

CENTRAL MASS. MOSQUITO CONTROL

[www.cmmcp.org](http://www.cmmcp.org)

# MOSQUITO CONTROL IN CENTRAL MASSACHUSETTS

~ AN OVERVIEW ~

TIMOTHY D. DESCHAMPS

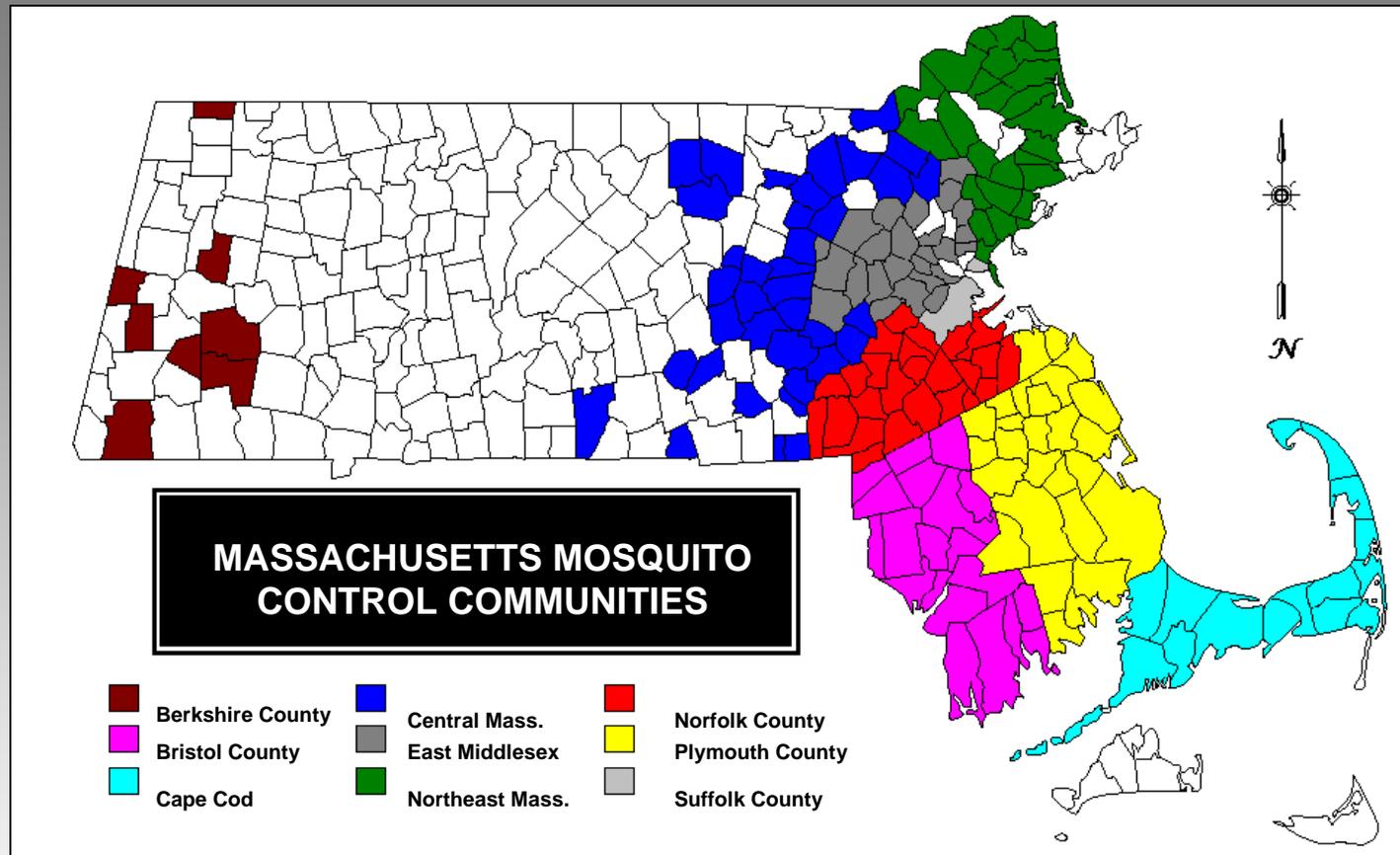
Executive Director



## 9 Mosquito Districts in Mass.

- Berkshire County MCP
- Bristol County MCP
- Cape Cod MCP
- **Central Mass. MCP**
- East Middlesex MCP
- NE Mass. Wetlands Mgmt. & MC District
- Norfolk County MCP
- Plymouth County MCP
- Suffolk County MCP





# Mosquito Districts in Mass.





## New member for 2011

- Devens



## Components of Our Program:

1. Surveillance
2. Public Education
3. Ditch Maintenance
4. Larval Control
5. Adult Control
6. Research & Efficacy
7. Source Reduction



# Surveillance

**Gravid trap**



**CDC light trap**



**Resting boxes**



## 2010 CMMCP Surveillance

- 787 pools (collections)
- 13,673 total specimens tested
- 11 viral isolates in mosquitoes, all West Nile Virus



# Public Education

**MOSQUITOES**  
and you!!



**CENTRAL MASS  
MOSQUITO CONTROL  
PROJECT**

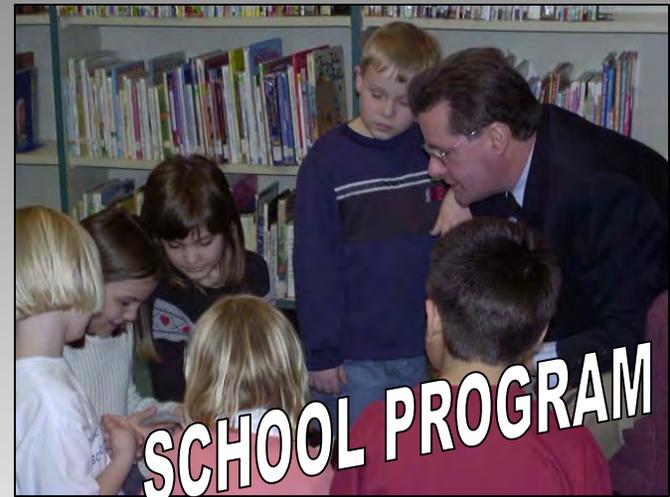
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for additional information, please  
access our website at  
[www.cmmcp.org](http://www.cmmcp.org)



BROCHURE



# CENTRAL MASS. MOSQUITO CONTROL PROJECT

The CMMCP tire program is up and running again  
Click here for details

Results of our 2010 resident survey are in:  
Click here for a .pdf report

- ABOUT CMMCP
- OUR SERVICES
- REQUEST SERVICE
- '10 MOSQUITO SUMMARY
- MOSQUITO INFO
- PESTICIDE INFO
- MOSQUITO LINKS
- VIRUS INFO
- FAQ
- CONTACT US

Text only version



CMMCP is a PESP partner with the EPA  
Click the logo for more details



photo by Tim Deschamps  
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**CMMCP website – [www.cmmcp.org](http://www.cmmcp.org)**

# Ditch Maintenance





## Ditch Maintenance (Chelmsford 2010)



## Ditch Maintenance (Natick 2010)

# Larval Control



## Larval Control Products

- Bacterial (wetlands)
  - Bti (*Bacillus thuringiensis israelensis*)
- Insect Growth regulator (catch basins)
  - Methoprene (Altosid®)
- Surfactant/Oils (limited use)
  - refined mineral oil



# Larval Site Card (front)

Central Massachusetts Mosquito Control Project

Mosquito Larvae Site Card

Town \_\_\_\_\_ District # \_\_\_\_\_ Map Section \_\_\_\_\_

Date \_\_\_\_\_ Prepared By \_\_\_\_\_

Location \_\_\_\_\_

Landowner \_\_\_\_\_

Comments \_\_\_\_\_

<p><b>Site #</b></p>   
----------------------------------

<i>Type</i>	
Spring Brood	_____
Re-flood	_____
Permanent	_____
Container	_____
Waste Water	_____
Other	_____

<i>Size</i>	
Dimensions	X _____
< 1/4 Acre	_____
1/4 - 1/2 Acre	_____
1/2 - 1 Acre	_____
1 - 5 Acres	_____
> 5 Acres	_____

<i>Vegetation</i>	
A.	_____ Cattail & Low brush
B.	_____ Meadow Grasses & Aquatic
C.	_____ Heavy Tree Canopy Sparse Underbrush
D.	_____ Heavy Tree Canopy Dense Underbrush
E.	_____ Heavy Tree Canopy Alders, & Grasses
Other	_____



# Aerial Larval Control



## Aerial Larval Control (cont.)

- 3 towns in program, Chelmsford (~700 acres), Billerica (~600 acres) and Boxborough (~900 acres)
- Aimed at reducing dependence on the spray program and reducing spring species, as well as possible vector species.

