken out of MA DEP's Boston Office for failure to file a complete annual Toxics Use Report and/or bi-annual Plans Update. Below are numbers for the two most recent complete years (state fiscal years 2004 and 2005) for TURA reporting compliance:

For Fiscal Year 2004:

675 reports were reviewed, and 44 enforcement actions were undertaken, including:

35 lower level enforcement actions (i.e., Notice of Noncompliance); and

9 higher level enforcement actions (i.e., Administrative Consent Order with Penalty) with \$11,250 in penalties assessed.

For Fiscal Year 2005:

647 reports were reviewed, and 46 enforcement actions were undertaken, including:

- 37 lower level enforcement actions (i.e., Notice of Noncompliance); and
- 9 higher level enforcement actions (i.e., Administrative Consent Order with Penalty) with \$27,250 in penalties assessed”.

These statistics indicate that enforcement must continue to be done in order to ensure that companies subject to TURA comply with state and federal regulations.

In addition, TURA only applies to certain types of businesses that use more than threshold amounts of listed toxic chemicals (i.e., companies that manufacture or process 25,000 pounds per year or more of a listed chemical, and companies that use 10,000 pounds per year or more of a listed chemical) and have 10 or more employees. Other businesses or facilities that use less than the threshold amounts of toxic chemicals, particularly small businesses that have fewer than 10 employees, are not subject to TURA, and such types of businesses may be a significant but unknown source of toxics.

Despite the achievements of the BBP Toxics Use Reduction Program, federal funding cuts in 1997 ended the program. Yet there are many toxics issues that need to be addressed, including:

Developing comprehensive standards for allowable concentrations of contaminants, including whole fuel mixtures of compounds, in fish and shellfish and in particular developing action levels for mixtures of toxic compounds (i.e., petroleum, fuel, oil, etc.);

Eliminating boat waste oil;

Reducing and eliminating hazardous leachate from landfills;

Improving seafood-testing and regulation at the local, state and federal levels to address a comprehensive array of toxic compounds;

Meeting all local, state and federal action levels for water and seafood;

Expanding the existing state program for testing fresh water fish to all of the municipalities within the Buzzards Bay watershed in order to develop a regional “Fish Closure Map”.

Improving enforcement of TURA requirements for inventorying and reporting.

Inventorying non-TURA toxics sources for the purpose of managing these sources if necessary,

and providing outreach and training to the stakeholders involved.

Expanding the Buzzards Bay Toxics Use Reduction Act (TURA) program to other communities in the Buzzards Bay watershed.

Ensuring that all communities have comprehensive, user-friendly programs for pickup, recycling and proper disposal of household hazardous waste;

Ensuring that all communities have drop-off facilities for residential hazardous wastes;

Finalizing, adopting and implementing sediment quality criteria to facilitate cleanup and/or mitigation and to prevent further degradation of sediment quality;

Inventorying potential groundwater contamination from 21Es and other contaminated sites for the purpose of evaluating whether remediation activities are helping to protect Buzzards Bay or whether remediation efforts need to be expanded.

Comparing toxics releases from sources within the watershed and outside the watershed, to determine whether “interwatershed” or interstate actions are needed to address toxic pollution (e.g., are activities conducted outside the Buzzards Bay watershed contributing to environmental decline within the watershed? For example, are emissions from outside the watershed resulting in atmospheric deposition of nutrients and pollutants in the watershed and in the Bay?).

Action Plan 18: Reducing Toxic Pollution

This Action Plan focuses on reducing and eliminating toxic inputs into the Bay in order to improve Bay conditions and minimize the costs of cleanup and mitigation. Both point and non-point sources of toxics are addressed.

Several other action plans provide recommendations that are directly related to this issue, including those for reducing oil pollution, managing dredging and dredged material disposal, managing wastewater industrial discharges and managing stormwater runoff.

Goal

Goal 18.1. Protect public health and the bay ecosystem from the effects of toxic contamination entering Buzzards Bay.

Objectives

Objective 18.1. To reduce the amount of toxic contamination entering Buzzards Bay and water bodies listed under the 303(d) program.

Objective 18.2. To reduce hazardous discharges from point sources of toxic contaminants into the Bay.

Objective 18.3. To reduce hazardous discharges from nonpoint sources of toxic contaminants into the Bay.

