

THE COALITION FOR BUZZARDS BAY STATE OF THE BAY

2007 SCORE

45

What kind of Bay do we want to leave to our children and grandchildren? If current trends continue, it won't be anything like the one that we cherish today. The health of Buzzards Bay is declining and swift action is needed to prevent our Bay from losing its celebrated place as one of the healthiest estuaries on the East Coast. The State of the Bay has fallen three points in the past four years alone to 45.

In 2003, The Coalition for Buzzards Bay released its first-ever State of the Bay report documenting the state of pollution, watershed health and living resources in the Bay. The result of that analysis revealed a Bay functioning at roughly half of its ecological capacity –

a score of 48 out of 100. At that time, more than 1/2 of the bay's harbors and coves were found to be degraded by excessive nitrogen pollution, and accelerating sprawl development was consuming the watershed's forests and wetlands – the bay's natural filters – at an unprecedented rate.

Four years later, we've found the situation worsening with significant declines in some of the most important indicators – particularly in those linked to nitrogen pollution. Simply put, the nitrogen pollution problem is expanding and getting away from us and is driving bay decline more than any other factor.

DOWN 3 FROM 48 IN 2003

INCREASING NITROGEN POLLUTION IS DRIVING BAY DECLINE

What's the State of Your Local Harbor or Cove?

5-yr (2001-2005) running average

Healthy	Good to Excellent
Penikese Island	94.0
West Falmouth, Outer Harbor	88.8
Quissett Harbor, Outer	88.2
Pocasset Harbor, Outer	86.6
Aucoot Cove, Outer	84.0
Mattapoisett Harbor, Outer	83.4
Hiller's Cove	81.2
Onset Bay, Outer	77.3
Clarks Cove, Outer	76.0
Westport River, Inlet	75.6
Megansett Harbor	75.0
Mattapoisett Harbor, Inner	74.0
Cuttyhunk Harbor	74.0
Onset Bay, Inner	73.6
Onset Harbor, Shell Point Bay	72.8
Blankenship Cove	72.8
Aucoot Cove, Mid-Harbor	72.7
Phinney's Harbor	71.9
Quissett Harbor, Inner	71.5
Sippican Harbor, Outer	67.2
Rands Harbor	66.2
West Falmouth, Mid-Harbor	66.1
Nasketucket Bay	65.1
Red Brook Harbor, Outer	64.6
New Bedford Harbor, Outer	64.4
Clarks Cove, Inner	64.4
Onset Bay, East River	63.4
Pocasset River	62.3
Apponagansett Bay, Outer	61.9
Fiddlers Cove	61.5
Buttermilk Bay	60.2
Westport River, Inner West Branch	56.9
Squeteague Harbor	56.7
Red Brook Harbor, Inner	56.7
Apponagansett Bay, Mid-Harbor	56.3
Hen Cove	55.4
Back River	54.6
Little River, Outer	54.1
Little Buttermilk Bay	53.7
Westport River, Outer East Branch	52.7
West Falmouth, Harbor Head	51.7
Marks Cove	51.2
Little Bay (Inner Nasketucket)	50.4
Sippican Harbor, Inner	49.1
Mattapoisett Harbor, River Mouth	48.7
Pocasset Harbor, Inner	48.6
Wareham River, Outer	48.4
Wild Harbor River	48.0
Weveant River, Outer	47.7
New Bedford Harbor, Inner	47.6
Wild Harbor	46.7
Slocums River, Outer	45.0
Little Sippewissett Marsh	45.0
Eel Pond, Bourne	44.3
Broadmarsh River	43.8
Aucoot Cove, Inner	42.9
West Falmouth, Snug Harbor	42.0
Wareham River, Inner	42.0
Little River, Inner	40.8
West End Pond, Cuttyhunk Island	37.7
Weveant River, Inner	35.6
Hammett Cove	35.4
Westport River, Inner East Branch	34.8
Slocums River, Inner	29.5
Apponagansett Bay, Inner	28.1
Westport River, Upper East Branch	25.2
Eel Pond, Mattapoisett	24.2
Acushnet River	23.9
Agawam River	17.6
Nasketucket River	13.0

The Buzzards Bay Health Index measures the nitrogen-related health of each of the Bay's major harbors and coves. Central Buzzards Bay – which still exhibits good water quality – scores close to 100 on the Index. The list above shows average water quality in each area over the past five years ranked from healthy at top (100) to degraded (0).