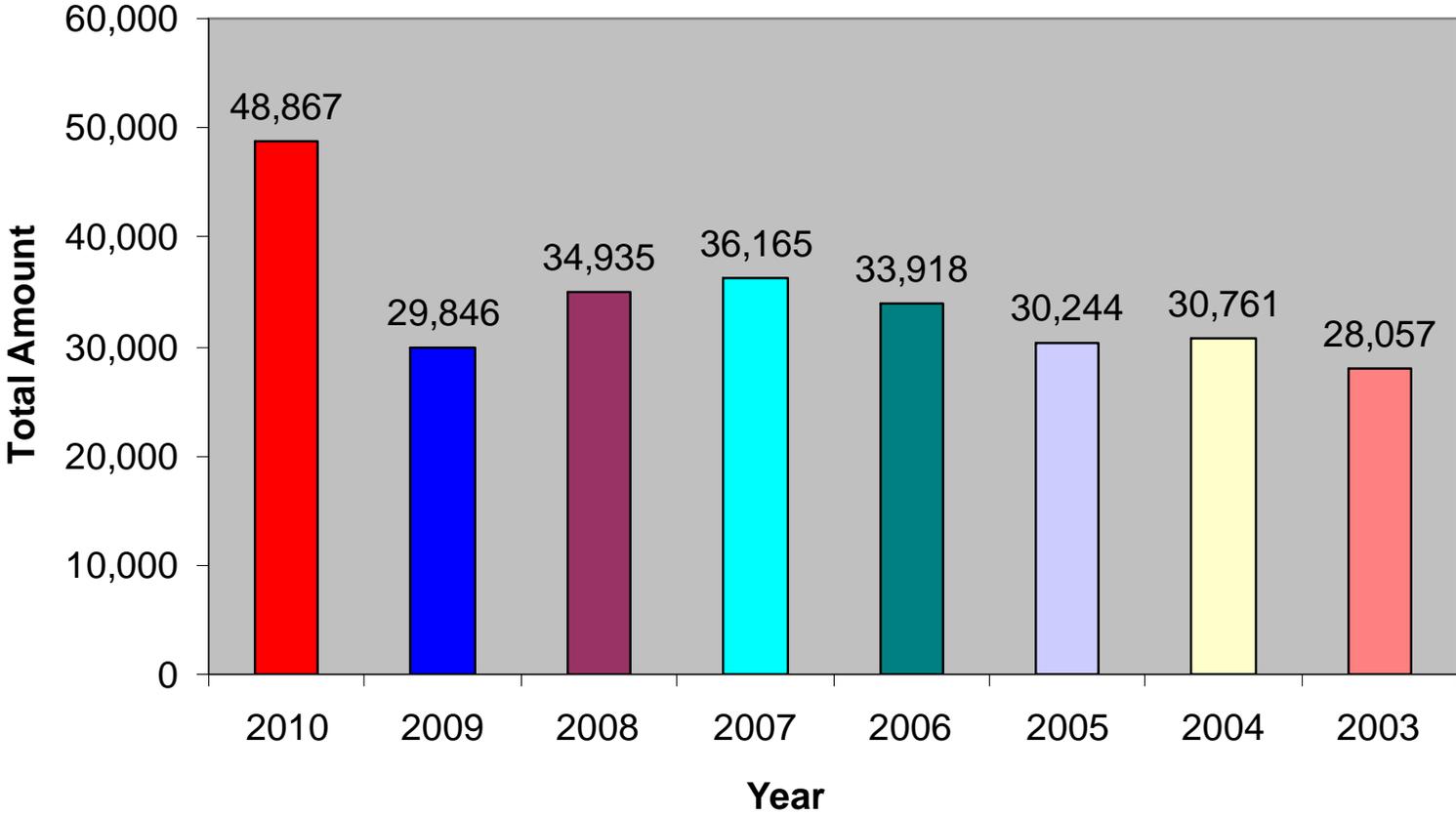


## Larval Control in catch basins

- Basins are the preferred habitat of the *Culex* mosquito
- Part of our West Nile Virus control program
- Anticipated more WNV in 2010, expanded basin control by 64%



### Catch Basin Treatment History 2003-2010



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# Adult Control



photo by Tim Deschamps



## Adult Control Product

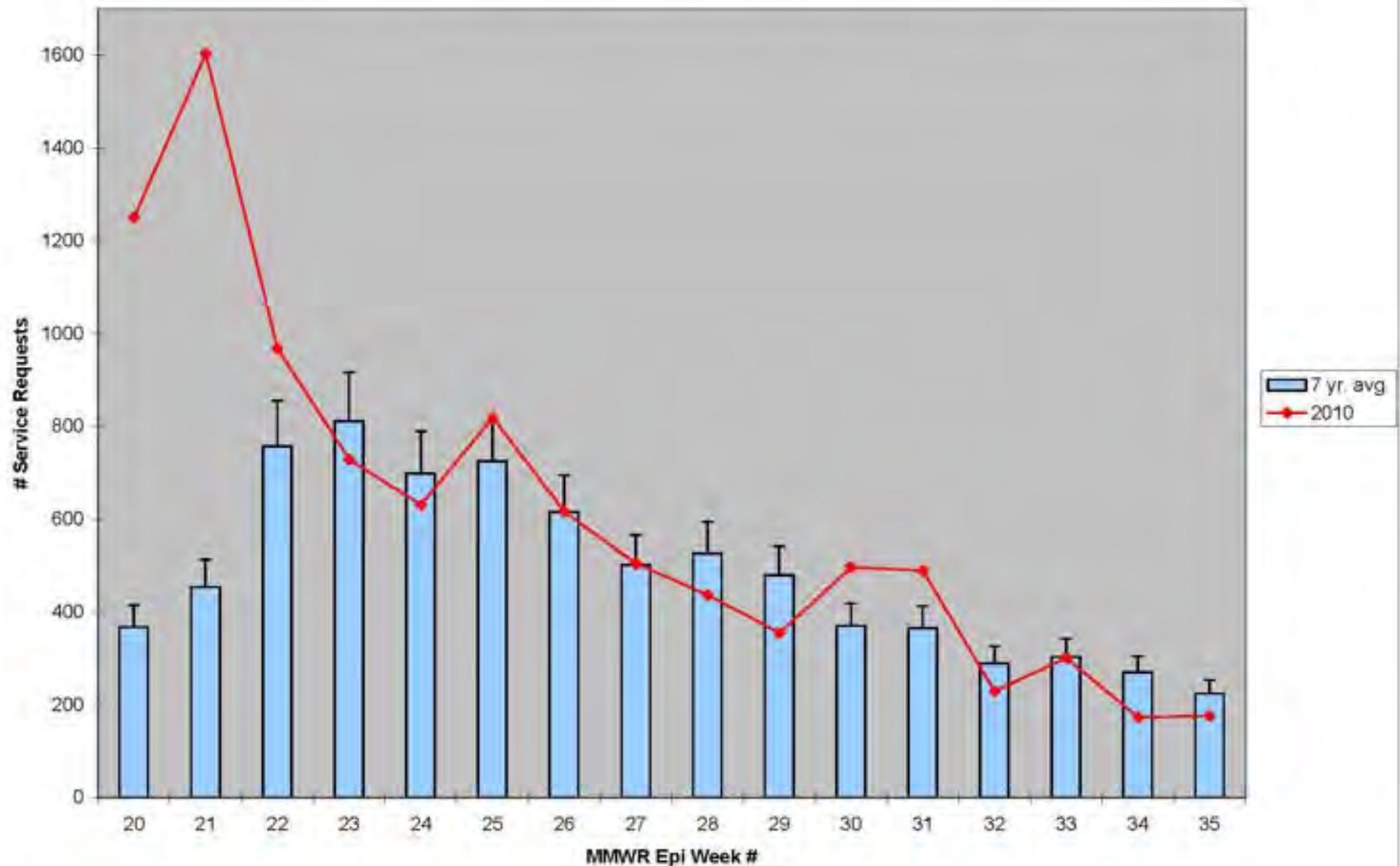
- Sumithrin, a synthetic pyrethroid
- Not a residual product, rapid decomposition in the environment
- Low toxicity to humans, pets, etc.
- **Toxic to fish & bees**



