EPA Update

Nyanza Chemical Waste Dump Superfund Site

Sudbury River Study

October, 2007

The U.S. Environmental Protection Agency completed the Human Health Risk Assessment for the Sudbury River portion of the Nyanza Superfund Site in 2006 and is finalizing the draft Baseline Ecological Risk Assessment for the river. Below is an update on these and other activities.

Human Health Risk Assessment Update

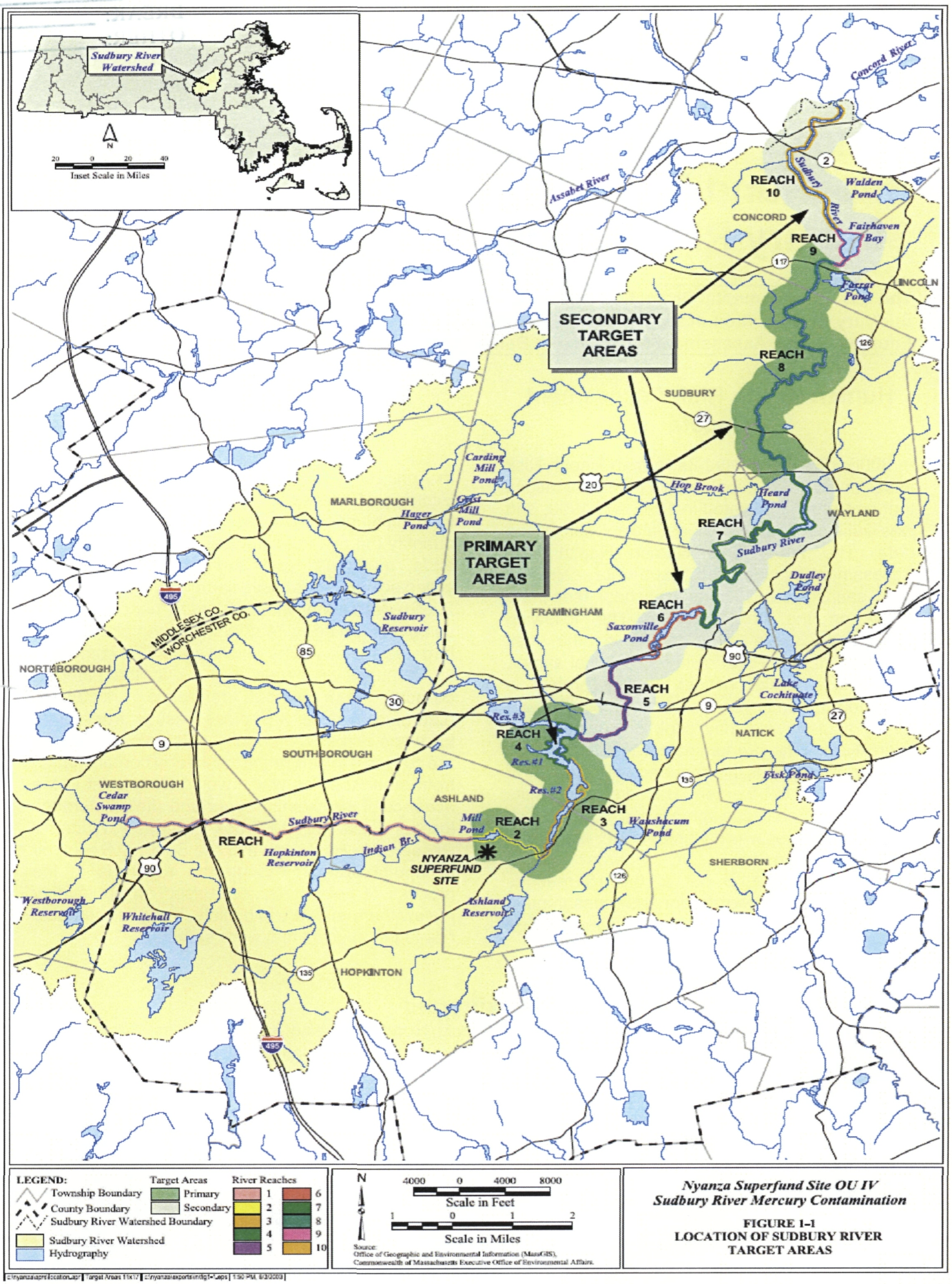
In 2006, EPA completed its Human Health Risk assessment. This supplements prior evaluations that had been completed in 1992 and 1999, and was initiated because of insufficient fish tissue data. The 2006 Final Human Health Risk Assessment includes fish tissue data collected from each of the 10 river "reaches" (see map figure on the next page). The following populations were considered in the risk assessment: adult and child recreational angler, subsistence angler (whose dietary protein is assumed to come from fish caught locally), and ethnic angler (who may cook or consume the entire fish). The predominate variable between these populations is the frequency and quantity of fish presumed to be eaten. Based on the results of the recent fish tissue sampling, a *potential* risk in all river reaches was documented for ethnic and subsistence anglers. In regards to the recreational angler, 3 out of the 10 reaches demonstrated *potential* risk for adult consumption and 7 out of the 10 reaches demonstrated *potential* risk for child consumption.

