APPLICATION FOR A STATE DESIGNATED, FEDERALLY APPROVED NO DISCHARGE AREA FOR PLEASANT BAY/CHATHAM HARBOR



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REFERENCES (available at www.pleasantbay.org)

Pleasant Bay Technical Advisory Committee and Ridley & Associates, Inc., *Pleasant Bay Resource Management Plan*, April 1998.

Pleasant Bay Resource Management Alliance and Ridley & Associates, Inc., *Pleasant Bay Resource Management Plan Update*, 2008.

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I. INTRODUCTION

The Pleasant Bay Resource Management Alliance (Alliance) is requesting that the Commonwealth of Massachusetts designate Pleasant Bay and Chatham Harbor as a No Discharge Area (NDA) pursuant to the Clean Water Act, Section 312(f)(3). An NDA is a body of water in which the discharge of vessel sewage, whether treated or not, is prohibited.

Pleasant Bay

Pleasant Bay is the largest estuary on Cape Cod and is one of the most biologically diverse and productive marine habitats on the east coast of the United States. In 1987 the Commonwealth approved a nomination from the towns surrounding the Bay to designate the roughly 9,000-acre estuary an Area of Critical Environmental Concern (ACEC) (Figure 1). The ACEC designation led the Towns to develop a Resource Management Plan for the Bay and its 21,000-acre watershed (Figure 2). The Plan was adopted by the Towns and approved by the state in 1998 and is updated every five years, most recently in 2008. The Plan and five-year updates provide a blueprint to enable the Towns to work together to sustain the Bay's natural resources, and promote a degree of use and enjoyment of those resources consistent with long-term sustainability.

The Alliance

The Alliance is an intergovernmental organization of the Towns of Orleans, Chatham, Harwich and Brewster, MA. The Alliance was formed in 1998 to coordinate implementation activities associated with the management plan and subsequent updates. The Alliance is governed by a Steering Committee, appointed by Boards of Selectmen in the four towns. The Steering Committee is assisted by a Technical Resource Committee, whose members are also appointed by Selectmen, as well as numerous working groups consisting of Steering and Technical Resource Committee members, local and state officials and regional experts. The Alliance's Coordinator manages day-to-day implementation activities.

Study Area

Waterways in the resource management plan study area encompass the Pleasant Bay ACEC and Chatham Harbor southerly to the 1987 inlet (herein referred to as "South Inlet.") Pleasant Bay encompasses the main basins of Pleasant Bay and Little Pleasant Bay, and numerous subembayments including salt ponds and coves (Meetinghouse Pond, Arey's Pond, Pah Wah Pond, Kescayogansett Pond, Quanset Pond, Crow's Pond, Round Cove, Ryders Cove and Bassing Harbor) and three tidal rivers (The River, Namequoit River, and Muddy Creek). Chatham Harbor is contiguous with the Pleasant Bay system (Figure 3).

The dynamic barrier beach and inlet system greatly influences hydrodynamics throughout Pleasant Bay and Chatham Harbor and is a determining factor in the health of natural resources and the condition of navigation channels. The barrier beach and inlet system controls the exchange of water between the Atlantic Ocean and Pleasant Bay and Chatham Harbor. A breach in the barrier beach that occurred in 1987 ("South Inlet.") The formation of a second inlet in Nauset Beach in 2007 (herein referred to as "North Inlet") resulted in significant physical changes. A hydrodynamic (flushing) study undertaken in 2008 concluded that the North Inlet had increased the tidal range in Pleasant Bay by 0.7 foot and increased the tidal prism (the volume of water exchanging with the Atlantic Ocean) by 14 percent. Water quality modeling based on the updated hydrodynamic model concluded that water column nitrogen concentrations improved in some areas of the system, but not enough to meet regulatory threshold levels known as Total Maximum Daily Loads (TMDLs). The modeling study also noted that the water quality improvements would not persist indefinitely and could be expected to diminish if the North Inlet were to migrate southward in a pattern consistent with historical cycles of barrier beach geomorphology.

Since 2000, the Alliance has conducted a bay-wide water quality monitoring program to measure the impacts of nutrient loading to the Pleasant Bay estuary. Data collected by the water quality monitoring program were used by the Massachusetts Estuaries Project (MEP) to model nitrogen loads to Pleasant Bay. The MEP analysis confirmed many of the same findings documented by the Alliance's monitoring efforts. Notably, the MEP documented signs of nutrient-related stress throughout the system and found that thirteen of seventeen subembayments exhibited some level of impaired or degraded habitat due to overloading of nitrogen¹. The report also documented excessively low dissolved oxygen levels in some subembayments such as Muddy Creek, Paw Wah Pond, Kescayogansett Pond, Areys's Pond, Quanset Pond and Meetinghouse Pond, where surrounding land is densely developed and tidal flushing is restricted. The report also found that eelgrass coverage in the Bay decreased 24% since 1950. The MEP report provided the basis for establishing total nitrogen TMDLs for sixteen subembayments in the Pleasant Bay system. The TMDLs provide the nutrient targets for local and regional nutrient management planning.

The Alliance towns are proceeding with the development of comprehensive wastewater management plans (CWMP) in order to meet the TMDLs. Chatham has a locally- and state-approved CWMP, and Orleans has developed a draft CWMP. Harwich and Brewster are at earlier planning stages. The Alliance convenes a work group with representation from all four towns and regional and state agencies to facilitate regional collaboration to achieve the TMDLs. Through this facilitated process, the Alliance communities explore a range of strategies for the elimination of watershed nitrogen sources including sewering, stormwater management and minimization of fertilizer use. The Alliance communities recognize that sewage discharged from boats directly contributes to poor water quality and view this NDA application as another component of a comprehensive nitrogen management and water quality protection initiative.

