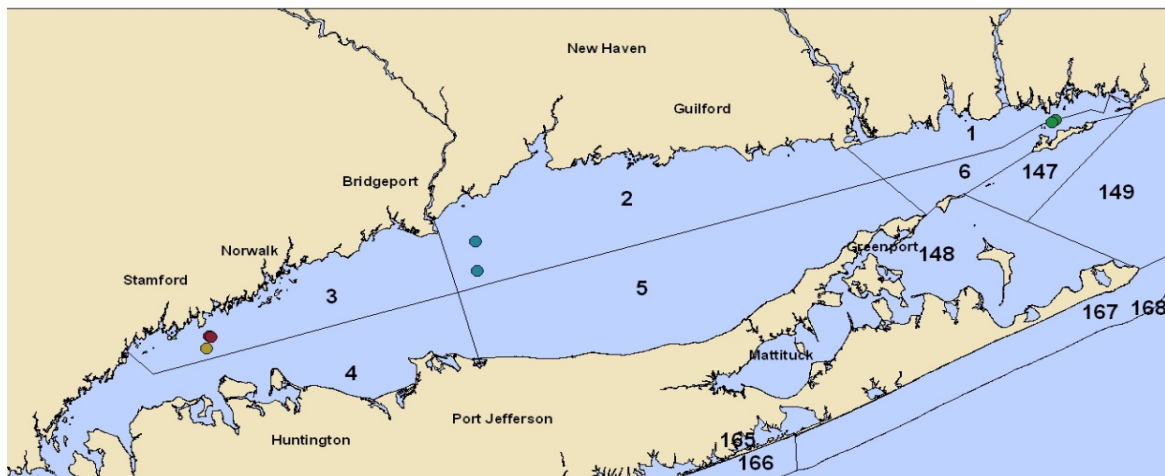


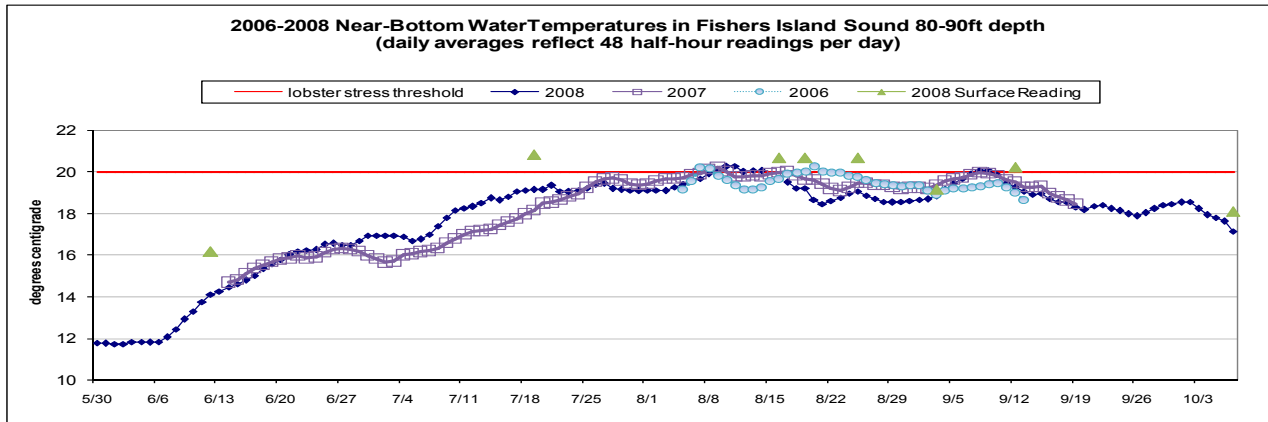
CONNECTICUT LOBSTERMEN'S VOLUNTEER TEMPERATURE SURVEY

Following the 1999 lobster die-off event, six years of research concluded that the die-off was driven principally by high bottom water temperatures throughout the western and central Sound. These stressful temperatures were only 1-2⁰C warmer than the Sound's long-term average, but were above what is now known to be the upper thermal stress threshold (20⁰C or 68⁰F) for lobster and possibly other cold adapted species such as winter flounder. The cause of rising water temperatures are not known but global climate change has been implicated as a factor. The [CTDEP LISWQMP](#) has generated monthly water temperature and dissolved oxygen profiles of Long Island Sound since 1991. To add finer-scale detail to these data, DEP Marine Fisheries staff initiated a cooperative program with commercial lobstermen.

