



**Massachusetts Department of Public Health
Bureau of Environmental Health Assessment
Environmental Public Health Center – Cape Cod, Massachusetts**

Recreational Use Of Water Bodies On Or Near
The Massachusetts Military Reservation (MMR)
Community Fact Sheet – Annual Update, May 2004

This fact sheet addresses health concerns related to recreational use of selected Upper Cape Cod water bodies and reflects the results of recent chemical testing (see map). Bacterial sampling is performed routinely for swimming waters by the boards of health during the summer months. For specific information about bacterial sampling, contact your local board of health. (See last page for local boards of health contact information).

Based on the available data, water bodies tested near the MMR are safe for swimming, wading, boating and catch-and-release fishing. Please be advised that the Massachusetts Department of Public Health (MDPH) has posted fish consumption advisories due to elevated mercury levels in many ponds across Massachusetts, including Johns Pond, Ashumet Pond, Snake Pond, Mashpee-Wakeby Pond, and Peters Pond.

Q: Can I safely swim, wade or boat in surface waters at or near the MMR?

A: Yes, based on the currently available chemical data, all of the water bodies shown in Table 1 are safe for swimming, wading and boating. Table 1 summarizes available data for the 31 water bodies on or near the MMR that were sampled and analyzed for contaminants at least once between 1997 and 2004. Low levels of volatile and semi-volatile organic compounds (VOCs & SVOCs) were occasionally detected in some surface waters. None of these detections appear to pose any health concern for these recreational activities.

Q: Can I safely fish in surface waters at or near the MMR?

A: Catch-and-release fishing, which means fish that are caught recreationally are released back into the water body unharmed, is safe for all water bodies near the MMR. However, mercury has been detected in fish at levels warranting a Public Health Fish Consumption Advisory for fish from Johns, Ashumet, Snake, Mashpee-Wakeby, and Peters ponds. Refer to **Table 1** for a detailed explanation of these advisories. Mercury levels in these fish are not believed to be MMR related.

In addition, many Bullhead Catfish in Johns and Ashumet ponds have papillomas (wart-like growths). Although papillomas may be unappealing for aesthetic reasons, there are no known health concerns from eating fish with papillomas.

Q: What is the MDPH statewide fish consumption advisory for mercury?

A: In 1994, the MDPH issued a statewide advisory recommending that until more representative information is available on mercury concentrations in fish in Massachusetts freshwater bodies, women should refrain from consumption of freshwater fish while they are pregnant. In 2001, MDPH expanded this advisory to include women of childbearing age who may become pregnant, nursing mothers, and children under 12 years of age. The new advisory also includes several marine fish species. Please be advised, however, that this advisory does not apply to fish stocked in freshwater lakes and ponds.

Mercury is naturally occurring in the earth's crust and thus natural land erosion may contribute to releases of mercury into the environment. Inorganic mercury may enter the air through burning of fossil fuels, mining, and waste or industrial emissions. In freshwater bodies, small organisms convert inorganic mercury to the organic form, methylmercury. Methylmercury enters the aquatic food chain by binding with particles and sediment eaten by fish. MDPH has issued other important recommendations for fish consumption. For more information, call 617-624-5757 or visit the MDPH website at <http://www.state.ma.us/dph/beha/beha.htm>.

Q: How can the ponds be safe for swimming but contain fish that are not safe for eating?

A: While there is a fish consumption advisory for mercury, there is no known health concern related to mercury from activities such as swimming, boating or catch-and-release fishing in ponds that have health advisories. Because fish build up mercury levels in their tissue, mercury can accumulate in fish to levels that are sometimes thousands of times greater than the surrounding waters. Swimming, boating and handling of fish are not likely to expose individuals to elevated levels of mercury.

Q: Have any shellfish data been collected?

A: In response to community concerns regarding the Fuel Spill-28 groundwater plume in Falmouth, MDPH and the Massachusetts Division of Marine Fisheries (MDMF) collected oysters, quahogs and ribbed mussels from Great Pond in Falmouth, and Waquoit Bay in April and August of 1997 for ethylene dibromide (EDB) analysis. No EDB was detected in these samples. In September 1997, in response to concerns about the Landfill-1 (LF-1) groundwater plume, MDPH and MDMF collected oysters, quahogs, soft-shell clams, and ribbed mussels from Red Brook Harbor. In September 2001, MDPH and MDMF collected quahogs and oysters from Red Brook Harbor and oysters from Squeteague Harbor. None of these samples from 1997 and 2001 had detections of VOCs associated with the LF-1 groundwater plume.