Vessel sewage, like many other pollutants, can be harmful to the environment when it is not adequately treated. Sewage contains a high concentration of nitrogen, a substance that can lead to algal blooms and low dissolved oxygen concentrations that can affect the health of fish, shellfish, and eelgrass beds. Vessel sewage also contains bacteria and viruses that can make shellfish unsuitable for human consumption and make our beaches unsafe for swimming.

Every boat with an installed marine head (toilet) must have a US Coast Guard approved Marine Sanitation Device (MSD). The US Coast Guard tests and certifies MSDs as Type I, Type II, or Type III. A Type I MSD means a device that, under the test conditions, produces an effluent having a fecal coliform bacteria count not greater than 1,000 per 100 milliliters and no visible floating solids. A Type II MSD means a device that, under the test conditions produces an effluent having a fecal coliform bacteria count not greater than 200 per 100 milliliters and

¹ For more information see Table VIII-1, Massachusetts Estuaries Project, Final Report, 2006.

suspended solids not greater than 150 milligrams per liter. Type III MSDs are holding tanks designed to prevent the overboard discharge of any sewage, treated or untreated; although, some Type III MSDs are equipped with a "y" valve that allows the operator to legally discharge stored sewage once the vessel is more than 3 miles offshore. Boats larger than 65 feet in length must use a Type II or Type III MSD, while boats under 65 feet can use a Type I, II or III MSD.

While Type I and Type II MSDs are designed to treat vessel sewage, they do not remove significant amounts of nitrogen from the waste before it is discharged. They also cannot remove all of the bacteria or viruses. Certain waters of high public and environmental value that require greater environmental protection than under existing laws, can be designated NDAs under the federal Clean Water Act. Because there is a risk that sewage may negatively impact these sensitive areas, all vessel sewage, even if treated by a Type I or Type II MSD, is prohibited from being discharged in NDAs. For these reasons, the Pleasant Bay Alliance is seeking to prohibit the discharge of vessel sewage in Pleasant Bay and Chatham Harbor.

II. PROPOSED NDA BOUNDARIES

The proposed boundary of the Pleasant Bay/Chatham Harbor NDA includes all of the estuarine surface waters (rivers, ponds, and coves) within the Pleasant Bay Area of Critical Environmental Concern and Chatham Harbor; bounded on the west by mainland Chatham, Harwich, Brewster and Orleans; bounded on the east by Nauset Beach (North Beach) and North Beach Island west of a line drawn across the mouth of the North Inlet across from Minister's Point (the line running approximately latitude 41.7054/longitude -69.9291 to latitude 41.7037/longitude -69.9292), and west of a line across the mouth of South Inlet (the line running approximately-latitude 41.6782/longitude -69.9343 to latitude 41.6657/longitude -69.9418). The boundary of the proposed Pleasant Bay/Chatham Harbor NDA is shown on Figure 4.

III. CERTIFICATION OF NEED

Natural resource conditions in Pleasant Bay are well documented in the Pleasant Bay Resource Management Plan 2008 Update and in the Massachusetts Estuaries Project Final Technical Report for the Pleasant Bay System, 2006. Both documents are available at <u>www.pleasantbay.org</u>. A summary of resource conditions and recreational resources documented in those reports is provided below.

Water Quality

The Pleasant Bay Resource Management Plan 2008 Update states "water quality, the foundation of resource vitality as well as human use and enjoyment of the Bay, is threatened by excessive nutrients from land uses within the watershed as well as impacts from marine uses such as boating." The MEP Technical Report for Pleasant Bay contains a detailed assessment of water quality conditions and the respective health of the Bay's eelgrass and benthic communities, which are sensitive to the effects of nitrogen and serve as indicators of the Bay's overall health. The MEP Technical Report documents signs of nutrient-related stress throughout the system and found that thirteen of seventeen subembayments had impaired or degraded habitat due to nitrogen enrichment. It also documents a 24% decline in eelgrass coverage over a 30-year period.

Watershed Nitrogen Sources

The MEP Technical Report concludes that nitrogen from septic systems accounts for 42% of the overall nitrogen load (from all sources) in Pleasant Bay, and 75% of the locally-controllable nitrogen load. According to the MEP, the other major components of the locally-controllable watershed load are fertilizers (16%) and runoff from impervious surfaces (9%). In addition to watershed load, vessel waste discharges can contribute nitrogen to the overall load in summer, especially in Pleasant Bay's ponds and coves.

Multi-year (2000-2009) data collected by the Pleasant Bay Citizen Water Quality Monitoring Program confirms that the Bay is receiving nitrogen from watershed development through groundwater inflows and surface runoff. At all stations, Total Nitrogen (Dissolved Inorganic (DIN) + Particulate Organic (PON) + Dissolved Organic (DON)) exceeded background levels found in Atlantic Ocean waters (i.e., > 0.29 mg/L). Thresholds for estuarine restoration established by the MEP focus on bioactive nitrogen only (DIN and PON). The threshold of bioactive nitrogen for eelgrass restoration is 0.16 mg/L. The threshold for benthic infauna health is 0.21 mg/L. There are two eelgrass sentinel stations where the threshold for bioactive nitrogen is 0.16 mg/L: the average of Outer and Inner Ryder's Cove, and Namequoit Point South. Bioactive nitrogen exceeds the threshold level at these stations. There are eight benthic infauna sentinel stations: Muddy Creek-Lower, Round Cove, Paw Wah Pond, Kescayogansett Pond, Namequoit River Upper, Meetinghouse River, Pochet Upper and Little Quanset Pond. As with the eelgrass sentinel stations, the level of bioactive nitrogen exceeds the threshold of 0.21 mg/L at these stations.