## Adult Control Product (cont.)

- **“Customer driven” - applications by request only or after confirmation of virus**
- 11,117 service requests in 2010 – 1,062 larval checks, 10,055 spray requests
- On par with 3 yr average of 11,518, but a 85% increase over the 2003-2006 average of 6,005

### ULV Service Request History Comparison 2003-2010



Error bars show approx. number of requests if we had 38 cities and towns over the 7 year average

## Pyrethroids

- Animal Products (flea spray, flea shampoos)
- Restaurant applications
- Food & grain storage
- Available to homeowners as Yard Guard®, Repel®, etc.



## Landing Rates

- Landing rates  $>1$  per min.\*
- 98 landing rates in 2010\*\*
- 19/98 (19%) had no application\*\*\*

\*from the Mass. GEIR

\*\* Landing rates are suspended after confirmation of virus – July 10, 2010.

\*\*\*either below threshold or during nights with no service requests



## Exclusion properties (No Sprays)

- Letters sent to all City/Town Clerks in January
- Can register with Clerk, CMMCP or through our website
- Detailed list sent with all pesticide applicators & on GPS units



## Spray Notifications

- Monthly schedules sent to all Boards of Health, City/Town Clerks & Police Dept. 2 weeks prior to start of each month
- Street listings on CMMCP phone system after 3:30pm each day
- Street listing on CMMCP website after 3:30pm each day.
- Detailed listing given to Police Dept. each afternoon



## Research & Efficacy

- New department for CMMCP – includes GIS capabilities
- Past studies:
  - Mosquito bloodmeal analysis
  - Pesticide resistance testing
  - Adulticide program efficacy evaluation
  - Host-seeking activity
  - Resident survey



## Research & Efficacy (cont.)

### Pesticide resistance (sumithrin/resmethrin)

- Done for past 5 years, no resistance noted in area



## Research & Efficacy (cont.)

### Adulticide Efficacy - 2007

- 2-3 days (avg.) of control
- Low residual nature of sumithrin
- Re-infestation from untreated areas
- New emergence



## Research & Efficacy (cont.)

### Resident Survey 2010

- 20 questions, plus a 1-5 rating system
- 264 respondents from 1,500, 18%
- Overall satisfaction, 94.2%
- 98.9% will use our services again
- 7,423 points from 8,950 possible, 4.14 average (from 5 max points)

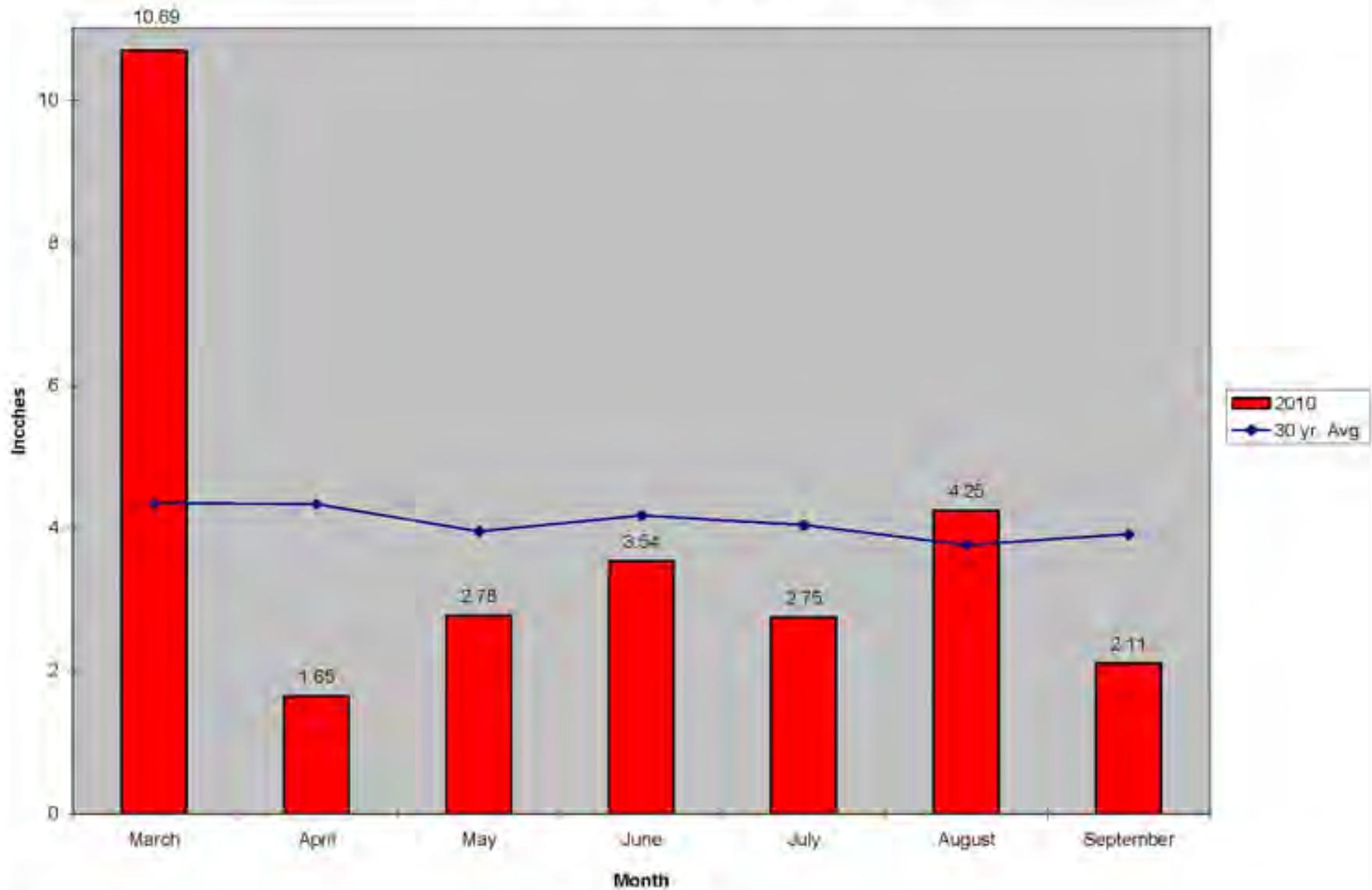
## Research & Efficacy (cont.)