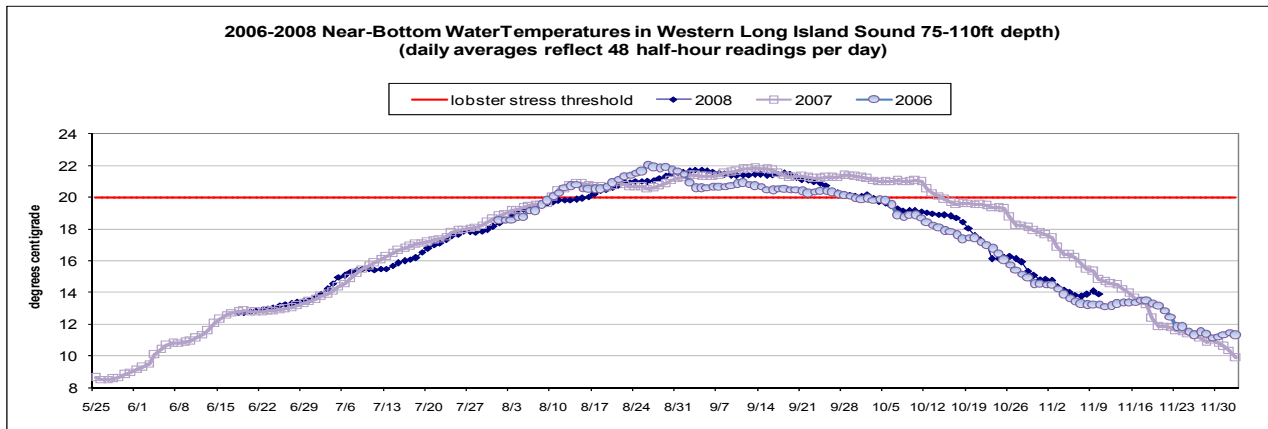
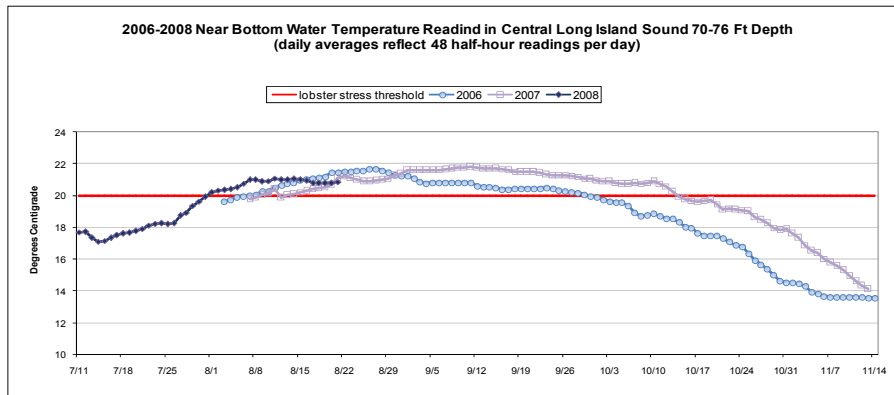
TEMPERATURE RECORDING SITES (colored dots) IN WESTERN (area 3) AND CENTRAL (area 2) BASINS OF LONG ISLAND SOUND, AND FISHERS ISLAND SOUND (area 1)



Since 2006 four lobstermen have volunteered to strap a temperature probe in their lobster traps so that continuous readings directly in the lobster's environment could be logged over the entire summer and fall when water temperatures are highest. These traps are in active use so the lobstermen are routinely hauling the trap and checking on the condition of the probe between readings. This volunteer effort has provided half-hourly temperature readings at three locations: two in areas of the Sound where the die-off was most severe west of the Connecticut River, and one in Fishers Island Sound where temperatures are lower but where [lobsters are suffering from an external shell disease](#). With three years of data in hand, these readings show that the range of tidal and diurnal effects on near-bottom water temperature is quite small at all of the locations.



Most importantly, these data also show that even in the deep water of Fishers Island Sound average daily temperatures were above the thermal stress threshold of 20°C (68°F) for 4-16 days during 2006-2008. This threshold was exceeded for 48-66 days in the central basin and for 55-73 days in the western basin of Long Island Sound.



All of the temperature data gathered by the lobstermen and the DEP monitoring programs have been examined along with annual abundance fish and invertebrate indices generated by the [DEP Long Island Sound Trawl Survey](#), and have revealed a direct negative response to rising temperatures in lobster and winter flounder, and possibly among other cold adapted species. Continued cooperative studies involving the DEP Water Bureau and Marine Fisheries Division, UConn faculty and students, and commercial lobstermen will help clarify the link between the abundance of the Sound's marine resources and the changing physical environment.