The Alliance and its member towns are taking significant steps to address the locallycontrollable nutrient load into Pleasant Bay and Chatham Harbor. As noted in Section I, all four towns are at different stages of addressing watershed septic load through their comprehensive wastewater management planning processes. Chatham is the only town with an approved wastewater management plan. Orleans' plan is in draft form, and Harwich's is under development. Brewster is in the process of organizing their wastewater planning process. The Chatham and Orleans plans call for sewering of properties in the Pleasant Bay watershed, but this is not planned to occur until 2030 to 2040.

The Alliance is spearheading efforts to control nutrient loading from fertilizer use. A study of non-structural strategies is under way and will be completed this year. The study is expected to generate recommendations for public education and possibly regulatory changes to address fertilizer use.

Regarding impervious surface run-off, all four towns have taken steps to address pollutant discharge from stormwater runoff. Not all of the Alliance towns have yet complied with Phase II of the National Pollutant Discharge Elimination System requirements and are continuing work in support of improved storm water management, including potentially a stormwater management bylaw.

As stated above, vessel sewage is another contributor to the nitrogen load of Pleasant Bay that is locally-controllable. The Alliance anticipates that the designation of Pleasant Bay as an NDA will help reduce or eliminate this source of nutrients to the Pleasant Bay estuary.

Bacterial Conditions

Bacterial monitoring is done through sanitary surveys undertaken by the towns in concert with Massachusetts Division of Marine Fisheries. Muddy Creek (Chatham and Harwich), Round Cove (Harwich), a portion of Meetinghouse Pond, Paw Wah Pond, and Pochet Creek (latter three in Orleans) are among the areas closed for the taking of shellfish on a seasonal or indefinite basis due to bacterial contamination. Bacterial contamination has led to TMDLs being issued for the Muddy Creek and Frost Fish Creek subembayments of Pleasant Bay. Regular testing of the Bay's three public swimming areas--Bay Road Beach (Harwich), Route 28 Landing (Orleans), and Jackknife Landing (Chatham) (Figure 7)--is undertaken in compliance with the 2001 Massachusetts Beaches Act and has resulted in a limited number of short-term swimming closures. While it is difficult to attribute sources of bacterial contamination in estuarine waters, vessels, even those with functioning MSDs, can discharge bacteria at levels that exceed state swimming and shellfishing limits. The Alliance hopes that designating Pleasant Bay and Chatham Harbor as an NDA will eliminate boat sewage as a contributor to bacterial problems in these important recreational areas.

Tidal Flushing

Poor flushing exacerbates nitrogen loading or bacterial contamination in some subembayments. In the MEP report, water parcel residence times are reported to range from one day for Pleasant Bay main basin, to several hundreds of days for subembayments such as Round Cove, Kescayogansett, and Arey's Ponds, to more than one thousand days for Muddy Creek. Flow from the main basin into the Muddy Creek subembayment is restricted by an undersized culvert system under Route 28. The formation of North Inlet in 2007 has helped to increase tidal flow and lower residence times. However, additional hydrodynamic and water quality modeling conducted following the 2007 inlet formation has shown that the resulting improvements in flushing have not been sufficient to lower concentrations of bioactive nitrogen to a level meeting the TMDLs. It is also not clear how long current hydrodynamic conditions will persist, given the dynamic nature of the barrier beach and inlet system.

Fisheries

Shellfishing and finfishing are important commercial and recreational activities in Pleasant Bay. Shellfish resources are abundant, as documented in the 2008 Resource Management Plan Update. Of the numerous species of shellfish in the Bay, quahogs, scallops and soft shell clams are, historically, the most popular for commercial and recreational fishing. Quahogs, soft shell clams and scallops were noted in the 1998 plan as the primary commercial species. However, in the last decade razor clams have emerged as a significant commercial species. The Bay has seen a dramatic decline in shellfish harvests for quahogs, scallops, and to a lesser extent, soft shell clams over the past decade (Figure 5). Razor clam harvests have varied but harvest data is more recent (Figure 5). Commercial shellfishing of quahogs and scallops has diminished over the past decade, while razor clams and soft shell clams have provided new opportunities.

Within Pleasant Bay, finfishing is almost entirely a recreational activity. Pleasant Bay is well known as a sport fishing area for striped bass and bluefish. Several offshore commercial species (American eel, winter flounder, white hake, pollock, and menhaden) rely on the Bay's warm waters and extensive marsh areas to provide nursery areas. Numerous conditions influence the

productivity of the Bay's finfish species. Significant trends include the virtual disappearance of winter flounder. Also, there are two active alewife fish runs, and four historic, inactive runs.

In summary, Pleasant Bay continues to support a vibrant recreational fishery for several finfish and shellfish species. However, harvests of almost all species are on the decline. The exact causes for the decline in harvests are unknown, but it is widely believed that dwindling harvests reflect diminished populations of most of these species. Possible causes for the apparent declines in shellfish and finfish populations include:

- Fishing pressure, caused by over-fishing in certain areas, or use of poor techniques;
- Juvenile mortality;
- Loss of predatory equilibrium;
- Environmental stress resulting from the formation of the Chatham breakthrough;
- Presence of non-point source pollutants in the water column and bottom;
- Natural species growth cycles;
- Emergence of alternative species; and
- Loss of habitat, primarily eelgrass.

Although the Towns are taking action to manage nutrient loading and storm water runoff through stormwater management and comprehensive wastewater management planning, the designation of Pleasant Bay and Chatham Harbor as an NDA will provide an additional means of protection from a diffuse and difficult to detect form of pollution.

Recreational and Scenic Resources

Pleasant Bay and Chatham Harbor are a significant regional recreational resource area. Boating is one of the most popular uses of these waterways. Of the 30 public access points located along Pleasant Bay and Chatham Harbor, 26 are town landings (Figure 7). Nine have boat ramps and an additional four are suitable for small boat launching. Additional boating support services are provided at three private facilities: Nauset Marine East located in Meetinghouse Pond, Arey's Pond Boat Yard located in Arey's Pond, and Ryders Cove Boat Yard located in Ryders Cove (Figure 6). Sailing is popular, particularly in Pleasant Bay and Little Pleasant Bay, and there are four sailing programs in operation during the summer season: Pleasant Bay Community Boating at Jackknife Harbor, Arey's Pond Sailing School at the Arey's Pond Boat Yard, the Namequoit Sailing Association in Little Pleasant Bay and Chatham Yacht Club in Pleasant Bay.