DOWN 3 FROM 59 IN 2003

Once known for their clear waters, underwater eelgrass meadows and abundant bay scallop harvests, today you are more likely to find Buzzards Bay's nearshore waters clouded and murky. Under the surface, their bottoms may be covered in algae which deprives the water of life-giving oxygen for fish and shellfish. In some areas, these impacts can lead to bad odors, algae-covered shorelines and even fish kills.

For more than half of the Bay's harbors and coves, the signs of this decline are already clearly visible. Take a look at the bay this summer. Is it the same as the bay you first fell in love with? Or the bay that your grandparents described?

The decline is being driven by increasing Nitrogen pollution from poorly-planned sprawl development in the bay watershed and inadequate wastewater treatment for expanding populations in all of our communities. It is the greatest long-term threat to the health of the Bay.

The score of 56 is based on a compilation of the 5-year running average of water quality data collected in each of the Bay's 30 major harbors, coves and tidal rivers by The Coalition for Buzzards Bay's Baywatchers program. For detailed information on the program and the health of your local piece of Buzzards Bay, see <http://savebuzzardsbay.org/baywatchers>

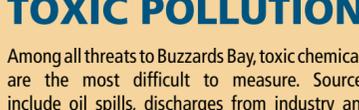


DOWN 3 FROM 59 IN 2003

9,988 acres, or 44% of the Bay's most productive, nearshore shellfish beds, are too polluted to permit commercial and recreational shellfishing. This represents an ongoing threat to human health and economic losses in many parts of Buzzards Bay and a reversal of recent trends.

After a decade of steady improvements, efforts to reduce sewage and animal wastes flowing into the bay have slowed. Sources include failing septic systems and the more than 2,500 stormwater pipes that discharge polluted road runoff every time it rains.

The score of 56 is based on the extent of total shellfish bed closures in the bay in July 2006 as reported by the Massachusetts Division of Marine Fisheries and analyzed by the Buzzards Bay National Estuary Program. A perfect score would result from a Bay with no shellfish bed closures due to pollution.



TOXIC POLLUTION

Among all threats to Buzzards Bay, toxic chemicals are the most difficult to measure. Sources include oil spills, discharges from industry and wastewater treatment plants, household hazardous wastes, agricultural pesticides and stormwater.

With nearly 2 billion gallons passing through the Cape Cod Canal each year, Buzzards Bay is under constant threat of an oil spill. Now 4 years since the B-120 Oil Spill, federal and state agencies have still not released their assessment of that spill's ecological damage. And in New Bedford Harbor, dredging of PCBs and heavy metals has slowed with cutbacks in federal funding. At this rate, the PCB cleanup may take more than 30 years.



UP 2 FROM 45 IN 2003

On the positive side, since our last report, we have had three more years of groundwater treatment which has reduced the toxic plume flowing into the Bay from the Massachusetts Military Reservation, and Fairhaven eliminated the use and discharge of toxic chlorine for sewage disinfection.

With no B-120 damage assessment, a stalled Superfund cleanup in New Bedford, and only small investments in toxic reduction elsewhere in the Bay, the score of 47 represents slow progress on the state of toxic contamination across all of Buzzards Bay.

POLLUTION

WATERSHED HEALTH

LIVING RESOURCES

NITROGEN POLLUTION FUELING DRAMATIC LOSSES OF EELGRASS MEADOWS

25

FORESTS DOWN 1 FROM 76 IN 2003

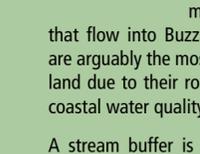


Second only to wetlands, forests are critical to a healthy Bay ecosystem. Forests contribute to the Bay's health in a variety of ways. They filter nitrogen pollution, absorb rainfall and regulate streamflow, moderate stream temperature, stabilize soils and support fish and wildlife habitat.

It is estimated that the Bay watershed has lost more than 2,500 acres of forest cover in the past seven years, leading to a one point drop in score over our last report.

While it is unknown exactly how much forest must be preserved in the Bay watershed to maintain ecological balance, research compiled by the Center for Watershed Protection points to 70% forest cover as an important threshold in coastal areas similar to Buzzards Bay.