### Resident Survey 2005-2010

- 92.3% (avg.) are satisfied with service
- 98.5% (avg.) will use service again
- 1,260 total respondents (from 6,000 21%)

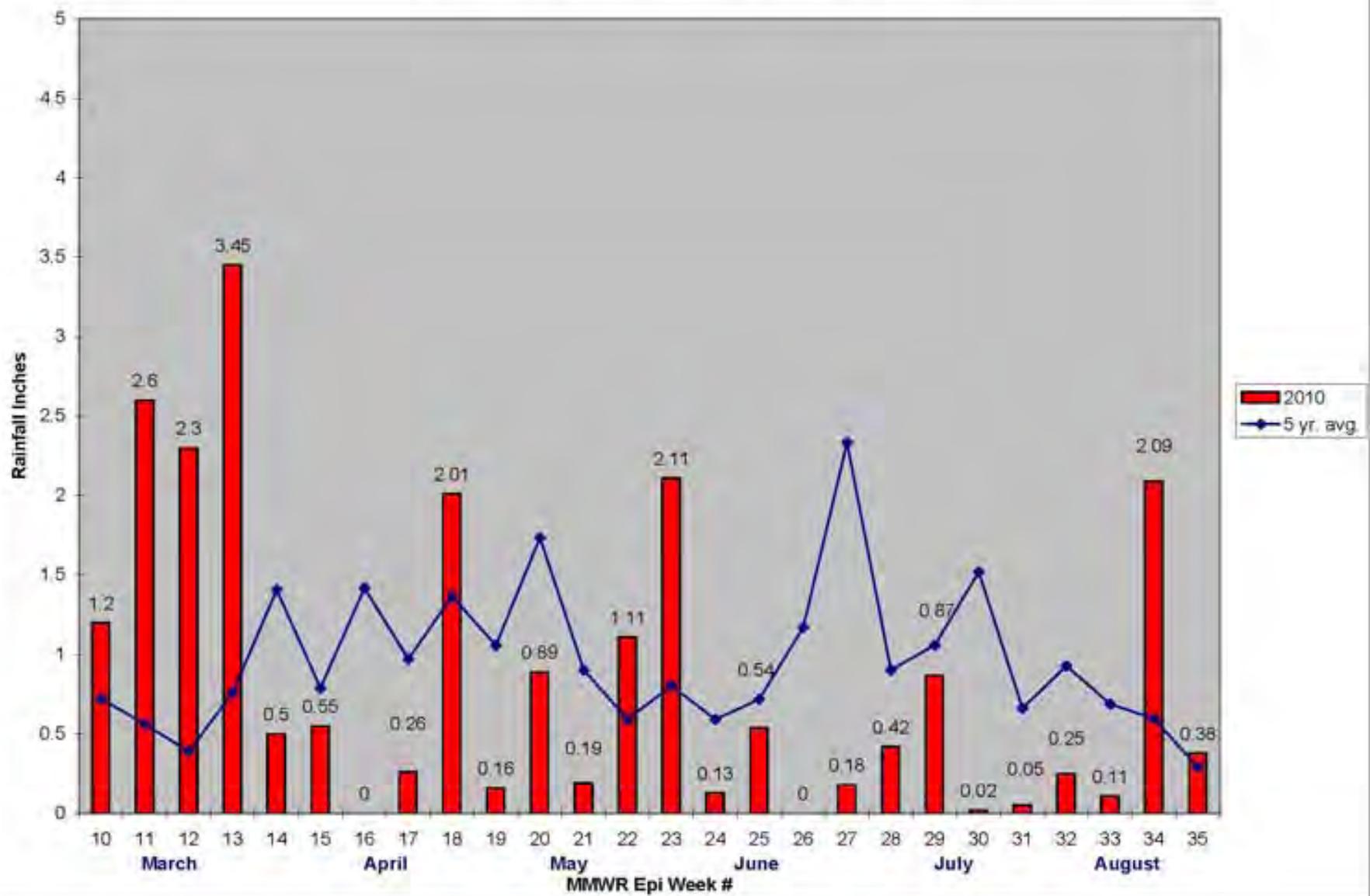


2010 Mass. Rainfall Data vs. 30 Year Average\*



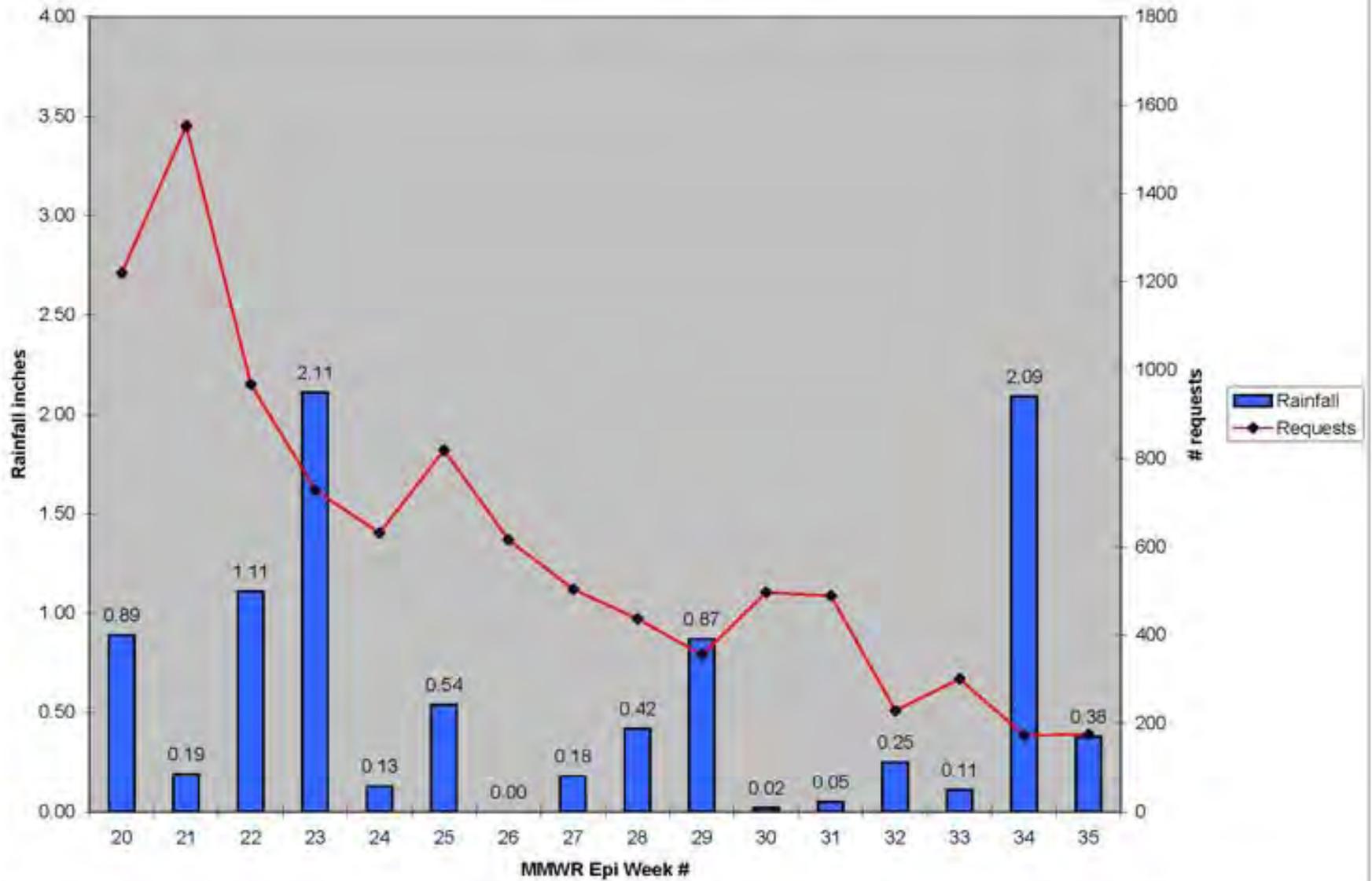
\*Source: Northeast Regional Climate Center: [http://www.nrcc.cornell.edu/page\\_summaries.html](http://www.nrcc.cornell.edu/page_summaries.html)

2010 CMMCP Weekly Rainfall vs. 5 Year Average\*



\*Source: CMMCP Weather Station - Northborough, MA

2010 Rainfall vs. Requests



## Source Reduction

- New program for CMMCP
- Operates off grants & operating budget  
– cost is \$2.00/tire
- 3,523 tires recycled to date in 26 member cities & towns
- Brought to a recycling center in Littleton, MA



**ASHLAND, MA**

**1,300+ tires**

**BEFORE**



**ASHLAND, MA**

**0 tires**

**AFTER**



## Pesticide Environmental Stewardship Program (PESP)

- A program of the EPA to reduce health and environmental risks associated with pesticide use.
- Awarded to CMMCP in 2007-2010



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# MOSQUITO-BORNE DISEASES IN CENTRAL MASS.