Objective 18.4. To meet all state, federal, and local action levels for water and seafood.

Objective 18.5. To improve local, state and federal regulation and control of seafood quality and sediment quality to protect human health and the environment.

Recommendations and Commitments

Buzzards Bay National Estuary Program

Recommendation 18.1. The Buzzards Bay NEP should continue to work with Buzzards Bay watershed communities to promote the implementation of water savings and toxics reduction programs.

Explanation: [needs text].

Priority: High.

Responsible agent(s): Buzzards Bay NEP should assist communities (Water Utilities, Boards of Health, Planning Boards) in encouraging and implementing such programs. A model water savings toxics reduction program may be needed to assist municipalities in designing their own program (Buzzards Bay NEP staff working with technical experts).

Commitments: None.

Legislation required: No.

Estimated costs: Not defined.

Potential funding: NA.

Implementation strategy: Integrate this action item with similar action items in the Action Plan for LID, Smart Growth and Managing Water Supply Withdrawal Impacts.

Measuring success: Adoption of a comprehensive water savings toxics reduction program in every municipality, addressing all toxics users/generators.

Schedule: Within three years.

Comments: None.

Recommendation 18.2. The Coalition for Buzzards Bay should implement an outreach campaign to homeowners to identify common household toxic and hazardous materials and provide guidance on proper disposal and safer alternatives.

Explanation: [needs text].

Priority: High.

Responsible agent(s): Coalition for Buzzards bay

Commitments: None.

Legislation required: None.

Estimated costs: Not defined.

Potential funding: NA.

Implementation strategy: Develop outreach materials and a mechanism for outreach. Work with municipalities to coordinate outreach effort.

Measuring success: Outreach performed within three years.

Schedule: Within three years.

Comments: This recommendation will help protect human health and the environment, and to help communities improve water quality in 303(d)-listed impaired waters. The Commonwealth passed a Toxics Use Reduction Act (TURA) in 1994 that set a goal of 50% reduction of hazardous wastes by the year 1997. This goal was met and even exceeded. Unfortunately in New Bedford, increasing water costs and an economic downturn caused manufacturing plant closings, but other industries adapted and implemented water savings and toxics reduction programs. Outreach should emphasize that safe disposal of toxic substances will help to protect clean water and help to improve 303(d)-listed impaired waters.

Recommendation 18.3. The Buzzards Bay NEP should develop a detailed GIS database inventory of active 21E, Superfund sites, other regulated sites with contaminated groundwater and surface water, and facilities with Underground Storage Tanks (USTs) for the Buzzards Bay watershed.

Explanation: [needs text].

Priority: Medium

Responsible agent(s): Buzzards Bay NEP staff, MA DEP, EPA, and BBAC, working with local municipal officials (e.g., fire, health, environment.); In addition, support roles for Buzzards Bay NEP are identified within subsequent recommendations listed below.

Commitments: None.

Legislation required: None.

Estimated costs: Cost of developing a GIS-compatible inventory (\$50K?)

Potential funding: NA.

Implementation strategy: Utilize MassGIS records, DEP and EPA records, municipal records, proprietary software and search services (e.g., Environmental First Search, others) to obtain and collate information on sites.

Measuring success: Up-to-date GIS-compatible inventory of contaminated sites, USTs and pollution sources for each municipality in Buzzards Bay.

Schedule: Inventory completed within five years.

Comments: The inventory should be utilized to require and monitor cleanup and pollution prevention activities at these facilities. Local fire and emergency officials may already possess detailed inventories of such facilities on a town-by-town basis; if so, these inventories should be collected into a single GIS-compatible database and shared with state and federal environmental and health officials to facilitate emergency response to spills. If local detailed inventories do not exist, municipal officials should be encouraged to develop such inventories.

Commonwealth of Massachusetts

Recommendation 18.4. DEP should enforce new and existing regulations that prohibit vessels from discharging oily bilge water to the environment. Full implementation of regulations should help to improve water quality in 303(d)-listed impaired waters.

Explanation: [needs text].

Priority: High.

Responsible agent(s): DEP.

Commitments: None.

Legislation required: None.

Estimated costs: May need to add DEP staff and/or expand DEP capability to implement and enforce new regulations.

Potential funding: NA.

Implementation strategy: Not defined.