STREAM BUFFERS DOWN 1 FROM 68 IN 2003



12% of the Bay watershed lies within 200 feet of one of the more than 700 miles of streams that flow into Buzzards Bay. These stream buffers are arguably the most important strips of watershed land due to their role in protecting freshwater and coastal water quality.

A stream buffer is an area of natural vegetation bordering a stream or river that protects water quality by filtering pollutants such as nitrogen before it reaches the Bay. In fact, studies suggest that the smaller the stream, the more quickly nitrogen is removed.

Major progress was made to protect stream buffers with the passage of the MA Rivers Protection Act in 1998 which prevents destruction of the first 100' on all streams. Development continues to occur throughout the watershed, however, in the adjacent unprotected 100'. Between 2000-2006, it is estimated that more than 200 acres of this land was lost to development based on regional growth rates.

WETLANDS 60 <1 POINT DECLINE OVER 2003

Since pre-colonial times, 40% of the original wetlands – saltmarshes, wooded swamps and freshwater marshes – of the Buzzards Bay watershed have been filled, drained or built upon.

It is vital that all of the Bay's remaining wetlands be protected and that restoration efforts begin to replace lost wetlands. Wetlands are excellent filters, able to absorb as much as 90% of the nitrogen and other pollution generated by human activities before it reaches the Bay.

Unfortunately, based on data tracked by the MA Department of Environmental Protection, it is estimated that more than 150 acres of wetlands were lost in the Buzzards Bay watershed since publication of our last State of the Bay both through improper permitting and illegal wetland destruction. And while these acreage losses weren't enough to result in a point drop in the overall Wetlands score, this is a trend that cannot continue if we are to halt the decline in Bay and watershed health.

EELGRASS DOWN 9 FROM 34 IN 2003



No State of the Bay indicator saw greater declines since our 2003 report than eelgrass where the Bay lost 2,000 acres of eelgrass meadows. This represents one-quarter of all remaining eelgrass and very bad news for the health of Buzzards Bay.

Eelgrass is a rooted underwater plant that grows in meadows on the bay floor in areas of excellent water clarity and sunlight penetration. It serves as vital habitat for a broad range of marine life such as bay scallops. In Buzzards Bay, a major cause of eelgrass loss is reduced water clarity which is driven by increases in nitrogen pollution.

The score of 25 is based on the present extent of eelgrass meadows in the Bay as last surveyed by the MA Department of Environmental Protection against the maximum historical potential eelgrass coverage as estimated by the Buzzards Bay National Estuary Program.

RIVER HERRING DOWN 4 FROM 5 IN 2003

River herring populations in Buzzards Bay have collapsed. In 2005, the state banned herring catch in all Massachusetts rivers due to serious declines.

Today, only a fraction of the historic populations of herring still make the journey up the Bay into local streams and ponds. Other species once present in Bay rivers such as Shad, Sturgeon and Atlantic Salmon are already locally extinct. Herring are considered a 'foundation' fish for the Buzzards Bay ecosystem as the fate of the Bay's sportfish and waterbirds are closely linked to them.

The cause of the river herring decline continues to evade fisheries managers. We know that the damming of rivers, degradation of water quality, and alterations to pond and river flows have all reduced populations. It is now clear, however, that forces outside the watershed are also impacting herring.

The Mattapoisett River serves as our benchmark for tracking the state of herring, although new datasets are developing on the Bourmedale, Agawam, Wankinco, Sippican and Acushnet Rivers. In 1921, 1.85 million herring were reported in the Mattapoisett. In contrast, between 2003-2006, an average of only 18,000 fish/yr were counted. Similarly, herring counts in the Bourmedale run fell 89% between 2000-2006.

LESS EELGRASS, FEWER SCALLOPS

10

BAY SCALLOPS DOWN 2 FROM 12 IN 2003



Once considered the signature Buzzards Bay shellfish, the highly valuable bay scallop has been in severe decline for the past 30 years.

Strong bay scallop populations are indicative of clear waters. Bay scallops are very sensitive to environmental conditions, from water quality to water temperature. Waters polluted with nitrogen choke out eelgrass, destroying crucial habitat for scallops. As we eliminate pollution and restore eelgrass, bay scallops may begin to recover to their once abundant levels.

The score of 10 is based on a compilation of the 5-year running average of bay scallop catch data as reported by the MA Division of Marine Fisheries and local shellfish wardens.