# ARBOVIRUS DISEASE TRANSMISSION CYCLE



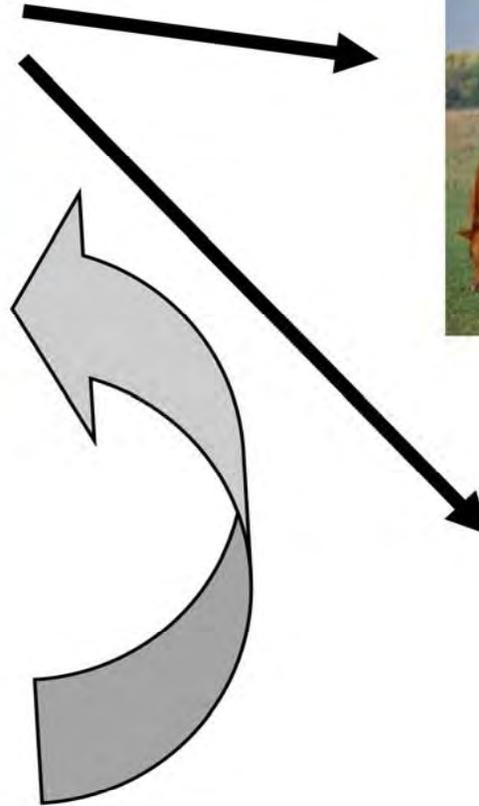
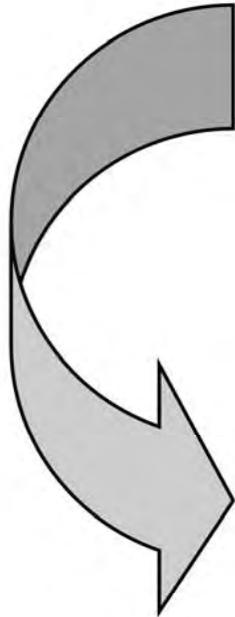
MOSQUITO (VECTOR)



BIRD (RESERVOIR)



INCIDENTAL INFECTIONS



## West Nile virus (WNV) activity reported to ArboNET, by state, United States, 2010 *as of November 16, 2010*



**2010 WNV**

**944 cases reported – 7 in Mass.  
39 deaths – none in Mass.**



# MA WNV Surveillance Summary

## 2010

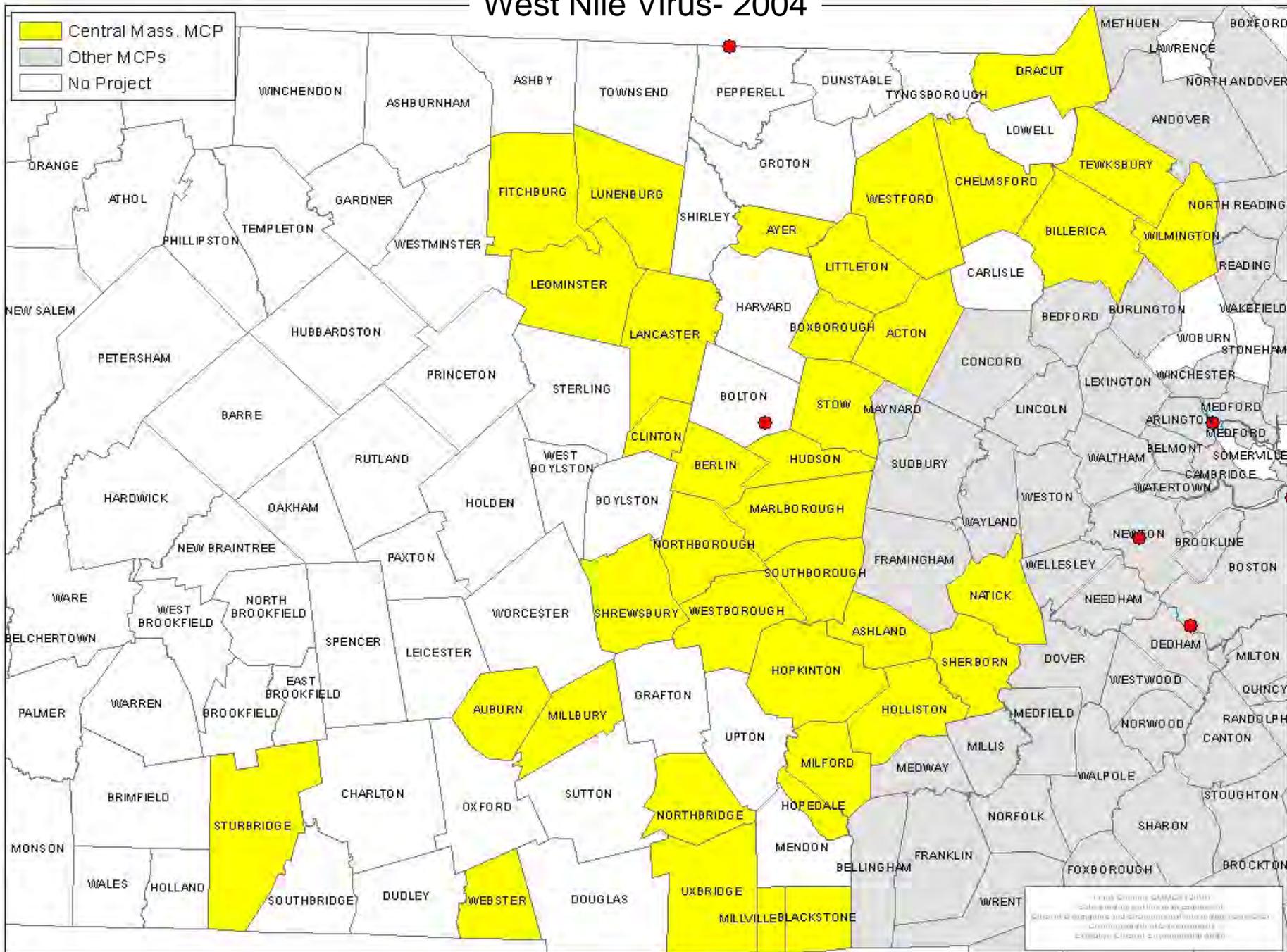
Mosquito Pools Positive	121
Animals Positive*	1
Humans Positive**	7

(\*horse, Hudson)

(\*\*Worcester (2), Boston (2), Holyoke, Revere & Lexington)