Measuring success: Active implementation and enforcement of the legislation; elimination of oil spills; reduced risk of accidents resulting in releases of oil or other toxics to the Bay.

Schedule: Immediately implement the new legislation.

Comments: None.

Recommendation 18.5. DEP should fund the construction of a facility along New Bedford Harbor that accepts oily bilge water for recycling and treats it at an affordable rate to boaters and the fishing fleet.

Explanation: [needs text].

Priority: High.

Responsible agent(s): DEP, CZM

Commitments: None.

Legislation required: None.

Estimated costs: Funding for design, permitting, and construction, of an oily bilge water-collection and treatment facility (on the order of \$500,000?). Operations and maintenance costs should be supported through boater fees and/or watershed zoning user fees.

Potential funding: EPA?

Implementation strategy: Provide outreach to boaters through harbormaster notices, public workshops, media outlets, and website.

Measuring success: Majority of recreational boaters are aware of oily bilge water collection facility, based on survey, and utilize it, based on business records for the facility compared with harbormaster records of moorings and slips that measure boating activity.

Schedule: Facility Built within five years.

Comments: Vessel owners often discharge oily bilge water because existing collection services are too expensive. This measure should help to improve water quality in 303(d)-listed impaired waters.

Recommendation 18.6. DEP and EPA should require that marinas and other industrial facilities that handle or store hazardous wastes comply with Phase II

stormwater NPDES permits and regulations requiring nonpoint source pollution control measures, spill prevention plans, and emergency response plans that incorporate spill response and spill control.

Explanation: [needs text].

Priority: High.

Responsible agent(s): DEP (shallow injection well control; spill response and prevention, drinking water protection); EPA (NPDES Construction General Permits, Stormwater Pollution Prevention Plans); municipal officials involved in permitting and response (e.g., Building Inspectors, Boards of Health, Harbormaster, fire departments, highway departments, and others); BBAC and BBP (outreach and coordination).

Commitments: None.

Legislation required: None.

Estimated costs: Costs of developing an inventory of such facilities (may overlap with other Action Items already mentioned); providing outreach

Potential funding: NA.

Implementation strategy: Provide outreach targeting waterfront facilities that handle and/or store hazardous wastes.

Measuring success: Outreach program successfully informs facility owners and encourages development of spill prevention and control plans.

Schedule: Within three years.

Comments: None.

Recommendation 18.7. MA EEA should coordinate with the Massachusetts Department of Public Health (DPH) to review the current seafood-testing program and develop recommendations for future actions.

Explanation: [needs text].

Priority: High.

Responsible agent(s): MA EEA, MA DPH; FDA; EPA; seafood industry should be involved.

Commitments: None.

Legislation required: Requires that expanded seafood quality criteria be proposed. Requires a peer review process and a public process for comments and responses.

Estimated costs: Not defined.

Potential funding: NA.

Implementation strategy: Not defined.

Measuring success: Adoption of expanded, more protective criteria for seafood safety, including quality criteria for a wider range of compounds and mixtures (i.e., "fuel oil")

Schedule: By end 1998.

Comments: Encourage exercises in spill response, control and prevention. This measure should help to restore water quality in 303(d)-listed impaired waters. Criteria should be developed not only for specific compounds but also for mixtures of compounds, in particular fuel oils and petroleum.

Recommendation 18.8. DEP should establish sediment quality criteria for Buzzards Bay, as part of an overall effort to identify and protect important coastal and marine resources.

Explanation: [needs text].

Priority: Medium.

Responsible agent(s): MA DEP and/or MA CZM should adopt sediment quality criteria.

Commitments: None.

Legislation required: Requires a public process involving comment and responses concerning the proposed criteria.

Estimated costs: Not defined.

Potential funding: NA.

Implementation strategy: A draft policy has been created but not implemented. There is sufficient guidance and science now to identify suitable sediment quality criteria, based on NOAA, EPA, USGS and other states' and other nations' draft and interim sediment quality guidance.

Measuring success: Adoption of final sediment quality criteria, reflecting decades of research by NOAA, EPA, USGS and others, and incorporating toxicity values and biological impacts of contaminated sediments.

Schedule: Adopt sediment quality criteria by the end of 2008.