Ecological Risk Assessment Update

In April 2007, EPA completed the Draft Baseline Ecological Risk Assessment. This study is different from the human health assessment as it attempts to quantify the risk to ecological populations such as birds, mammals, and aquatic organisms. EPA collected numerous tissue samples during 2004 and 2005. Non-lethal methods were used to collect samples from eggs, feathers, fur, and blood of the targeted species. The results were then compared to literature values as well as to the samples collected from various reference locations. (Literature values are those results from other locations across the country. Reference samples are collected to determine the level of contamination from other sources which would likely exist in the absence of the Nyanza Superfund site). Reference locations included Hop Brook in Sudbury, Whitehall Reservoir in Hopkinton and the Sudbury Reservoir in Southborough. Though the report is in the process of being finalized, based on preliminary review there appears to be little, if any, discernable risk to the species that were sampled

Background

The Nyanza Chemical Waste dump is located off Megunko Road in Ashland, Massachusetts. For 61 years, from 1917 to 1978, several companies involved in the manufacture of chemical textile dyes and other products occupied the site. Nyanza, Inc. was in operation most recently, from 1965 until 1978. Certain operations at these chemical facilities led to the release of hazardous substances into the Sudbury River situated approximately 700 feet north of the site. Mercury was the primary contaminant discharged into the river. It is estimated that over the years, approximately 45 to 57 metric tons of mercury was released to the river. Mercury was first discovered in the river sediments in the 1970's by the Commonwealth of Massachusetts.



Nyanza Superfund Site OU IV
Sudbury River Mercury Contamination

FIGURE 1-1
LOCATION OF SUDBURY RIVER TARGET AREAS

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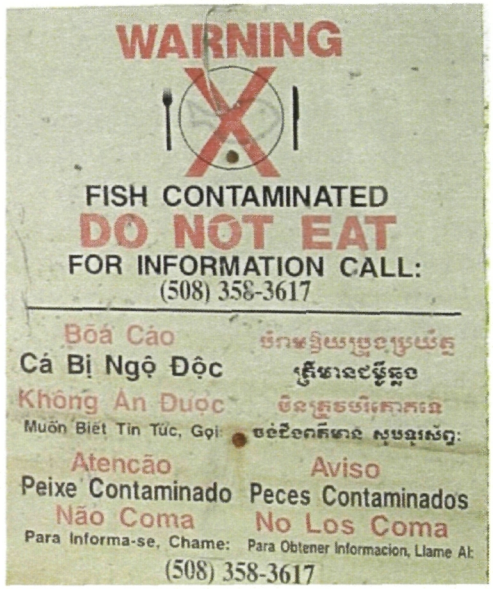
EPA has conducted extensive studies since 1983 to determine the distribution and levels of mercury in the Sudbury River. These studies confirmed that mercury was dispersed intermittently along the 26 miles of river which abuts or transects the following towns: Ashland, Framingham, Sudbury, Wayland, Lincoln and Concord.

As an interim response, warning signs have been posted along the river since 1986 advising the public against the consumption of fish; these have been periodically assessed, repaired and replaced as necessary.



Previous Cleanup Action at Nyanza

- **Landfill** The landfill for the consolidation of onsite contaminated materials was capped and completed in 1992.

- **Groundwater** A plume of volatile organic compounds (VOCs) is present in the groundwater and extends from the Nyanza property to about 3/4 of a mile to the north and east, where it enters the Sudbury River. One of the predominant VOCs in the groundwater plume is trichloroethylene (TCE). Based on the relatively shallow depth to groundwater, indoor migration of TCE vapors into homes became a concern. Indoor air was sampled in over several years and tests revealed the presence of TCE vapors. As a result, EPA took measures to install 43 vapor mitigation systems and completed this work in September 2007. In addition, EPA will work to remove the last known source of VOCs through a series of extraction wells expected to be installed in the Spring of 2008.

- **Wetlands** Cleanup and restoration of the wetlands adjacent to the source site and the drainage areas to the river was completed in 2001.

NYANZA OPERABLE UNITS

This Sudbury River study is known as Operable Unit Four (OU4) of the Nyanza Superfund site. As with many Superfund sites, the contaminated areas associated with the Nyanza site have been broken up into Operable Units, or OUs. EPA creates these OUs to help manage the clean-up process. An OU can be created for many different reasons such as:

- It may represent a logical ownership, ecological, political, or geographical boundary for the purposes of study and cleanup;
- It may describe an area that must be analyzed and/or cleaned up on a separate schedule;
- It may represent a particular medium that has been contaminated (e.g. groundwater or surface water);
- It may describe an area that has a unique type or concentration of contamination.

There are four operable units that are being addressed individually within the overall cleanup effort at Nyanza:

- OU1 Source Control and Soil (Landfill)
- OU2 Off-site Groundwater
- OU3 Wetlands and Drainageways
- OU4 Sudbury River

What's Ahead

EPA, and the Massachusetts Department of Environmental Protection (MassDEP) met in 2007 with representatives of the Department of Conservation and Recreation (DCR) and the Massachusetts Water Resource Authority (MWRA) to discuss past, present, and future use of Reservoirs 1 and 2 both of which are downstream from the Nyanza site. Based on these meetings, EPA was informed that these reservoirs are no longer designated as back-up emergency drinking water supplies. EPA and MassDEP will continue to communicate with these agencies.

The next step in the EPA Superfund cleanup process is the Feasibility Study. Based on the potential risk(s) identified, the Feasibility Study evaluates different clean-up alternatives. Typically the number and complexity of the possible alternatives can vary greatly. Alternatives that are frequently evaluated at other similiar sites and may be evaluated at Nyanza include:

- no action
- dredging
- capping in place
- monitored natural restoration.

Each alternative is evaluated against such criteria as:

- Short- and long-term effectiveness
- Compliance with State and local regulations
- Implementability
- Cost effectiveness
- Community Acceptance

After the Feasibility Study is complete, including the evaluation of alternatives, EPA will prepare a Proposed Plan. A public hearing will be held to allow the citizens to comment on the Proposed Plan. EPA estimates that the Feasibility Study and Proposed Plan will prepared by December 2008.

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For more information about the Nyanza Superfund Site please see our website:
www.epa.gov/ne/superfund/sites/nyanza