IMPROVING THE STATE OF THE BAY

Actions Watershed Communities and Citizens Can Take Today to Restore Buzzards Bay

REDUCING POLLUTION

Nitrogen Pollution

Watershed Communities

- Support the Massachusetts Estuaries Project (MEP) in completing assessments of all harbors and coves in your town. These detailed assessments are a necessary first step in restoring areas degraded by nitrogen pollution and protecting healthy areas.
- Develop and implement estuary restoration Action Plans based on pollution reduction targets set by the MEP for specific harbors and coves in your town.
- Expand use of community, nitrogen-reducing wastewater systems to remediate pollution from older neighborhoods and require use of these systems in new developments.
- Upgrade sewer plants in Marion and Fairhaven to provide enhanced nitrogen removal.

Everyone

- If your home uses a septic system, consider upgrading to a new nitrogen-reducing system to reduce up to half of your impact on local waters. Better yet, partner with neighbors to construct a shared system which can achieve up to 90% reductions in nitrogen at less cost.
- Reduce your use of lawn fertilizers and only use organic lawn-care products.

Bacterial Contamination

Watershed Communities

- Remediate existing stormwater discharges to coastal waters and rivers from public streets.
- Accelerate efforts to eliminate all Combined Sewer Overflows (CSOs) in New Bedford.
- Investigate and correct illegal household sewage connections to street drains.
- Encourage use and availability of boat pump-out facilities.

Everyone

- Replace your old cesspool or any septic system that shows signs of failure.
- Reduce stormwater runoff at home by redirecting downspouts to grassy areas, gardens or dry wells.
- Pick up after your dog and don't feed the geese. Animal wastes on streets and lawns end up in the Bay when it rains.

Toxics

Watershed Communities

- Reduce industrial toxic sources to sewer plants in Falmouth, Wareham, Marion, Fairhaven, New Bedford and Dartmouth.
- Participate in regional oil spill prevention and response programs.
- Find new ways to accelerate the cleanup of PCB contamination in New Bedford Harbor.
- Increase public accessibility to household hazardous waste recycling centers.

Everyone

- Never dump paint, oil, cleaners and other hazardous waste down sinks and stormdrains. Take them to hazardous waste recycling centers.
- Convert to non-toxic, environmentally-friendly house and garden products.
- Practice energy conservation at home and support renewable energy development to reduce our use of oil and help curb global warming.

PRESERVING THE WATERSHED

Forests

Watershed Communities

- Prioritize acquisition of forestlands for public open space and permanent conservation restrictions on working forests.
- Minimize forest clearing in new developments by limiting building footprints and lawn area.

Everyone

- Support land trust and town open space acquisition projects in your town.
- If you own a woodlot, consider placing a permanent conservation restriction on it and participating in forest stewardship activities.

Other Watershed Protection Actions

Watershed Communities

- Accelerate open space acquisitions through the Community Preservation Act and partnerships with nonprofit land trusts.
- Get involved in your town government, learn about development plans, and actively support growth management efforts and open space acquisitions.

Wetlands

Watershed Communities

- Adopt local 100-foot no-build setbacks to all wetlands to prevent encroachment and degradation over time. Despite state/local laws, wetlands are still being lost to development.
- Enforce local and state wetland laws and prosecute landowners who illegally fill and destroy wetlands.

Everyone

- Respect wetlands near your home. Never dump yard or other wastes in wetlands and avoid alteration of areas within 100' of wetland edges.
- If you own wetlands, consider placing them under a permanent conservation restriction or donating them to your local land trust or town conservation commission.

Stream Buffers

Watershed Communities

- Increase protection for smaller stream buffers under local wetlands bylaws to 200 feet (exceeding the 100 foot minimum provided by the Massachusetts Rivers Act).
- Prioritize acquisition of streamside areas in open space protection efforts.

Everyone

- If you live near a stream, create as wide a buffer of native vegetation as feasible along the stream's edge.

- Encourage use of Open Space or Cluster Zoning and Transfer of Development Rights bylaws to focus new growth away from sensitive environmental areas.

- Reduce your property's impact on the watershed by replacing paved areas with gravel and other pervious surfaces, reducing lawn area and encouraging native vegetation.

- Require use of Low Impact Development (LID) techniques in all new developments to minimize impervious surfaces, maintain forest cover and protect wetlands and streams.