Comments: Existing draft sediment quality criteria can be utilized. There are currently no sediment quality criteria at the state or national level, despite abundant data concerning existing sediment quality and potential impacts of contaminants in sediments. The lack of criteria makes it impossible to evaluate and improve contaminated sediments outside of Superfund areas.

Recommendation 18.9. DEP should evaluate and prioritize risks from point sources of pollution (e.g., waste handling facilities, discharges, landfills, etc.) to determine if measures are needed to manage these sources to protect water supplies, or other resources and habitat.

Explanation: [needs text].

Priority: Low.

Responsible agent(s): DEP, working with a Buzzards Bay Toxics Action Committee.

Commitments: None.

Legislation required: None.

Estimated costs: Costs of evaluation.

Potential funding: NA.

Implementation strategy: Watershed risks from point sources should be evaluated and prioritized, with recommendations for mitigation. A review committee should be set up, composed of DEP staff, Toxics Action Committee members, and other qualified people, to scope and review the assessment study and its recommendations. Recommendations should be implemented.

Measuring success: Development of report on risks from non-point sources.

Schedule: Within three years.

Comments: Point sources located near water resources should be prioritized for review.

Federal Agencies

Recommendation 18.10. NRCS and EPA should expand education and outreach programs to minimize the use of pesticides and fertilizers to minimize offsite impacts.

Explanation: [needs text].

Priority: Medium

Responsible agent(s): UMass extension, NRCS, lawn care products vendors and manufacturers, golf course managers, qualified consultants in IPM, BBAC (for municipal users), gardening clubs and associations, etc.

Commitments: None.

Legislation required: No.

Estimated costs: Not defined.

Potential funding: NA.

Implementation strategy: Form Steering Committee composed of representatives from these sectors. The Committee will develop a Work Plan and a schedule of milestones for deliverables and activities to be conducted to reduce the use of pesticides wherever they are used. An outreach strategy could be used to target and educate all pesticide users. Examples of outreach programs that encourage minimizing pesticides and fertilizers include Greenscapes (North-South Coastal Watershed Association, Massachusetts Bays Program), Falmouth Friendly Lawns, and programs developed by the Massachusetts Audubon Society and others.

Measuring success: Monitor actions of steering committee.

Schedule: Form Steering Committee by end of 2008 to guide activities.

Comments: Typical users include landscapers, golf courses, farmers, turf care product manufacturers and vendors, homeowners, municipalities and others. The goal is to develop and implement strategies to minimize the use and potential off-site impacts of pesticides (including insecticides, herbicides, fungicides) and fertilizers. The use of Integrated Pest Management (IPM) and alternative organic approaches should be encouraged for landscape maintenance for residential homeowners, golf courses, agriculture, landscapers, and institutional facilities. IPM outreach should focus on the cost benefits of using less fertilizer and pesticide and using appropriate chemicals in sensitive areas. The NRCS has an ongoing technical assistance program to train and help farmers to utilize IPM methods that minimize use of such chemicals. However, action on implementing BMPs from flow-through cranberry bogs (that is, bogs where pesticide runoff cannot be adequately managed) has been hindered by the expense of creating river bypasses and wetland permit obstacles. Other users and vendors should also be targeted for outreach, however, since the use of such pesticides and fertilizers is not limited to farmers. Actively landscaped areas in the watershed, however, will continue to increase over time. Examples include golf courses; landscaped areas of institutions, parks, schools and other public and private facilities; plant nurseries, etc. Thus, this updated goal is to target all users of pesticides within the watershed. This action item will help to improve water quality in 303(d)-listed impaired waters.

Municipalities

Recommendation 18.11. All municipalities in the Buzzards Bay watershed should establish and implement a program of toxic-waste reduction for all industries and facilities that discharge directly into receiving waters or sewage treatment facilities, regardless of whether or not they meet TURA threshold criteria for regulation.

Explanation: [needs text].

Priority: Medium.

Responsible agent(s): Municipalities (Boards of Health, Planning Boards) should develop and implement a toxic waste reduction program if not already in place. DEP, working with Buzzards Bay NEP and the BBAC, should identify these non-TURA facilities that generate and/or use toxics. Outreach is needed, possibly with the assistance of non-profit organizations specializing in toxics use reduction (Toxics Use Reduction Institute?).

Commitments: None.

Legislation required: Local regulations may need to be revised to address small non-TURA toxics users/generators.

