

## Action Plan

### Preventing Oil Pollution

#### Problem

A report by the National Academy of Sciences (NAS, 1985) estimated that 3.9 millions tons of oil enter the world's marine environment each year (Table 5.4). This oil enters the marine environment both through large newsworthy tanker accidents and through chronic small spills from fueling, tank cleaning, bilge pumping, improper waste oil disposal, and stormwater runoff. Between 1969-1989, it is estimated that over 1600 tons of petroleum hydrocarbons entered Buzzards Bay from accidental oil spills. During the same 20-year period more than 2,000 tons of hydrocarbons from other sources — including sewage effluent, stormwater runoff, and industrial effluent — are estimated to have entered the Bay.

Oil spills impact stationary plants and animals, sensitive species, and vulnerable life stages, e.g., eggs, larvae, and juveniles. Immediately after a spill, high mortality is observed (as was the case in the West Falmouth oil spill), and for organisms that survive, short-term stress and impaired metabolism are also observed. Long-term impacts are associated with the persistence of hydrocarbons and residual toxic effects on individuals and, if the toxicity is pervasive, on populations. Twenty years after the West Falmouth oil spill, effects can still be observed and oil residues identified.

If a spill occurs in a small, confined embayment so that oil is unable to escape, damage is heavier than in offshore spills. Prevailing winds are likely to push oil into harbors

**Table 5.4. Oil input to the marine environment<sup>1</sup>**

Source	Million Metric tons per annum	% of total
<b>ACCIDENT</b>		
Offshore Petroleum	0.04	1.0
Tankers	0.39	9.8
Non-Tankers	0.02	0.5
<b>NON-ACCIDENTS</b>		
Offshore Production	0.01	.03
Tanker Operation	0.71	17.9
Marine Transportation	0.82	20.7
Coastal Refineries	0.10	2.5
Industrial Discharge	0.20	5.1
Municipal Discharge	0.75	18.9
Urban Runoff	0.12	3.0
River Discharge	0.04	1.0
Ocean Dumping	0.01	0.3
Atmospheric Fallout	< 0.5	12.6
Natural Seeps	0.20	5.1
Erosional Processes	0.05	1.3
<b>TOTAL</b>	<b>3.96 mta</b>	<b>100%</b>

<sup>1</sup>Source: Adapted from: NAS, *Oil in the Sea*, 1985.

## Action Plan: Preventing Oil Pollution

and embayments, particularly on the eastern side of Buzzards Bay, where it may be trapped and concentrated. Nearshore communities, including shellfish areas, eelgrass beds, and bathing beaches, are among the most vulnerable areas.

This Action Plan primarily addresses oil spills and oil from stormwater discharges. Industrial and municipal discharges of oil and other toxics are addressed in the Toxics Reduction and Managing Sewage Treatment Facilities Action Plans.

## *Background*

Buzzards Bay is a major transit route for small tanker and barge traffic transporting heating and industrial oil and gasoline into the greater Boston and northern New England markets. In addition, several tankers dock in New Bedford and at the Cape Cod Canal Electric Power Plant in Sandwich. The Army Corps of Engineers reported that during 1988, 1929 tankers and tank barges passed through the Cape Cod Canal with a total net cargo of approximately 2.8 billion gallons of oil.

Oil spills have been a frequent occurrence in Buzzards Bay. Some spills of note were:

- No. 2 fuel oil on Horseneck Beach on the west side of the bay in Westport during the late 1940s
- No. 2 fuel oil off Cleveland Ledge which came ashore at Nyes Neck, Falmouth, during the winter of 1963
- The barge *Florida* went aground in 1969 off West Falmouth and spilled 185,000 gallons of No. 2 fuel oil into Buzzards Bay and along the shoreline of West Falmouth
- In October 1974 the barge *Bouchard 65* struck a submerged object at the west end of the Bay and was towed to an anchorage off Scraggy Neck at the east end of the Bay, with oil coming ashore at North Falmouth and Bourne
- The same barge ran aground again in January 1978 and spilled 81,000 gallons into the east end of the Bay
- The cruise ship went aground June 10, 1990 on Cleveland Ledge and leaked more than 7,500 gallons of No. 6 oil of which approximately 3,000 gallons washed ashore on Naushon Island.
- The fuel barge *Bouchard 145* went aground June 18, 1990 on Cleveland Ledge and leaked 100 gallons of No. 2 oil.
- Smaller spills of gasoline and fuel oil have occurred every few years in the Bay or in the Cape Cod Canal.

Response to the problem of oil spills generally falls into three categories: prevention, early response, and mitigation. As long as oil is used as an energy source, spills will not be eliminated. Therefore, we should pursue a dual policy of reducing the occurrence of spills and preparing to limit their damage. The number of spills may be reduced by mandating safety procedures and safety features on equipment used for storage, transport, and handling of oil.