Pleasant Bay and Chatham Harbor are without public guarded swimming beaches. However there are locations in Pleasant Bay's main basin that are considered rural beaches (no lifeguard or facilities) and where beach-going and swimming are regular activities and bacterial monitoring occurs. These areas include Jackknife Harbor, Bay Road Beach, and Route 28 Landing. Lighthouse Beach in Chatham Harbor is another popular swimming area. In addition, people swim at small beach areas associated with the following town landings: Meetinghouse Pond, Portanimicut, Strong Island, Cotchpinicut, Scateree, Andrew Hardings Lane, Clafin, and Bearse's Lane. All locations are shown on Figure 7.

Pleasant Bay also is home to significant scenic and natural resources areas including Kent's Point conservation area, and Pochet, Sampson, Hog, and Little Sipson Islands, which are held in trust and subject to conservation restrictions. Strong Island is owned by the Town of Chatham and the Chatham Conservation Foundation and is subject to conservation restrictions. Tern Island is a significant avian habitat owned by the Massachusetts Audubon Society. The Nauset Barrier Beach and inlets are within the boundaries of the Cape Cod National Seashore.

As a significant regional recreational area and scenic resource area, Pleasant Bay and Chatham Harbor are important assets to the regional economy. Many seasonal visitors are attracted to the area to visit the Bay and Harbor. Wequassett Inn and Chatham Bars Inn are premier resorts located on the Bay and Harbor respectively, which attract visitor income to the local economies and contribute property tax dollars. Many other businesses, including motels, inns, restaurants, and marine supply stores among others benefit from the seasonal visitor traffic attracted to the Pleasant Bay and Chatham Harbor area.

IV. VESSEL POPULATION

The number of moorings in Pleasant Bay has increased from 1,383 in 1996 to 1,871 in 2008. According to data collected for the 2008 Resource Management Plan Update, 29% of the moorings are located in Orleans, 36% are located in Chatham, and 20% are located in Harwich. Brewster does not have waterways jurisdiction in Pleasant Bay, although many Brewster residents are mooring permit holders. The distribution of mooring areas in Pleasant Bay and Chatham Harbor is shown on Figure 6.

As the mooring data demonstrate, there is no question that there are more boats in the Bay than a decade ago. It is also anecdotally reported by harbormasters that transient boating has increased at the three town landings with boat access ramps: Round Cove (Harwich), Ryder's Cove (Chatham), and River Road (Orleans), and that, overall, there is a greater number of larger boats (25+ feet) using the bay than a decade ago. However, as shown in Table 1, the vast majority, 93%, are 25 feet or under.

The large percentage of smaller-sized vessels reflects the Bay's character as a shallow draft, recreationally-oriented boating location. Moored, docked, and transient vessels in Pleasant Bay are almost exclusively recreational vessels. Pleasant Bay does not have a large commercial shellfishery and the number of vessels used exclusively for that purpose is estimated to be low.

The Chatham commercial fishing fleet is operated out of Aunt Lydia's Cove (Figure 4) in Chatham Harbor. There are approximately 75 moorings for commercial fishing vessels in Aunt Lydia's Cove and Chatham Harbor. Commercial fishing vessels offload catch at the Fish Pier. According to the Chatham Harbormaster's office, it is believed that few if any of the commercial vessels have a marine head. If they do have a head, they discharge offshore, outside the proposed NDA.

The Beachcomber guide service operates three vessels out of Ryder's Cove. The vessels offer trips to the outer beach and seal tours of Chatham Harbor and can accommodate 31 passengers according to the Beachcomber website. These vessels use the pumpout service in Ryder's Cove (Figure 4).

Pleasant Bay and Chatham Harbor are popular recreational venues, but due to predominantly shoal waters and complexities of navigating into the area through either inlet, there is a limited amount of transient cruising activity and no predominant areas where transient cruising vessels congregate. There is no anchoring allowed in the Harwich waters of Pleasant Bay and no transient moorings in Orleans waters. According to the Chatham Harbormaster, a small number of vessels may anchor east of Tern Island or in Bassing Harbor (Figure 3). In Orleans, transient vessels may anchor at either Arey's Pond Boat Yard (which has a very shallow entrance channel) or Nauset Marine East (Figure 4). Transient vessels entering the Bay or Harbor at one of the town landing ramps tend to be smaller and without a marine head or MSD.

Table 1 shows vessel population by size and Table 2 shows the number of MSDs in the proposed NDA. (Note: all boats less than 16 feet are assumed not to have MSDs).

	v		1	v	
Boat Length	< 16 Feet	16-25 Feet	26-40 Feet	>40 Feet	Total
Moored	453	1,311	106	1	1,871
Docked	4	34	15	0	53
Land racks	60	0	0	0	60
Transient	12	142	2	20	176
Total	529	1,487	123	21	2,160
*MSDs	44	158	97	17	315

Table 1. Pleasant Bay and Chatham Harbor Vessel Population by Size

Source: Boat length information from Harbormasters of Orleans, Chatham, Harwich. For Commercial vessels, see p. 9 text, above. *MSDs calculated using Urban Harbors Institute Methodology

Mooring Location	Type I-II	Type III	Total
			MSD
Orleans	22	37	59
Chatham	8	41	49
Harwich	4	12	16
Bay-wide	34	90	124

 Table 2. Moored Vessels in Pleasant Bay with Marine Sanitation Devices (MSD)²

Source: Harbormasters of Orleans, Chatham, Harwich

V. PUMPOUT FACILITIES WITHIN PROPOSED NDA

According to records maintained by the Harbormasters of Orleans, Chatham, and Harwich, there are currently 124 vessels moored throughout Pleasant Bay and Chatham Harbor with some type of MSD. The mooring location of vessels with MSDs is shown on Figure 4. If the Urban Harbors Institute methodology for estimating MSDs is applied to the distribution of the vessel population by size, the number of MSDs is calculated to be 315. It is reasonable to represent 124 as the smallest number of MSDs in the proposed NDA boundary (because it does not include docked vessels), with 315 representing the upper range of the estimate. In addition, there are 75 commercial fishing boats that discharge offshore and three tour boats that use the pumpout facility in Ryder's Cove.