Q: Ethylene dibromide (EDB), Royal Demolition Explosive (RDX), and perchlorate, were detected in 2001 and 2002 in groundwater below Snake Pond. Are there possible health impacts related to recreational use of Snake Pond?

A: Surface water samples from the public beach and Camp Good News areas of Snake Pond have been collected since 1996 for EDB, and since 2001 for RDX and perchlorate. None of these compounds have been detected in surface water based on data available through April 2004. Thus, adverse health effects are not expected from opportunities for exposure to these chemicals. As a precautionary measure, biweekly sampling of surface water and pore water (or water found in sediment) will continue as in previous recreational seasons. During 2004, samples will be analyzed for explosives, perchlorate, EDB and VOCs.

Q: Should I be concerned about ethylene dibromide (EDB) in the Coonamessett and Quashnet rivers?

A: EDB was discovered to be present in surface water of the Coonamessett River in 1996 and in the Quashnet River in 1997. A number of cleanup actions have been taken since then, and routine monitoring of these rivers and their associated bogs is ongoing. While some long-term residents may have been at risk for exposure in the past, current sampling data do not suggest exposures that would present health concerns. Since May 2000, no EDB has been detected in either the Coonamessett or Quashnet rivers, and EDB was not detected in any surface water samples taken in 2003 and from the Coonamessett River bogs. However, EDB continued to be detected primarily in two adjacent bogs (K2 and K6 bogs) associated with the Quashnet River. Infrequent contact with these EDB levels in these bogs is not likely to present a health hazard.

Q: Should I be concerned about trichloroethylene (TCE) and tetrachloroethylene (PCE) in the Backus River?

A: In August 2003, levels of TCE and PCE originating from the Ashumet Valley plume were found in surface water upwelling into a ditch associated with cranberry bogs adjacent to the Backus River. Additional investigation efforts are underway to gather surface and groundwater monitoring data to better characterize this contamination. Based on available data, however, infrequent contact with current levels of PCE and TCE in these bogs during recreational use or for cranberry workers are not likely to present a health hazard. These levels are not expected to impact cranberries within the Backus River /Bogs.

Q: How can it be safe to swim and fish in Johns and Ashumet ponds when there are contaminated groundwater plumes upwelling at the bottom?

A: Storm Drain-5 (SD-5) and Chemical Spill-10 (CS-10) groundwater plumes have been found to be upwelling in the northwest portion of Johns Pond. CS-10 and Ashumet Valley groundwater plumes have also been found to be upwelling in the northwest portion of Ashumet Pond. However, no plume-related contaminants have been detected in Johns or Ashumet ponds' surface water since 2000. [Historically, the highest concentration detected in Johns Pond surface water was 3.46 parts per billion (ppb) of trichloroethylene (TCE) (the primary contaminant of concern) about 6 inches above the bottom of the pond

in testing in January 1999. The safe drinking water standard is 5 ppb.] As a precautionary measure, MDPH recommended that AFCEE monitor surface water in Ashumet and Johns ponds throughout the summer season. These samples, collected since 1999 at recreational areas by the Mashpee Board of Health showed no detection of plume contaminants in surface water. Surface water samples will also be collected during the 2004. Based on available surface water sampling data opportunities for exposure to plume contaminants in Ashumet and Johns Pond surface water are not expected to result in health effects.

Q: Are there any other ponds on the Upper Cape that have contaminants upwelling as a result of non MMR-related groundwater contaminant plumes?

A: Two compounds associated with the J. Braden Thompson plume - tetrachloroethylene (PCE) and 1,1,2,2-tetrachloroethane (1,1,2,2-TeCA) - were found at low levels in the Pickerel Cove area of Mashpee-Wakeby Pond. The latest available testing results showed PCE at a level lower than drinking water standards, while the second compound 1,1,2,2-TeCA was slightly higher than guidelines established for drinking water. Given that standards and guidelines associated with consumption of drinking water are purposely conservative, recreational uses of Mashpee-Wakeby Pond are not expected to result in adverse health effects.