# West Nile Virus- 2004



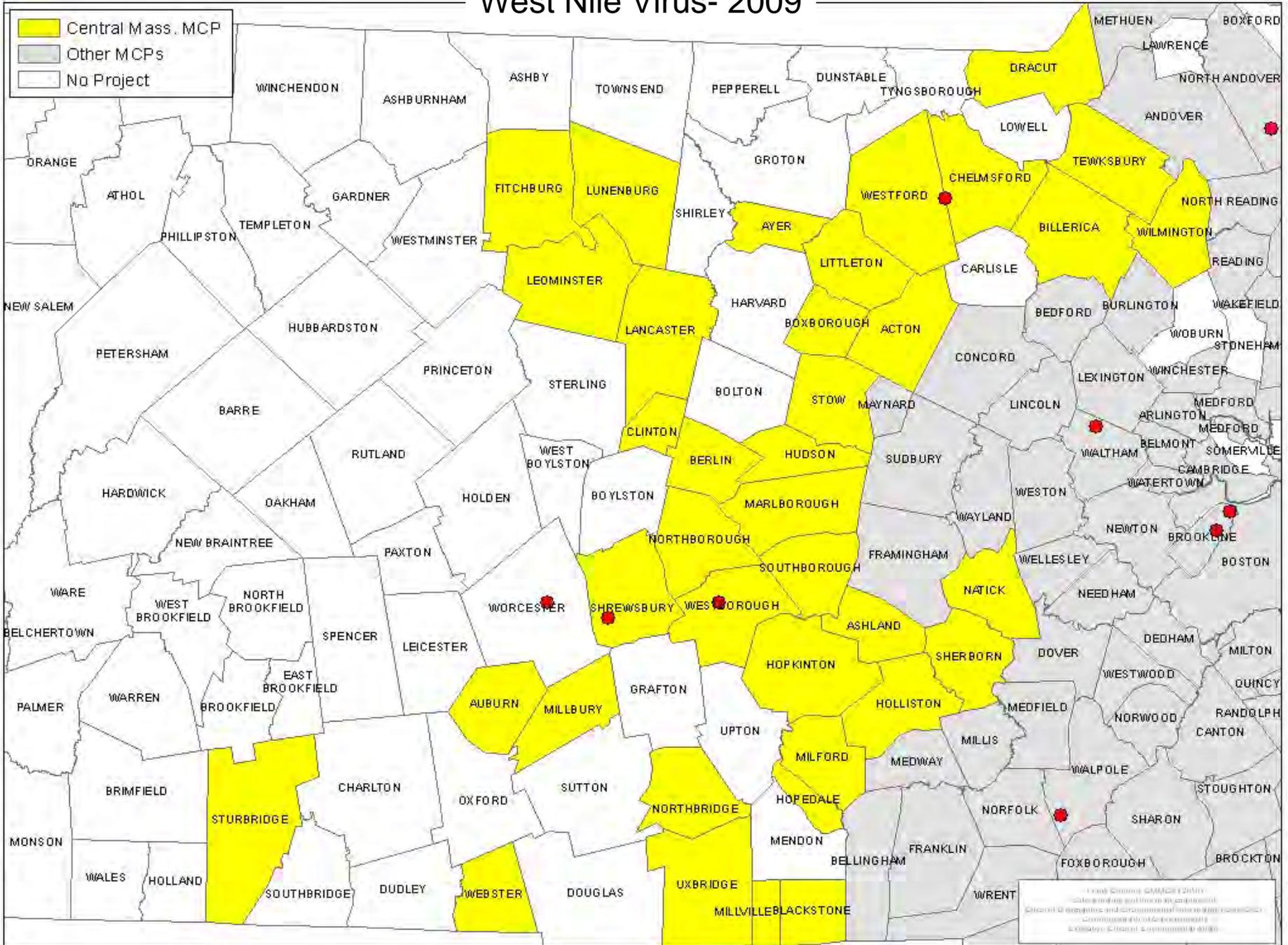








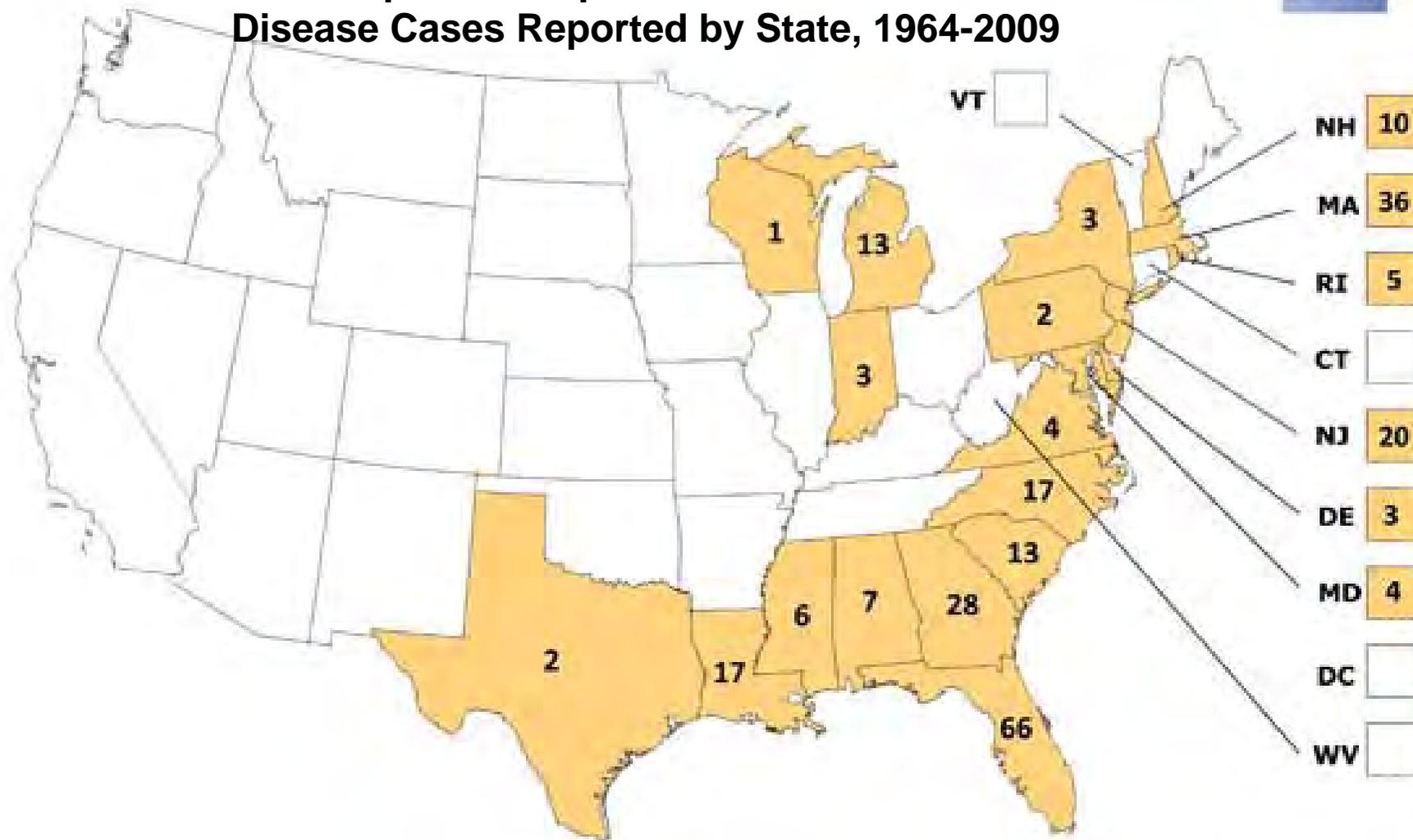
# West Nile Virus- 2009



1. Food Service (MCP) (2009)  
 2. Geographic and Environmental Data (2009)  
 3. Massachusetts Department of Environmental Protection  
 4. 2009-2010-2011-2012-2013-2014-2015-2016-2017-2018-2019-2020-2021-2022-2023-2024-2025-2026-2027-2028-2029-2030-2031-2032-2033-2034-2035-2036-2037-2038-2039-2040-2041-2042-2043-2044-2045-2046-2047-2048-2049-2050-2051-2052-2053-2054-2055-2056-2057-2058-2059-2060-2061-2062-2063-2064-2065-2066-2067-2068-2069-2070-2071-2072-2073-2074-2075-2076-2077-2078-2079-2080-2081-2082-2083-2084-2085-2086-2087-2088-2089-2090-2091-2092-2093-2094-2095-2096-2097-2098-2099-2100-2101-2102-2103-2104-2105-2106-2107-2108-2109-2110-2111-2112-2113-2114-2115-2116-2117-2118-2119-2120-2121-2122-2123-2124-2125-2126-2127-2128-2129-2130-2131-2132-2133-2134-2135-2136-2137-2138-2139-2140-2141-2142-2143-2144-2145-2146-2147-2148-2149-2150-2151-2152-2153-2154-2155-2156-2157-2158-2159-2160-2161-2162-2163-2164-2165-2166-2167-2168-2169-2170-2171-2172-2173-2174-2175-2176-2177-2178-2179-2180-2181-2182-2183-2184-2185-2186-2187-2188-2189-2190-2191-2192-2193-2194-2195-2196-2197-2198-2199-2200-2201-2202-2203-2204-2205-2206-2207-2208-2209-2210-2211-2212-2213-2214-2215-2216-2217-2218-2219-2220-2221-2222-2223-2224-2225-2226-2227-2228-2229-2230-2231-2232-2233-2234-2235-2236-2237-2238-2239-2240-2241-2242-2243-2244-2245-2246-2247-2248-2249-2250-2251-2252-2253-2254-2255-2256-2257-2258-2259-2260-2261-2262-2263-2264-2265-2266-2267-2268-2269-2270-2271-2272-2273-2274-2275-2276-2277-2278-2279-2280-2281-2282-2283-2284-2285-2286-2287-2288-2289-2290-2291-2292-2293-2294-2295-2296-2297-2298-2299-2300-2301-2302-2303-2304-2305-2306-2307-2308-2309-2310-2311-2312-2313-2314-2315-2316-2317-2318-2319-2320-2321-2322-2323-2324-2325-2326-2327-2328-2329-2330-2331-2332-2333-2334-2335-2336-2337-2338-2339-2340-2341-2342-2343-2344-2345-2346-2347-2348-2349-2350-2351-2352-2353-2354-2355-2356-2357-2358-2359-2360-2361-2362-2363-2364-2365-2366-2367-2368-2369-2370-2371-2372-2373-2374-2375-2376-2377-2378-2379-2380-2381-2382-2383-2384-2385-2386-2387-2388-2389-2390-2391-2392-2393-2394-2395-2396-2397-2398-2399-2400-2401-2402-2403-2404-2405-2406-2407-2408-2409-2410-2411-2412-2413-2414-2415-2416-2417-2418-2419-2420-2421-2422-2423-2424-2425-2426-2427-2428-2429-2430-2431-2432-2433-2434-2435-2436-2437-2438-2439-2440-2441-2442-2443-2444-2445-2446-2447-2448-2449-2450-2451-2452-2453-2454-2455-2456-2457-2458-2459-2460-2461-2462-2463-2464-2465-2466-2467-2468-2469-2470-2471-2472-2473-2474-2475-2476-2477-2478-2479-2480-2481-2482-2483-2484-2485-2486-2487-2488-2489-2490-2491-2492-2493-2494-2495-2496-2497-2498-2499-2500-2501-2502-2503-2504-2505-2506-2507-2508-2509-2510-2511-2512-2513-2514-2515-2516-2517-2518-2519-2520-2521-2522-2523-2524-2525-2526-2527-2528-2529-2530-2531-2532-2533-2534-2535-2536-2537-2538-2539-2540-2541-2542-2543-2544-2545-2546-2547-2548-2549-2550-2551-2552-2553-2554-2555-2556-2557-2558-2559-2560-2561-2562