There are three pumpout facilities located within the proposed NDA boundary. Using the upper estimate of vessels with MSDs (315), the existing pumpout capacity exceeds the required ratio of one pumpout facility per 450 vessels with MSDs. By all accounts from Harbormasters and private boat yard operators, the demand for pumpout service is currently adequately handled. However, the Alliance recognizes that the geographically expansive area encompassed by the proposed NDA may require additional service if demand grows. The Alliance is exploring the feasibility of expanding pumpout capacity in the Bay through either land-based or mobile units.

² If Harbormasters records were unclear about the type of MSD, a Type III was assumed in order to generate the most conservative estimate of the number of vessel MSDs that could require a pumpout.

Pumpout Type and	Open	VHF	Phone	Draft at	Cost	Hours of	Sewage Disposal
Location	to All			MLW		Operation	
	Vessels					-	
Pumpout Boat at	Yes	60	508-430-7532	NA	FREE	On demand	Tri-town septic
Round Cove, Harwich							treatment facility
							(Orleans)
Pumpout Trailer at	Yes	66	508-945-1067	2-3 ft	FREE	M-F 8-5	Chatham
Ryder's Cove,			or			Sat 9-1	wastewater
Chatham			508-945-5185				treatment plant
Pumpout Cart at	Yes	9	508-255-3045	2-3 ft	FREE	On demand	On-site septic
Nauset Marine East at							system
Meetinghouse Pond,							-
Orleans							

Table 3. Pumpout Facilities in Pleasant Bay and Their Accessibility

Description of Pumpout Facilities

The three pumpout facilities described below are located on Figure 4.

Harwich Pumpout Boat

Contact: Harbormaster Tom Leach at 508-430-7532/VHF Channel 60 Hours: Service is available on demand

The Harwich pumpout boat is a 22'Alcar Marine Environmental Boat with 100 hp Johnson outboard. Deep "v" hull design allows for safe storage of sewage in vented tanks. Other features of the boat include an Edson diaphragm pump driven by a 3 hp Briggs and Stratton 4 cycle engine. When out of the water, the boat is hauled on a load rite tandem trailer capable of towing a full load of sewage at 3,000 pounds. The boat is transported to the Tri-town septic treatment plant for evacuations and disposal of sewage. A picture of the Harwich pumpout boat is provided in Appendix B.

Chatham Trailer at Ryder's Cove

Contact: Chatham Harbormaster at 508-945-5185/VHF Channel 66 or Contact: Ryder's Cove Boat Yard at 508-945-1064 Hours: Service is available on demand

A Town-owned mobile pumpout "trailer" unit is located at the Ryder's Cove town landing. The newly-refurbished unit has a gas-powered diaphragm pump, a 250-gallon capacity holding tank and a 30-foot hose. Service is arranged by contacting the Harbormaster. The adjacent Ryder's Cove Boat Yard arranges to use the pumpout for its customers on demand. The pumpout is used three to four times per boating season. Most pumpouts occur on land (rack storage vessels or winter storage preparation) so tide range is not an issue. For in-water vessels, the pumpout is brought to the launch slip, which has a controlling depth of approximately three feet. The only limitation on access is when the launch slip is in use. For this reason the marina tries to schedule pumpouts during nonbusy times (early morning or mid week). At the end of the season, the boat yard uses the pumpout for boats prior to winter storage. Most pumpouts occur on land (rack storage vessels or vessels being prepared for winter storage). For in-water requests, the pumpout is brought adjacent to the launch slip, thus efforts are made to schedule at non-busy times to limit interference with launching of rack storage vessels. At the end of each season, the Harbormaster arranges for disposal of effluent at the Chatham wastewater treatment plant. A picture of a trailer similar to the one used at Ryder's Cove is provided in Appendix A.

Nauset Marine East

Contact: Nauset Marine East at 508-255-3045 Hailing Frequency: VHF Channel 9 Hours: Service is available on demand

Nauset Marine East uses a Todd Caddy with a 28-gallon capacity and a manuallypowered diaphragm pump. Boat yard personnel supervise the use of the caddy. This facility is used six to eight times per week during the boating season, and is available on demand to any boat utilizing Pleasant Bay. For in-water vessels, the pumpout is brought to the vessel dockside and the controlling depth is approximately three feet. The effluent from the facility is disposed of through the marina's septic system. A picture of the same make and model of pumpout cart used at Nauset Marine East is provided in Appendix C.

Sewage Disposal

Sewage from the Chatham pumpout facility is taken from the facility via septic pumping truck and disposed of at regional public waste treatment facilities. The Harwich boat is transported on a load rite tandem trailer capable of towing a full load of sewage at 3,000 pounds to the Tri-town septic treatment plant for evacuations and disposal of sewage. Sewage from the Nauset Marine East cart is disposed of into the boat yard's on-site septic system.