RESTORING LIVING RESOURCES

River Herring

Watershed Communities

- Complete dam removals and fish ladder improvements on all herring rivers.
- Prevent low-flow conditions in herring rivers caused by municipal drinking water withdrawals and cranberry farming.
- Cooperate with state regulations on herring catch and investigations into northeast regional herring declines.
- Expand active monitoring of fish counts in all Buzzards Bay herring rivers.

Everyone

- Observe local herring regulations and support town and state efforts to improve fish passage and restore herring populations.

Eelgrass & Bay Scallops

Watershed Communities

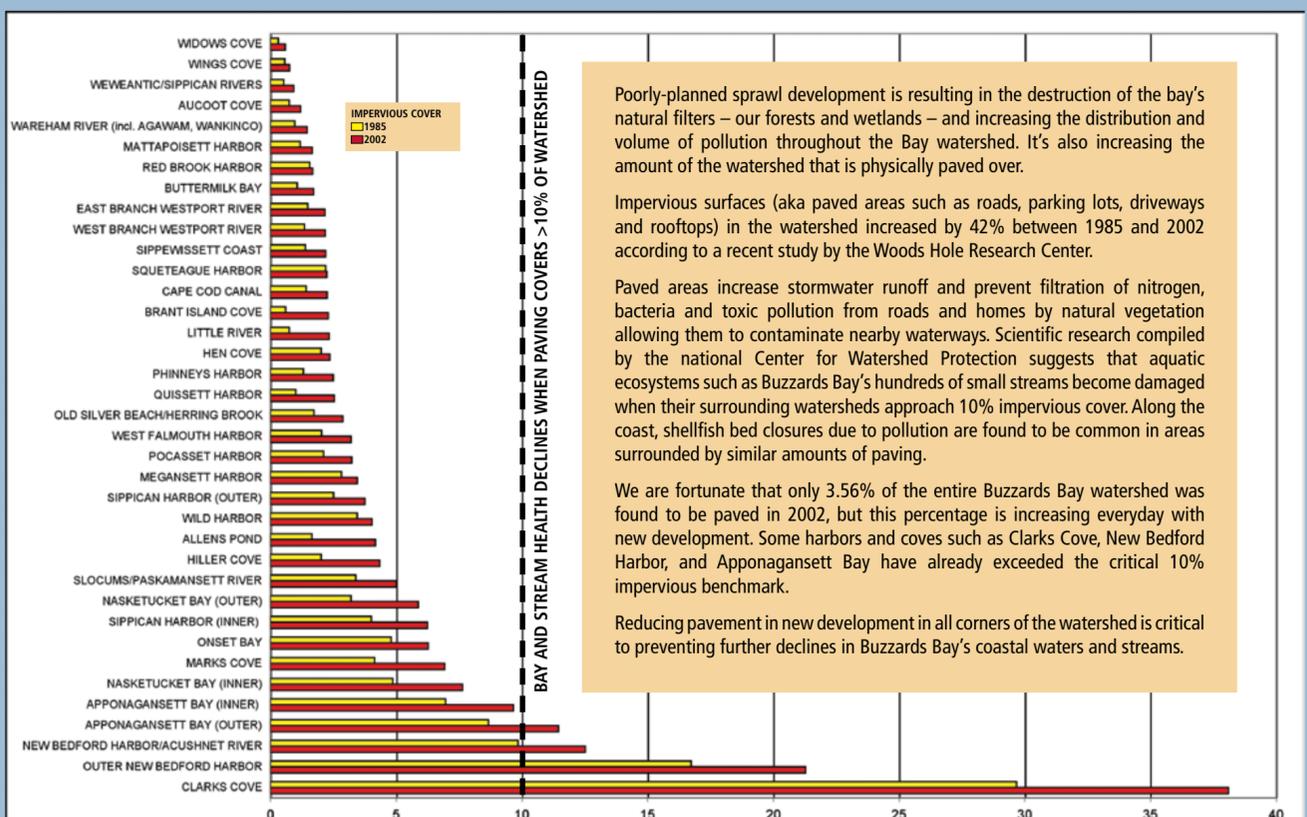
- Reduce nitrogen pollution to restore water quality to levels needed to support healthy eelgrass beds and bay scallop recovery.
- Support physical restoration efforts to jump-start eelgrass and bay scallops in areas of existing good water clarity.