-2563-2564-2565-2566-2567-2568-2569-2570-2571-2572-2573-2574-2575-2576-2577-2578-2579-2580-2581-2582-2583-2584-2585-2586-2587-2588-2589-2590-2591-2592-2593-2594-2595-2596-2597-2598-2599-2600-2601-2602-2603-2604-2605-2606-2607-2608-2609-2610-2611-2612-2613-2614-2615-2616-2617-2618-2619-2620-2621-2622-2623-2624-2625-2626-2627-2628-2629-2630-2631-2632-2633-2634-2635-2636-2637-2638-2639-2640-2641-2642-2643-2644-2645-2646-2647-2648-2649-2650-2651-2652-2653-2654-2655-2656-2657-2658-2659-2660-2661-2662-2663-2664-2665-2666-2667-2668-2669-2670-2671-2672-2673-2674-2675-2676-2677-2678-2679-2680-2681-2682-2683-2684-2685-2686-2687-2688-2689-2690-2691-2692-2693-2694-2695-2696-2697-2698-2699-2700-2701-2702-2703-2704-2705-2706-2707-2708-2709-2710-2711-2712-2713-2714-2715-2716-2717-2718-2719-2720-2721-2722-2723-2724-2725-2726-2727-2728-2729-2730-2731-2732-2733-2734-2735-2736-2737-2738-2739-2740-2741-2742-2743-2744-2745-2746-2747-2748-2749-2750-2751-2752-2753-2754-2755-2756-2757-2758-2759-2760-2761-2762-2763-2764-2765-2766-2767-2768-2769-2770-2771-2772-2773-2774-2775-2776-2777-2778-2779-2780-2781-2782-2783-2784-2785-2786-2787-2788-2789-2790-2791-2792-2793-2794-2795-2796-2797-2798-2799-2800-2801-2802-2803-2804-2805-2806-2807-2808-2809-2810-2811-2812-2813-2814-2815-2816-2817-2818-2819-2820-2821-2822-2823-2824-2825-2826-2827-2828-2829-2830-2831-2832-2833-2834-2835-2836-2837-2838-2839-2840-2841-2842-2843-2844-2845-2846-2847-2848-2849-2850-2851-2852-2853-2854-2855-2856-2857-2858-2859-2860-2861-2862-2863-2864-2865-2866-2867-2868-2869-2870-2871-2872-2873-2874-2875-2876-2877-2878-2879-2880-2881-2882-2883-2884-2885-2886-2887-2888-2889-2890-2891-2892-2893-2894-2895-2896-2897-2898-2899-2900-2901-2902-2903-2904-2905-2906-2907-2908-2909-2910-2911-2912-2913-2914-2915-2916-2917-2918-2919-2920-2921-2922-2923-2924-2925-2926-2927-2928-2929-2930-2931-2932-2933-2934-2935-2936-2937-2938-2939-2940-2941-2942-2943-2944-2945-2946-2947-2948-2949-2950-2951-2952-2953-2954-2955-2956-2957-2958-2959-2960-2961-2962-2963-2964-2965-2966-2967-2968-2969-2970-2971-2972-2973-2974-2975-2976-2977-2978-2979-2980-2981-2982-2983-2984-2985-2986-2987-2988-2989-2990-2991-2992-2993-2994-2995-2996-2997-2998-2999-3000-3001-3002-3003-3004-3005-3006-3007-3008-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# Eastern Equine Encephalitis Virus Neuroinvasive Disease Cases Reported by State, 1964-2009



1 positive human in 2010



# MA EEEV Surveillance Summary

- October 22, 2010

Mosquito Pools Positive 65

Horses Positive 4

(Warren, Lancaster, Middleboro & Plympton)

Humans Positive 1\*

(Middleboro, \*RI man with MA exposure)



## EEEV in Lancaster

- Horse mortality in northern part of Lancaster.
- Northern area sprayed Aug 19 right after notification from MDPH (Aug. 18)
- Town-wide spraying done Aug. 26 (after weather delays)



## EEEV in Lancaster

- Press release sent to local papers and all towns in area
- Continued mosquito trapping did not show subsequent EEE



# EEEV in Bolton

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What to do??