Trends in Pumpout Usage

Modest demand for pumpout service is reported for each of the units described above. Additional use of the units would be anticipated upon designation of an NDA. However, it is anticipated that existing facilities are adequate to meet demand, given the low number of moored vessels with MSDs in the Bay (well below the 1:450 ratio). Given the Bay's expansive geography, the Alliance is continuing to explore options for expanding pumpout capacity if warranted by demand, through either land-based or mobile facilities.

VI. PUBLIC EDUCATION

Public awareness of the importance and purpose of NDA designations has grown with the designation of Chatham's and Harwich's south-facing harbors as NDAs and, more recently, the designation of Cape Cod Bay. The Harwich Harbormaster includes information on NDA requirements and pumpout facilities on his website (http://threeharbors.com/). In Pleasant Bay, information about the availability of existing pumpout service is available upon request from the Harbormasters and marina operators.

Efforts to inform the Pleasant Bay boaters and the general public about an NDA designation for Pleasant Bay have already begun. The recommendation to seek the NDA designation for Pleasant Bay has been included in the Alliance resource management plan and updates which have been adopted by Town Meetings in the four Pleasant Bay towns. Public presentations about the application were made to Boards of Selectmen at televised public meetings. The application also was highlighted in numerous presentations to business and civic groups, and was included in the 2009 annual town reports to be published in all four Pleasant Bay communities.

Upon designation as an NDA, the Alliance will undertake additional public outreach efforts to inform boaters and the general public about the importance of the designation, associated requirements and regulations, and availability of facilities. This would be accomplished by:

- Post information on the four town websites, and the Pleasant Bay Alliance website. The town sites in particular are visited frequently by residents and summer visitors to get information on shellfishing and navigation-related issues.
- Print brochures and distribute the brochures to the following locations at a minimum:
 -Arey's Pond Boat Yard (South Orleans)
 - -Nauset Marine and Nauset Marine East (Orleans and East Orleans)
 - -Ryder's Cove Boat Yard (Chatham)
 - -Chatham Yacht Club (Chatham)
 - -Goose Hummuck Shop (Orleans)
 - -Bosun's Marine (Harwich)
 - -Eastward Ho! Country Club (Chatham)
 - -Wequassett Inn and Resort (Harwich)
 - -Chatham Bars Inn (Chatham)
 - -Chatham, Orleans, Brewster and Harwich Town Hall
- Coordinate with Harbormasters on a mailing of information to all mooring permit holders in Pleasant Bay and Chatham Harbor.
- Issue a press release to local media outlets, including maps and visuals.
- Send press release and brochures for distribution through Friends of Pleasant Bay, Friends of Chatham Waterways and Orleans Pond Coalition. he Alliance also will provide articles about the designation to each group for inclusion in their membership newsletter and communications, and to include on their websites.
- Tape a presentation to be aired on the local cable access channels in each town. These are a reliable way to get detailed information to local residents and seasonal visitors.
- Provide information about the designation at annual Summer Town Meetings held in each of the four towns.
- Place signs at town landings and marinas.

VII. ENFORCEMENT

This application for an NDA designation for Pleasant Bay and Chatham Harbor was developed by a work group that included the Harbormasters of Orleans, Chatham, and Harwich. The Harbormasters already participate in the enforcement of NDA designation in Three Bays (Harwich), Stage Harbor Complex (Chatham), and Cape Cod Bay (Orleans). The Orleans, Chatham, and Harwich Harbormasters provided data and contributed to the development of the application, and helped to bring the proposal to the attention of the waterways committees and Boards of Selectmen in their respective towns. Letters in support of the designation from the three waterways committees with town waters in Pleasant Bay, and from the Boards of Selectmen in all four Alliance towns, as well as numerous other groups, are provided in Appendix D. In its presentations to the town boards and committees, the Alliance conveyed its desire to work with local regulators and advisory committees on an on-going basis to ensure the success of the designation, including the on-going evaluation of pumpout facilities. In particular the Alliance has pledged to coordinate public outreach and education efforts with the Harbormasters and the Waterways Committees.

In January 2009, legislation was signed that gives the director of the Massachusetts Environmental Police, and all that serve under him, the ability to issue an administrative penalty not to exceed \$2,000 per infraction for violations of NDA regulations. This enforcement authority applies to environmental police officers, harbormasters, fish and game wardens, and police officers assigned to patrol the waters of the Commonwealth. Specifically, the law states that no person shall discharge any sewage, whether treated or not, from a marine sanitation device into any waters of the Commonwealth designated by the Secretary of Environmental Affairs as an NDA. This authority is codified in Massachusetts General Law Chapter 90B Section 5C and Section 12.

In practice, Massachusetts Coastal Zone Management, the Alliance, and the Towns of Harwich, Chatham, and Orleans believe that the best enforcement of NDAs occurs through good outreach to the communities. This outreach includes describing where the pumpout facilities are located and how to use them. Education efforts also convey information about why the proper disposal of boat sewage is important for good water quality and helps bolster local economies through increased recreational opportunities, cleaner beaches, fewer shellfish closures, and overall improved coastal habitat.











Figure 5. Quahog, Bay Scallop, Soft Shell Clam, and Razor Clam Harvest Data in Pleasant Bay

Pleasant Bay Quahog Harvest 1975-2005

12,000











Appendix A. Pumpout Trailer at Ryder's Cove, Chatham

Please note, this is a manufacturer's picture. The actual Chatham trailer has been refurbished and some components are from different manufacturers. Also, the Chatham trailer has a smaller, 250-gallon holding tank.

Appendix B. Pumpout Boat at Round Cove, Harwich





Appendix D. Letters of Support

Copies of letters of support for this application are provided in the following pages.