Once a spill has occurred, the principal factor in minimizing environmental damage is speed of response. Oil spreads rapidly; begins to disperse through the water column, making clean-up efforts more difficult; and eventually contaminates sediments. Cleanup effectiveness diminishes over time as weathering disperses the oil. Most often, not more than 10-20% of the oil is recovered. The cleanup of the *World Prodigy* spill

## Action Plan: Preventing Oil Pollution

in Narragansett Bay, which was generally considered a very successful operation, collected only about 10% of the spilled product. In this spill, most of the lighter hydrocarbons evaporated, but substantial amounts entered coastal sediments, beaches, flats and marshes. Without adequate technology to recover greater percentages of the spill, emphasis should be on prevention and speedy response. It is vital that the logistics be in place so that when an incident occurs, it is clear who to call, where equipment is located, and which cleanup methods are appropriate.

The recent *Exxon Valdez* oil spill in Prince William Sound, Alaska, in March 1989 and the weekend of spills that occurred in Narragansett Bay, the Delaware River and the Houston Ship Channel in June 1989 and especially for Buzzards Bay, the two spills at Cleveland Ledge 8 days apart in June, 1990, have renewed public concern about the effects of major oil spills.

These events resulted in Congressional passage of the Oil Pollution Act of 1990. The Act addresses a number of issues including liability and compensation, vessel manning and training requirements, alcohol and drug screening, manning standards for foreign tankers, vessel traffic and communications systems requirements, and the requirement of double hulls for tankers. The Act also requires the Coast Guard to maintain a computer file of available spill containment and cleanup equipment, and for the federal government to develop Area Contingency Plans and modify the National Contingency Plan. Finally, the Act includes monies for oil pollution research.

Under the U.S. Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), in effect since 1986, those who spill hazardous substances, including oil, must pay cleanup costs. The federal government and the states, in their roles as trustees, can claim damages for injuries to natural resources.

In Massachusetts, the response to oil spills is the responsibility of the Department of Environmental Protection (DEP). The Coast Guard generally takes control for spills in marine waters, whereas DEP is responsible for spills on land and small spills such as those from moored boats. The Coast Guard has containment equipment for limited spills, but the primary response is by private contractors. The responsible party will be held responsible for cleanup expenses.

Both the Coast Guard and DEP have standing contracts with private firms to contain and cleanup spills. Offshore spills are generally handled by the Coast Guard. If the spill cannot be contained with equipment locally available, a federal strike team is contacted. As a result of the Oil Pollution Act, the strike team for the east coast will be located in Elizabeth City, North Carolina.

A regional oil-spill contingency plan for Buzzards Bay, developed in 1981, is being updated. This is a compilation of local information on shoreline access points, oil transfer, processing and storage facilities, environmental sensitivity maps, and available equipment and services. Information contained in a current contingency plan is invaluable to the individual communities, DEP and the Coast Guard in implementing a timely response to a spill. Actions taken by town personnel during a spill event, in support of the Coast Guard or DEP, can make the difference between success and failure.

## ***Major Issues***

Pilotage, or the requirement that a certified pilot familiar with the local harbors, channels or embayments board a ship and take it into port, is not mandatory in Buzzards Bay. This is a glaring deficiency in protecting the Bay from accidental spills. Rhode Island requires pilotage, as does the Army Corp of Engineers in regulating activities in the Cape Cod Canal. Pilotage is also required in Boston Harbor.

Commercial fishing vessels, which operate mostly out of New Bedford but also Westport, usually have their engine oil changed (10-120 gallons per boat) after practically every trip. It is believed that the inconvenience and the expense (about 30 cents per gallon) of safely disposing of waste oil has resulted in a number of boat operators blatantly dumping oil into the Bay or offshore waters. Although this is illegal, it is difficult to document violations and hence take enforcement actions against the appropriate fishing boats. Convenience and expense in disposing of waste oil may also be a problem for the general boating public but oil changes in small launched boats is less common.

Buzzards Bay communities are ill-prepared to provide assistance during an oil spill or to protect sensitive areas. There is uncertainty about what equipment is available, where it is stored, and how it is to be used. There is also no formal inter-town coordination mechanism to maximize the equipment that is available within regional areas of the Bay. Because few drills or rehearsals have been held at a town level, personnel have not received proper training, and potential liability claims from cleanup participants who are injured during clean-up efforts. Experience gained during the *World Prodigy* spill points up the importance of educating the general public to understand the health risks involved with any direct contact with the spilled product.

Wave action helps in breaking up oil, and dispersants are used to keep oil from moving intact toward valuable resource areas. Dispersants also dilute the concentration that ultimately reaches bottom sediments, thus reducing localized catastrophic effects. Some experts believe that dispersants are a very valuable response tool if used under the appropriate conditions. However, experts opinions differ, and Massachusetts and Rhode Island have not agreed to the use of dispersants. The Coast Guard, with the approval of the Regional Response Team (EPA, Department of Interior, and the Commonwealth), can authorize the use of dispersants during a spill.