Estimated costs: None for municipal adoption of toxics reduction measures aimed at non-TURA toxics users/generators.
Potential funding: Funding may be needed for implementing enforcement of measures.
Implementation strategy: Not defined.
Measuring success: Effective program of toxics reduction for small, non-TURA businesses and facilities that use/generate toxics.
Schedule: Initiate program within two years.
Comments: This action item will help to improve water quality in 303(d)-listed impaired waters.

Recommendation 18.12. All municipalities in the Buzzards Bay watershed should implement a comprehensive program for pickup of boat waste oil should be immediately developed and implemented.

Explanation: [needs text].
Priority: Medium
Responsible agent(s): Municipalities, working with marinas, residential dock and boat owners. To set up a boat waste oil system, the existing system of receiving boat waste oil at municipal hazardous waste recycling facilities or commercial facilities (e.g., boat supply stores, marinas, refueling stations) should be expanded.
Commitments: None.
Legislation required: None.
Estimated costs: Costs to set up additional collection, handling and recycling of boat waste oil.
Potential funding: NA.
Implementation strategy: Not defined.
Measuring success: Expanded collection facilities.
Schedule: Within three years.
Comments: Automobile waste oil has been handled well, but boat waste oil has not, with the exception of a successful boat bilge sock program undertaken to address oil in bilge water by distributing free bilge socks to boat owners in Buzzards Bay communities. This action item will help to improve water quality in 303(d)-listed impaired waters.

Recommendation 18.13. All municipalities should have a program for collection and proper disposal of household hazardous waste on a continual basis.

Explanation: [needs text].
Priority: High.
Responsible agent(s): All municipalities should adopt such a program.
Commitments: None.
Legislation required: None.
Estimated costs: Costs of establishing a new or expanded disposal facility, including staffing and operating costs.
Potential funding: NA.
Implementation strategy: Not defined.
Measuring success: Expanded collection facilities.
Schedule: Within two years.
Comments: Most towns now have periodic toxic waste pickup days but funding for program expansion has not appeared. This action item will help to improve water quality in 303(d)-listed impaired waters.

Recommendation 18.14. All watershed municipalities should adopt recycling programs that will reduce the amount of all recyclables sent to landfills and incinerators.

Explanation: [needs text].
Priority: High.

Commitments: None.
Legislation required: None.
Estimated costs: Cost to expand recycling programs to include all types of recyclables, or to set up new recycling centers.
Potential funding: NA.
Implementation strategy: Not defined.
Measuring success: Expanded recycling programs available to every municipality; recycling is comprehensive.
Schedule: Within three years
Comments: This will reduce the demand for landfills and the associated risks of toxic contamination associated with landfills.

Non-Governmental Organizations

Recommendation 18.15. The Buzzards Bay Toxics Action Committee should be re-established to review, plan and oversee a watershed-wide program to reduce toxic pollution.

Priority: High.
Explanation: [needs text].
Responsible agent(s): The BBAC and the Coalition for Buzzards Bay, working with Buzzards Bay NEP staff, may help to identify and designate such a committee, with input from agencies, community leaders, the scientific community, and the sectors that are sources of toxic pollution.
Commitments: None.
Legislation required: None.
Estimated costs: Unknown; outreach will need some funding.
Potential funding: NA.
Implementation strategy: Issue call for committee volunteers, form committee, develop a Work Plan with schedule and milestones for deliverables, and seek public comment. Seek funding for committee activities. Begin implementing Work Plan.
Measuring success: Formation of a functioning Toxics Action Committee, with action items that provide for outreach, implementation, coordination, facilitation and other activities that will help to reduce toxic pollution throughout the watershed.
Schedule: Complete task within five years.
Comments: The Committee should be composed of two subgroups, including a technical advisory committee composed of technical experts in pollutants and their fate and transport, and a policy advisory committee that includes municipal employees and citizens. The goal of the Committee should be to promote reduction of toxics throughout the watershed by promoting outreach, stakeholder cooperation, and other facilitation. This action item will help to improve water quality in 303(d)-listed impaired waters. Also, TMDLs require an outreach component, which can be coordinated by the Committee

Recommendation 18.16. DEP, EPA, and the USCG should inspect all facilities that are required to prepare and implement Spill Prevention Control Plans, Spill Response Plans, Stormwater Pollution Prevention Plans, NPDES Multi-sector General Permits to validate implementation.