OFFICE OF THE SELECTMEN

PHONE (508) 430-7513 FAX (508) 432-5039

732 MAIN STREET, HARWICH, MA 02645

June 23, 2009

Ann Rodney **USEPA Region** 1 Suite 1100 Mail Code COP Boston, MA 02114-2023

Dear Ms. Rodney:

We offer this letter supporting the application from the Pleasant Bay Resource Management Alliance to make Pleasant Bay a No-Discharge Area. Pleasant Bay was designated as an Area of Critical Environmental Concern more than ten years ago. The resource management plan for the bay recommends that the participating towns of Orleans, Chatham, Harwich and Brewster seek this designation.

Pleasant Bay is a truly remarkable area, one of the last vestiges of a pure coastal embayment replete with salt marshes and deep open water. Its attractions have brought development to its shores and with that has come recreational boats and boaters. Build out and development is having a clear and apparent impact on this lovely bay. You do not have to look far to see areas, like Round Cove as example, choked with sea lettuce and algae blooms which are exacerbated by nutrient loading. Further, direct discharge of boat sewage increases the background fecal coliform count. Pleasant Bay is a popular shellfish gathering area and bacteria has seasonally closed many of its popular coves to shellfishing for years. The need for controlling discharge of boat generated waste is critical to improving water quality.

Harwich has a history of determination to control boat waste. In August 1998, Harwich Port became a Federal No-Discharge Area under Section 312 of the Federal Clean Water Act (CWA) and subsequent Environmental Protection Agency (EPA) regulations (40 CFR Part 130). Until then the Board of Selectmen voted the entire area as a voluntary no discharge zone (1995). The Harbormaster and the Marine Water Quality Committee have been actively working with Massachusetts Coastal Zone Management (MCZM) and EPA officials to enhance a holding tank discharge system that is already available to boaters in Harwich.

Sincerely,

Edward J. McManus Chair

aurence F. Cole

Lawrence P. Cole. Vice Chairman

Roh Swithis

Angelo S. La Mantia Angelo S. La Mantia Jany Ballontero arry Ballontine Robin, D. Wilkins. Clerk

Larry Ballantine

HARWICH BOARD OF SELECTMEN



TOWN OF ORLEANS

19 SCHOOL ROAD ORLEANS

MASSACHUSETTS 02653-3699

Telephone (508) 240-3700 — Fax (508) 240-3703

http://www.town.orleans.ma.us

BOARD OF SELECTMEN

TOWN ADMINISTRATOR

Ms. Ann Rodney USEPA Region 1 1 Congress Street, Suite 1100 Mail Code: COP Boston, MA 02114-2023

Re: Application for Pleasant Bay No Discharge Area

Dear Ms. Rodney:

On behalf of the Orleans Board of Selectmen I am writing in support of the application submitted by the Pleasant Bay Resource Management Alliance to designate Pleasant Bay as a "No Discharge Area" (NDA). Orleans, as well as the Towns of Chatham, Harwich and Brewster, formed the Pleasant Bay Alliance to coordinate implementation of a management plan for the Pleasant Bay Area of Critical Environmental Concern and its watershed. The NDA designation is an important goal of the regional management plan.

The NDA application also is consistent with the Board of Selectmen's mission to further the health of Pleasant Bay's commercial and recreational shellfishing, and to ensure safe and enjoyable boating. We are keenly aware of the need to take every reasonable measure to control sources of pollutants reaching our waters. The NDA designation would eliminate the discharge of treated boat sewage and, we believe, help to build public awareness for environmentally responsible boating practices.

We understand that current pump out facilities are adequate to meet existing demand. However, should additional land-based facilities be needed in the future, we will work with the Alliance and its member towns to see that facilities that may be needed are located in an efficient and effective manner in a mid-bay location as described by the

Alliance Coordinator Carole Ridley.

Very truly yours,

Jon R. Fuller, Chairman Orleans Board of Selectmen



TOWN OF CHATHAM

OFFICE OF THE SELECTMEN TOWN MANAGER 549 Main Street, Chatham, Massachusetts 02633 (508) 945-5100



June 22, 2009

Ms. Ann Rodney **USEPA Region 1** 1 Congress Street Suite 1100 Mail Code: COP Boston, MA 02114-2023

Application to Designate Pleasant Bay a No Discharge Area Re:

Dear Ms. Rodney:

At its meeting on June 9th the Chatham Board of Selectmen voted unanimously to submit a letter in support of a No Discharge Application for Pleasant Bay and Chatham Harbor. Chatham is a member of the Pleasant Bay Alliance, the organization submitting the application on behalf of the Towns of Chatham, Harwich, Orleans and Brewster. The Alliance is responsible for coordinating a resource management program for the Pleasant Bay Area of Critical Environmental Concern (ACEC) and its watershed.

The Bay was designated an ACEC due to its value as a significant coastal ecosystem. Pleasant Bay and Chatham Harbor are important resource areas for the Town of Chatham and are heavily used for boating, recreational and commercial shellfishing, and swimming among other activities. Protection of water quality is a prime management goal for the area. Over the past several years Chatham and the other Alliance towns have invested considerable resources to monitor water quality, assess nutrient loading and to develop wastewater management plans. Pleasant Bay was among the first towns on Cape Cod to have Total Maximum Daily Loads for total nitrogen approved by USEPA.

Designation of Pleasant Bay and Chatham Harbor as a No Discharge Area is an important component of the Alliance's overall efforts to protect water quality. The discharge of untreated or treated boat sewage that is currently allowed is inconsistent with the uses of the Bay, with the ACEC designation and with regional efforts to protect water quality.

We understand that the Alliance has met with the waterways committees and Selectmen in each Alliance community and has obtained unanimous support for this application. We join our member towns in urging your prompt review and approval of this application.