Everyone

- Avoid eelgrass and respect 'No Wake Zones' when boating to prevent destruction of sensitive beds and smothering with sediments.

FROM YOUR DRIVEWAY TO THE BAY

New Report Finds Still Time To Act Despite Disturbing Trend



Comparison of % impervious cover in Buzzards Bay subwatersheds between 1985 (shown in yellow) & 2002 (shown in red). Source: Woods Hole Research Center, 2007.

Poorly-planned sprawl development is resulting in the destruction of the bay's natural filters – our forests and wetlands – and increasing the distribution and volume of pollution throughout the Bay watershed. It's also increasing the amount of the watershed that is physically paved over.

Impervious surfaces (aka paved areas such as roads, parking lots, driveways and rooftops) in the watershed increased by 42% between 1985 and 2002 according to a recent study by the Woods Hole Research Center.

Paved areas increase stormwater runoff and prevent filtration of nitrogen, bacteria and toxic pollution from roads and homes by natural vegetation allowing them to contaminate nearby waterways. Scientific research compiled by the national Center for Watershed Protection suggests that aquatic ecosystems such as Buzzards Bay's hundreds of small streams become damaged when their surrounding watersheds approach 10% impervious cover. Along the coast, shellfish bed closures due to pollution are found to be common in areas surrounded by similar amounts of paving.

We are fortunate that only 3.56% of the entire Buzzards Bay watershed was found to be paved in 2002, but this percentage is increasing everyday with new development. Some harbors and coves such as Clarks Cove, New Bedford Harbor, and Apponagansett Bay have already exceeded the critical 10% impervious benchmark.

Reducing pavement in new development in all corners of the watershed is critical to preventing further declines in Buzzards Bay's coastal waters and streams.

THE COALITION FOR BUZZARDS BAY

The Coalition for Buzzards Bay is a membership-supported, nonprofit organization dedicated to the protection, restoration and sustainable use and enjoyment of Buzzards Bay and its watershed. Founded in 1987, the Coalition works to improve the health of the Bay ecosystem for all through education, conservation, research and advocacy.

Bourne, Carver, Dartmouth, Fairhaven, Fall River, Falmouth, Gosnold, Marion, Mattapoisett, Middleborough, New Bedford, Plymouth, Rochester, Wareham, Westport, and Tiverton, R.I.

The Coalition for Buzzards Bay works throughout the entire Buzzards Bay Watershed to protect the region's coastal, river and drinking water quality and the upland forests, wetlands and streams that support a healthy watershed/bay ecosystem.



The Buzzards Bay watershed includes all or part of 17 towns and covers 432 square miles in southeastern Massachusetts. Towns in the Buzzards Bay watershed include Acushnet,

How We Create Our Report

To create the State of the Bay report, The Coalition for Buzzards Bay collaborates with scientists and land use planners to examine the best available current and historical information for indicators in three categories: Pollution, Watershed Health, and Living Resources.

required to focus and measure the success of protection and restoration activities. In such cases, the best judgment of Coalition staff and advisors led to the development of the reported scores.

We are most grateful to the Buzzards Bay National Estuary Program for their assistance. In addition, a number of agencies and organizations assisted by providing data and advice including the Massachusetts Division of Marine Fisheries, Massachusetts Department of Environmental Protection, Southeastern Regional Planning & Economic Development District, the UMass School for Marine Science and Technology, and the Woods Hole Research Center. The Chesapeake Bay Foundation's annual State of the Bay report served as a model for this report.

The current State of the Bay is measured against the healthiest Buzzards Bay in recorded history – the natural abundance experienced by explorer Bartholomeu Gosnold and his crew in 1602. The Bay Gosnold experienced was unspoiled by harmful human activities and rates 100 on our scale.

In examining the best available information for each of the indicators in this report, we discovered gaps in available data regarding many of the indicators, particularly in areas such as toxic pollution, and watershed growth trends. Better monitoring is



620 Belleville Avenue, New Bedford, Massachusetts 02745
21 Luscombe Avenue, Woods Hole, Massachusetts 02543
Tel. 508-999-6363 Fax. 508-984-7913

For more information and resources related to what you can do to help Save Buzzards Bay, visit us at

www.savebuzzardsbay.org