Explanation: [needs text].
Priority: Medium.
Responsible agent(s): EPA, DEP, Coast Guard (regulation, monitoring); BBMEP and BBAC (outreach)
Commitments: None.
Legislation required: None.
Estimated costs: Cost of developing an inventory of such facilities and providing guidance and outreach.

Potential funding: NA.

Implementation strategy: Utilize MassGIS records, DEP and EPA records, municipal records, proprietary software and search services (e.g., Environmental First Search, others) to obtain and collate information on sites.

Measuring success: Up-to-date inventory of facilities that are required to prepare such plans for each municipality in Buzzards Bay. Copies of pollution prevention plans provided to the BBP or other state agency to facilitate monitoring and implementation. Local municipalities (Boards of Health, Building Inspectors) are trained to recognize facilities requiring such plans and have local regulations and processes requiring filing and implementation of such plans.

Schedule: Inventory completed within three years.

Comments: Pollution prevention planning should be encouraged through providing outreach and guidance. This action item will help to improve water quality in 303(d)-listed impaired waters and meet the requirements of the Clean Water Act.

Recommendation 18.17. The Buzzards Bay NEP should work with state and federal agencies to better characterize toxic contamination throughout the Buzzards Bay watershed, both in developed and undeveloped areas.

Explanation: [needs text].

Priority: High.

Responsible agent(s): Buzzards Bay NEP in partnership with USGS NAWQA, EPA, DEP, other agencies.

Commitments: None.

Legislation required: None

Estimated costs: Not defined.

Potential funding: NA.

Implementation strategy: Not defined.

Measuring success: Comprehensive data collection initiated and a centralized geographic database established for storage and analysis of the data.

Schedule: Within three years.

Comments: Water quality monitoring of streams, rivers, ponds and lakes and groundwater in the Buzzards Bay watershed should be expanded to include testing for pesticides, PCBs, dioxin, metals, PAHs, pH, detergents, endocrine-disrupting compounds/estrogen compounds, nutrients, chlorophyll, pH, oxygen and other standard water quality parameters.

Recommendation 18.18. The Buzzards Bay NEP should characterize and identify new and emerging pollutants to determine if there is a need for managing them in Buzzards Bay based on risk of harm to ecosystems and/or humans.

Explanation: [needs text].

Priority: Medium

Responsible agent(s): BB NEP should invite qualified scientific and agency experts to review the issue.

Commitments: None.

Legislation required: None, but draft federal legislation should be monitored for updates.

Estimated costs: Not defined.

Potential funding: NA.

Implementation strategy: Convene group of experts to evaluate issues and provide recommendations, including measures for incorporating and addressing new information.

Measuring success: Report on new and emerging pollutants of concern for Buzzards Bay, including priorities for action, uncertainties, data gaps, pending legislation, issues to monitor, strategies for adapting to new information, and action items

Schedule: Convene group of experts within three years

Comments: Examples include estrogen compounds (a.k.a. endocrine-disrupting compounds), surfactants, optical brighteners, drinking water disinfection by-products (e.g., trihalomethanes, other chlorination products), and other wastewater components.

Recommendation 18.19. The reconstituted Buzzards Bay Toxics Action Committee should provide outreach to the public concerning the hazards of eating contaminated seafood, including the potential hazards related to lack of comprehensive seafood testing for all contaminants of concern.

Explanation: [needs text].

Priority: Low (some of this information is already provided)

Responsible agent(s): Buzzards Bay Toxics Action Committee, local Boards of Health, MA Department of Public Health; DMF; EPA.

Commitments: None.

Legislation required: None for outreach.

Estimated costs: Not defined.

Potential funding: NA.

Implementation strategy: BBTAC develops outreach plan working with the Priority: Medium.

Responsible Agents. The outreach plan should target media, educators, food inspectors, food handlers and preparers, restaurants, stores, fishermen and shellfishermen, ethnic populations that may be at risk due to food or fishing preferences, and those segments of the population that may be at higher risk.

Measuring success: Public outreach program results in widespread public awareness (as measured by media coverage, surveys?) of the hazards of consuming contaminated seafood.

Schedule: Within five years.

Comments: None.

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