Sincerely, Ronald J. Bergstrom, Chairman Chatham Board of Selectmen



Board of Selectmen Town Administrator

2198 Main Street Brewster, Massachusetts 02631-1898 (508) 896-3701 FAX (508) 896-8089



Ms. Ann Rodney USEPA Region 1 1 Congress Street Suite 1100 Mail Code: COP Boston, MA 02114-2023

Re: Application to Designate Pleasant Bay a No Discharge Area

•

Dear Ms. Rodney:

On behalf of the Brewster Board of Selectmen, I am writing in support of the application by the Pleasant Bay Alliance to designate Pleasant Bay a No Discharge Area. The designation is a long-standing objective of the resource management program for Pleasant Bay, and is consistent with regional efforts to protect water quality in Pleasant Bay.

Many Brewster residents and visitors enjoy the Bay for boating, swimming and shellfishing. These activities rely on high water quality, which is threatened by the potential for vessels to discharge treated boat sewage. While boats with Marine Sanitation Devices (MSDs) constitute a relatively small percentage of boats in the Bay overall, we feel that any contribution of boat waste poses a threat to water quality and that it is prudent to have the designation in place should the number of boats with MSDs grow overtime. The Alliance has pledged to coordinate the public education component of this program to ensure that information about the designation is provided to the boating public in a comprehensive and consistent manner.

The designation of Pleasant Bay as a No Discharge Area is a measure broadly supported by the towns and can readily be implemented with immediate benefit to the resource area. We urge you to approve this application.

Sincerely, L. Cooney Dyanne F. Cooney, Chair Brewster Board of Selectmen



Town of Orleans, Massachusetts

Shellfish / Waterways Advisory Committee

19 School Road Orleans, Massachusetts 02653 Telephone (508) 240-3755 – Fax (508) 240-3388

Ms. Ann Rodney **USEPA REGION 1** 1 Congress Street Suite 1100 Mail Code: COP

March 10, 2009

Boston, MA 02114-2023

Re: Application for Pleasant Bay No Discharge Area

Dear Ms. Rodney:

I am writing on behalf of the Town of Orleans Shellfish and Waterways Improvement Advisory Committee in support of the application submitted by the Pleasant Bay Alliance to designate Pleasant Bay as a No Discharge Area (NDA). Orleans, along with the Towns of Chatham, Harwich and Brewster, formed the Pleasant Bay Alliance to coordinate implementation of a management plan for the Pleasant Bay Area of Critical Environmental Concern (ACEC) and its watershed. The NDA designation is an important goal of the regional management plan.

The NDA application also is consistent with our committee's mission to further the health of the Bay's shellfisheries for commercial and recreational purposes, and to ensure safe and enjoyable boating. We are keenly aware of the need to take every reasonable measure to control sources of pollutants reaching our waters. The NDA designation would eliminate the discharge of treated boat sewage and, we believe, help to build public awareness for environmentally responsible boating practices.

We note that the application recognizes that additional pump out facilities may be needed to meet future demand. We will work with the Alliance and its member towns to see that facilities that may be needed are located in an efficient and effective manner.

Thank you for your consideration of or comments.

Sincerely,

T.E. C. Allo

Timothy Linkkila Chairman

TOWN OF CHATHAM WATERWAYS ADVISORY COMMITTEE

Ms. Ann Rodney USEPA REGION 1 1 Congress Street Suite 1100 *Mail Code:* COP Boston, MA 02114-2023

Re: Application for Pleasant Bay No Discharge Area

April 16, 2009

Dear Ms. Rodney:

I am writing on behalf of the Town of Chatham, Waterways Advisory Committee in support of the application submitted by the Pleasant Bay Alliance to designate Pleasant Bay as a No Discharge Area (NDA). Chatham, along with the Towns of Orleans, Harwich and Brewster, formed the Pleasant Bay Alliance to coordinate implementation of a management plan for the Pleasant Bay Area of Critical Environmental Concern (ACEC) and its watershed. The NDA designation is an important goal of the regional management plan.

The NDA application should further the health of the Bay's shellfisheries for commercial and recreational purposes, and to ensure safe and enjoyable boating. We are keenly aware of the need to take every reasonable measure to control sources of pollutants reaching our waters. The NDA designation would eliminate the discharge of treated boat sewage and, we believe, help to build public awareness for environmentally responsible boating practices.

We note that the application recognizes that additional pump out facilities may be needed to meet future demand. We will work with the Alliance and its member towns to see that facilities that may be needed are located in an efficient and effective manner.

Thank you for your consideration of or comments.

Sincerely, Edward D. Conway, Jr., Chairman



May 18, 2009

Ms. Ann Rodney USEPA Region 1 Suite 1100 Mail Code: COP

Dear Ms. Rodney,

Friends of Pleasant Bay (FOPB) is an organization whose mission is to protect the watershed of Pleasant Bay. The watershed is located in the towns of Harwich, Chatham, Brewster and Orleans, MA. The Board of Directors of FOPB support Pleasant Bay Alliance in requesting that Pleasant Bay be designated as a No Discharge Area (NDA). The NDA designation would make it illegal to discharge treated boat sewage from a vessel with a Marine Sanitation Device (MSD). Currently it is illegal to dump boat untreated sewage into Commonwealth water within three miles from shore, but it is legal to dump sewage treated by an MSD.

In keeping with our mission of protecting the waters in this watershed and to maintain clean waters for drinking and recreation purposes we would like to support Pleasant Bay Alliance in this endeavor.

Sincerely,

Margaret Stanlerg

Margaret Stenberg, President Friends of Pleasant Bay

Cc: Carole Ridley



May 19, 2009

Ann Rodney USEPA Region 1 Suite 1100 Mail Code: COP Boston, MA 02114-2023

Dear Ms. Rodney:

The Orleans Pond Coalition whole heartedly and enthusiastically endorses the Pleasant Bay Alliances' program to designate Pleasant Bay as a "No Discharge Area". The beauty and uniqueness of this very special body of water requires that we all do everything within our power to maintain this magnificent and still pristine body of water. The Bay is such an iatrical part of the lives of those of us that live and enjoy this part of the Cape.

Sincerely yours,

Leonard Short President