Bolton is a non-member town



## EEEV in Bolton

- Notified of EEE positive *Cq. perturbans* on Aug. 24
- CMMCP has a policy in place for intervention in non-member towns
- Began consultation with Nashoba Associated Boards of Health, state and town officials



## EEEV in Bolton

- Risk area identified
- Notification to area residents – 14 exclusion properties, 12 requests to be sprayed
- 2/3 town sprayed on Aug 30.
- No subsequent EEE found



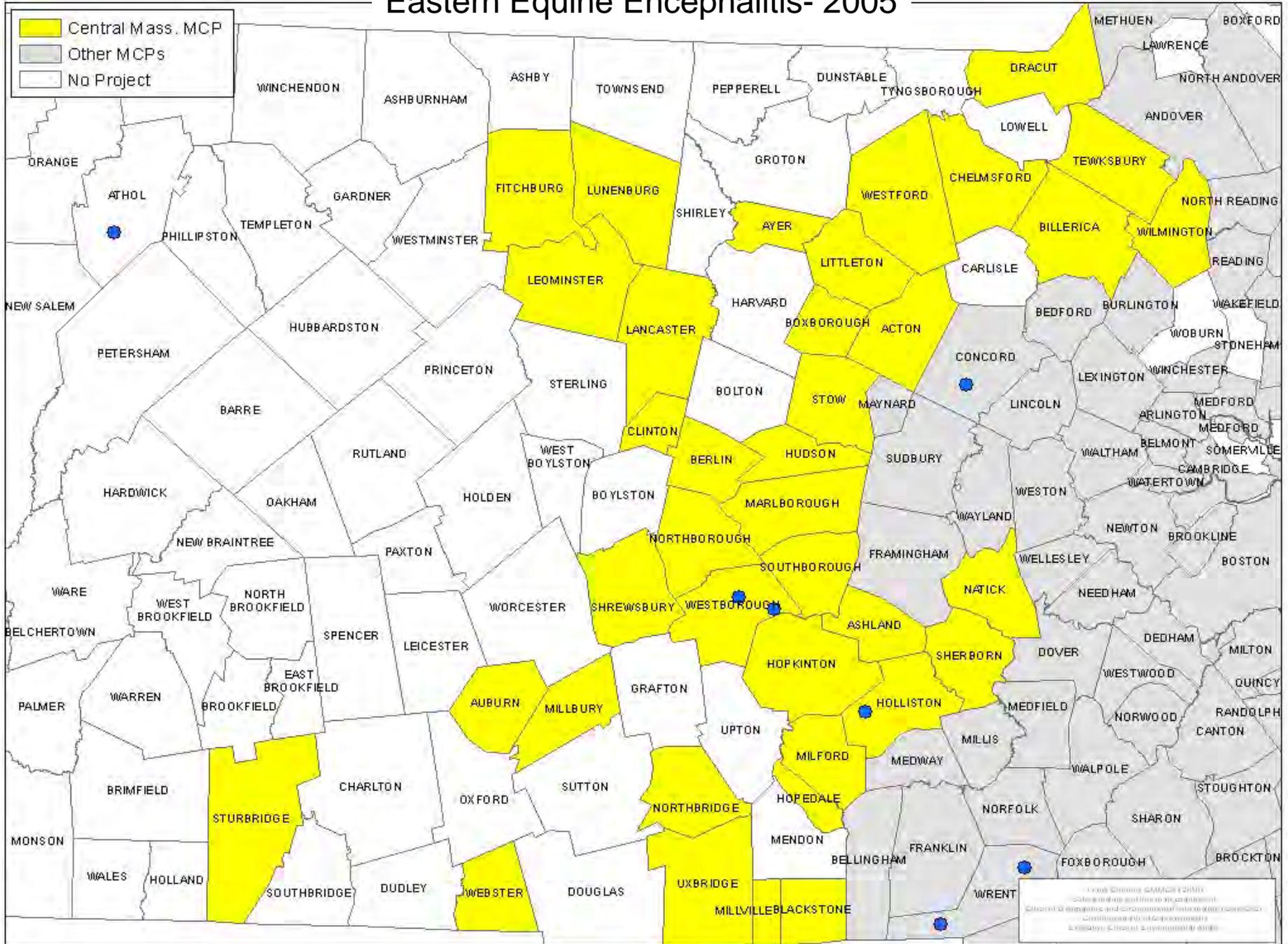
## EEEV in Bolton

- Selectmen agreed to sponsor an article on Annual Town Meeting warrant
- Met with Bolton BOH on Dec. 14, will be planning a public meeting before ATM

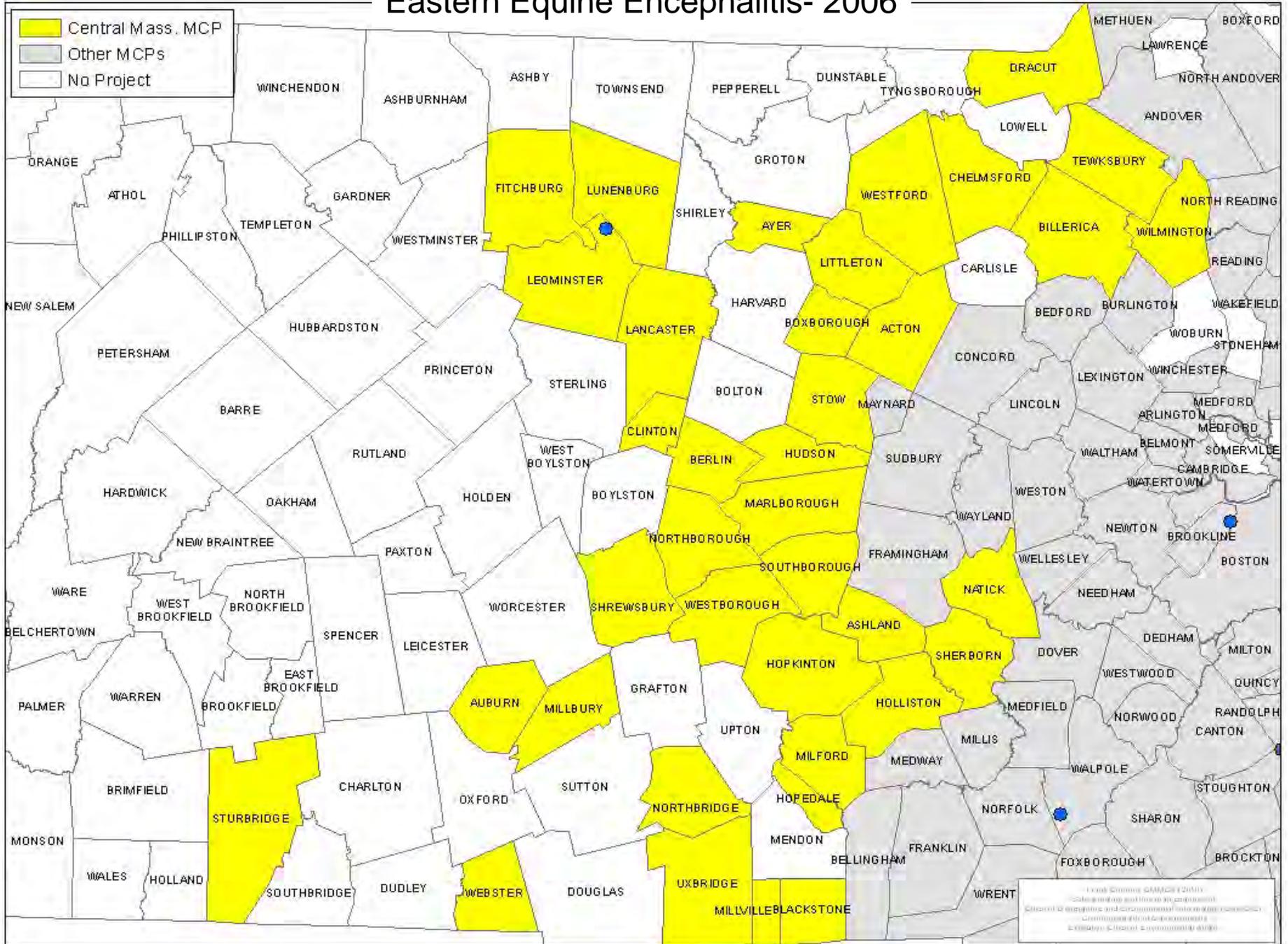




# Eastern Equine Encephalitis- 2005



# Eastern Equine Encephalitis- 2006











CENTRAL MASS. MOSQUITO CONTROL

[www.cmmcp.org](http://www.cmmcp.org)

# ANY QUESTIONS