## ***Goals***

- 1. Reduce the amount of petroleum hydrocarbons entering Buzzards Bay.**
- 2. Minimize the occurrence of oil spills in Buzzards Bay, both large and small.**

### **3. Minimize the environmental effects from oil inputs to Buzzards Bay.**

#### ***Objectives***

1. To promote a regional strategy for preventing and managing oil spills.
2. To implement a source-reduction plan for chronic inputs of PAHs to Buzzards Bay.
3. To provide adequate facilities for the collection of waste oil from cars and boats.
4. To take enforcement actions against the illegal discharge of oil.

#### ***CCMP Commitments***

##### ***The Coastal Zone Management Office (CZM)***

1. CZM will provide technical assistance to Buzzards Bay communities developing contingency plans in each municipality.

Target date: Beginning 1991

2. CZM will encourage the satisfactory completion of oil spill contingency plans by each municipality.

Target date: Beginning 1991

##### ***The Buzzards Bay Action Committee (BBAC)***

1. BBAC will ensure that each municipality appoints an oil spill coordinator responsible for overseeing maintenance and deployment of equipment and for directing response activities.

Target date: 1991

2. BBAC will develop a mutual aid protocol that will govern the purchase and use of oil spill equipment by the towns.

Target date: 4/92

3. BBAC will develop model regulations that will: a) require all boatyards and marinas to maintain oil containment and cleanup equipment on site; and b) manage the appropriate fueling of vessels.

Target date: 2/92

##### ***The U.S. Coast Guard***

1. Coast Guard will conduct training sessions on the use of oil spill equipment and other contingency plan activities for all Buzzards Bay towns once a year.

Target date: Beginning 1991

Action Plan: Preventing Oil Pollution

2. Coast Guard will review and approve each municipality's contingency plan and utilize those plans in the event of a spill.

Target date: Beginning 1992

3. Coast Guard will advise municipalities on the appropriate spill equipment that should be maintained.

Target date: Beginning 1991

### *Buzzards Bay Municipalities*

1. Falmouth, Bourne, Wareham, Marion, Mattapoisett, Fairhaven, New Bedford, Dartmouth, and Westport have appointed oil spill coordinators, some of whom are developing local contingency plans.

2. Marion (through its Marine Resources Commission) is working with the boatyards and marinas to ensure they maintain adequate oil response equipment.

3. The Coalition for Buzzards Bay will continue to work with state legislators to refile a bill in December 1991 that addresses oil spill prevention including: pilot accountability language, better pilot testing and training including recertification on a regular basis, and pilotage requirements in the upper portions of Buzzards Bay and the Cape Cod Canal. An early version of the bill was filed in December 1990 but was not voted upon.

### *Other Recommended CCMP Actions*

1. To reduce the impact of future spills, DEP should coordinate annual regional oil spill response drills for Buzzards Bay communities on land, to ensure preparedness and proper interface between themselves and local personnel.

Target date: Beginning 1992.

2. All other communities should require all boatyards and marinas to have specified response equipment on site.

Target date: 1993.

3. All levels of government should adopt a policy to minimize or reduce oil entering the Bay.

- Municipalities should require performance standards for catch basins that remove oil and grease and implement a maintenance program.

Target date: 1992-1994

- Enforcement Task Force of the Executive Office of Environmental Affairs should enforce proper storage and disposal of oil.

Target date: Immediately

- Buzzards Bay communities should adopt regulations managing fueling of vessels; regulations should include a provision requiring booms and absorbent material available at all fuel loading facilities.

Target date: 1993

**4. The state should develop a policy and criteria for the use of dispersants in Buzzards Bay during oil spills.**

Target date: 1992

**5. DEP should adopt a policy for treating stormwater by requiring oil and gas traps, absorbent pads, and regular catch-basin maintenance.**

Target date: 1992

**6. The Coast Guard should install a more effective navigational system at the western entrance of the Cape Cod Canal.**

Target date: 1992

### ***Implementation Costs***

Preliminary cost estimates for oil spill containment equipment and training can be found in the Financial Plan. This includes costs for trailers to house equipment, pumps and hoses, booms, sorbent pads, etc. An explanation of training options is also provided. The Buzzards Bay Project has awarded grants totaling \$6,000 to the municipalities of Westport, Marion, New Bedford, and Fairhaven for the purchase of oil spill containment equipment. These funds leveraged an additional \$1,500 in local funds. Equipment purchases were coordinated by the Buzzards Bay Action Committee which helped ensure that all equipment was compatible and therefore has the ability to be loaned among communities. Coordination efforts also resulted in the communities receiving a large quantity order price per unit and therefore more containment equipment.