**For more information on this fact sheet,
contact Dave Williams of MDPH at (781) 774-6612 or (800) 319 3042.**

OTHER SOURCES OF INFORMATION

**EPA Community
Involvement**
Jim Murphy
(617) 918-1028

**MADEP Community
Involvement**
Ellie Grillo
(508) 946-2886

**Barnstable County Dept. of
Health and the Environment**
George Heufelder
(508) 375-6616

**Air Force Center for
Environmental Excellence**
Doug Karson
(508) 968-4670, X4678
Toll free: 1-866-462-3233

**Impact Area Groundwater
Study Program**
Bob Perry
(508) 968-5628

**Agency for Toxic Substances
and Disease Registry**
Louise House
(508) 968-4362

**Town of Bourne
Board of Health**
Cynthia Coffin
(508) 759-0630

**Town of Falmouth
Board of Health**
David Carignan
(508) 548-7611

**Town of Mashpee
Board of Health**
Glen Harrington
(508) 539-1400, X553

**Town of Sandwich
Board of Health**
David Mason
(508) 888-4200

**Table 1: Recreational Water Bodies On or Near the
MMR With Available Chemical Sampling Data**

Water Body	SAFE FOR			
	Swimming	Wading	Fish Consumption	Boating
<i>Bourne</i>				
Cuff Pond ²	yes	yes	no data	yes
Long Pond ¹	yes	yes	no data	yes
Picture Lake ¹	yes	yes	no data	yes
Red Brook Pond ¹	yes	yes	no data	yes
Red Brook Harbor ⁴	yes	yes	no data	yes
Squeteague Harbor ⁴	yes	yes	no data	yes
Rod & Gun Club Pond ¹	yes	yes	no data	yes
<i>Falmouth</i>				
Backus River (Bogs) ⁴	yes	yes	no data	yes
Coonamessett Pond ³	yes	yes	no data	yes
Coonamessett River (Bogs) ⁴	yes	yes	no data	yes
Crooked Pond ²	yes	yes	no data	yes
Deep Pond/Lily Pond ²	yes	yes	no data	yes
Flax Pond ³	yes	yes	no data	yes
Fresh Pond ¹	yes	yes	no data	yes
Grews Pond ²	yes	yes	no data	yes
Jenkins Pond ³	yes	yes	no data	yes
Mares Pond ²	yes	yes	no data	yes
Round Pond ²	yes	yes	no data	yes
Pond 14 ³	yes	yes	no data	yes
Bourne Pond ¹	yes	yes	no data	yes
<i>Mashpee</i>				
Mashpee Pond ³	yes	yes	NO *	yes
Wakeby Pond ³	yes	yes	NO *	yes
Ashumet Pond ⁴	yes	yes	NO *	yes
Johns Pond ⁴	yes	yes	NO *	yes
Moody Pond ¹	yes	yes	no data	yes
Quashnet River (Bogs) ⁴	yes	yes	no data	yes
<i>Sandwich</i>				
Pimlico Pond ¹	yes	yes	no data	yes
Triangle Pond ¹	yes	yes	no data	yes
Peters Pond ¹	yes	yes	NO*	yes
Weeks Pond ¹	yes	yes	no data	yes
Snake Pond ⁴	yes	yes	NO *	yes

Notes:

¹ Recommendations based on data available for period 1997 through May 1999

² Recommendations based on data available for period June 1999 through May 2000 (historical data from 1997 through May 1999 are available for some water bodies)

³ Recommendations based on data available for period June 2000 through May 2002 (historical data from 1997 through May 2000 are available for some water bodies)

⁴ Recommendations based on data available for period June 2002 through May 2004 (historical data from 1997 through May 2002 are available for some water bodies)

* **Mashpee-Wakeby Pond and Peters Pond:** Children younger than 12 years, pregnant women, nursing mothers, and women of childbearing age who may become pregnant should not eat any smallmouth bass from this pond. The general public should limit consumption of smallmouth bass from this pond to two meals per month.

* **Ashumet Pond:** Children younger than 12 years, pregnant women, nursing mothers, and women of childbearing age who may become pregnant should not eat any largemouth bass from this pond. The general public should limit consumption of largemouth bass from this pond to two meals per month.

* **Johns and Snake Ponds:** Children younger than 12 years, pregnant women, nursing mothers, and women of childbearing age who may become pregnant should not eat any fish from these ponds. The general public should not eat any smallmouth bass from these ponds, and limit consumption of all other fish from these ponds to two meals per month.

Recreational Water Bodies on or Near the MMR with Available Chemical Data

