

*David H. Copley AIA*

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1306 Water Oak Drive  
Pasadena, MD 21122  
H (410) 255-9081  
C (443) 848-7877  
david\_copley@verizon.net

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Senate Bill 168 – SUPPORT

Senate Bill 168 – Environment  
Crossover to House Committee on the Environment and Transportation  
“Confined Aquatic Disposal Cells - Construction - Moratorium”

Dear Chair, Vice Chair, and Committee Members,

I STRONGLY SUPPORT SB 168 and ask the Committee to give it a favorable vote and move it to the Governor for signature.

The 4-year moratorium on the creation of Confined Aquatic Disposal Cells in MD will ensure that the MD Port Administration conducts the necessary research and creates mitigation plans to address the risks and allows more time for citizen, legislator, and community engagement before CAD would begin to be deployed in the Patapsco in June, 2029.

The proposed CAD project has a high likelihood of impacting public health and safety as well as negative impacts on the health of the bay. Little thought has been given by the Maryland Port Authority to the potential negative impact of such a major project on the surrounding area. The MPA have stated in meetings that the public will have the “opportunity to comment in the Permit Process”. If that is the only opportunity to voice the negative impact of such an undertaking then the reviewing agency must expand their actual scientific analysis and give greater consideration to potential negative impacts.

The MPA’s process to analyze the impact of CAD (a major dredging operation) has consisted of a 3-point scoring system of a -1, 0 or +1. The utter ridiculousness of such an approach would result in the dumping of radioactive waste being only a -1. When such utter disregard for negative impacts is built into the decision-making process then the permit reviewing agency MUST be tasked with a thorough review of immediate, future and long-term results. The opportunity for public and scientific review during the open comment time frame in the permit process seems at that point seems to be a futile effort. It would seem to the public that MPA has already decided to proceed full steam ahead.

There is a real and serious potential impact on the drinking water for much of the Pasadena area of AA County. My analysis was reviewed by two geotechnical engineers (in no way associated with MPA) and I received comments to the effect that it makes sense and further expert analysis is warranted.

Following is my analysis on potential impact to both AA County public water systems and private wells in the Pasadena area of the proposed CAD dredging operation just off shore in the Patapsco River bottom.

Source: AA County Water & Sewer Master plan 2022:

This effort was triggered by a relatively new community member voicing concerns to me on impacts to our wells and drinking water of the Maryland Port Authority (MPA) plan to dig a 90 foot deep 20-acre hole in the bottom of the Patapsco and dump channel dredged material there. MPA refers to this as Confined Aquatic Disposal (CAD).

Information about AA County's aquifers can be found in AA Co DPW's Master Water & Sewer Plan: [Water-And-Sewer-Master-Plan-2022-Council-Approved.pdf](#) Also, the MGS has some good data: [Aquifers in Maryland](#)

My review of pertinent information follows with my analysis and conclusions/warnings at the end:

Following extracted from AA County Water And Sewer Master Plan (in quotes) along with my comments:

"1.1.2 Goal NE5: Ensure the safe and adequate supply of groundwater resources and wastewater treatment services for current and future generations."

2.5 Aquifer outcrop area for "Upper Patapsco" is in immediate area of proposed CAD cell.

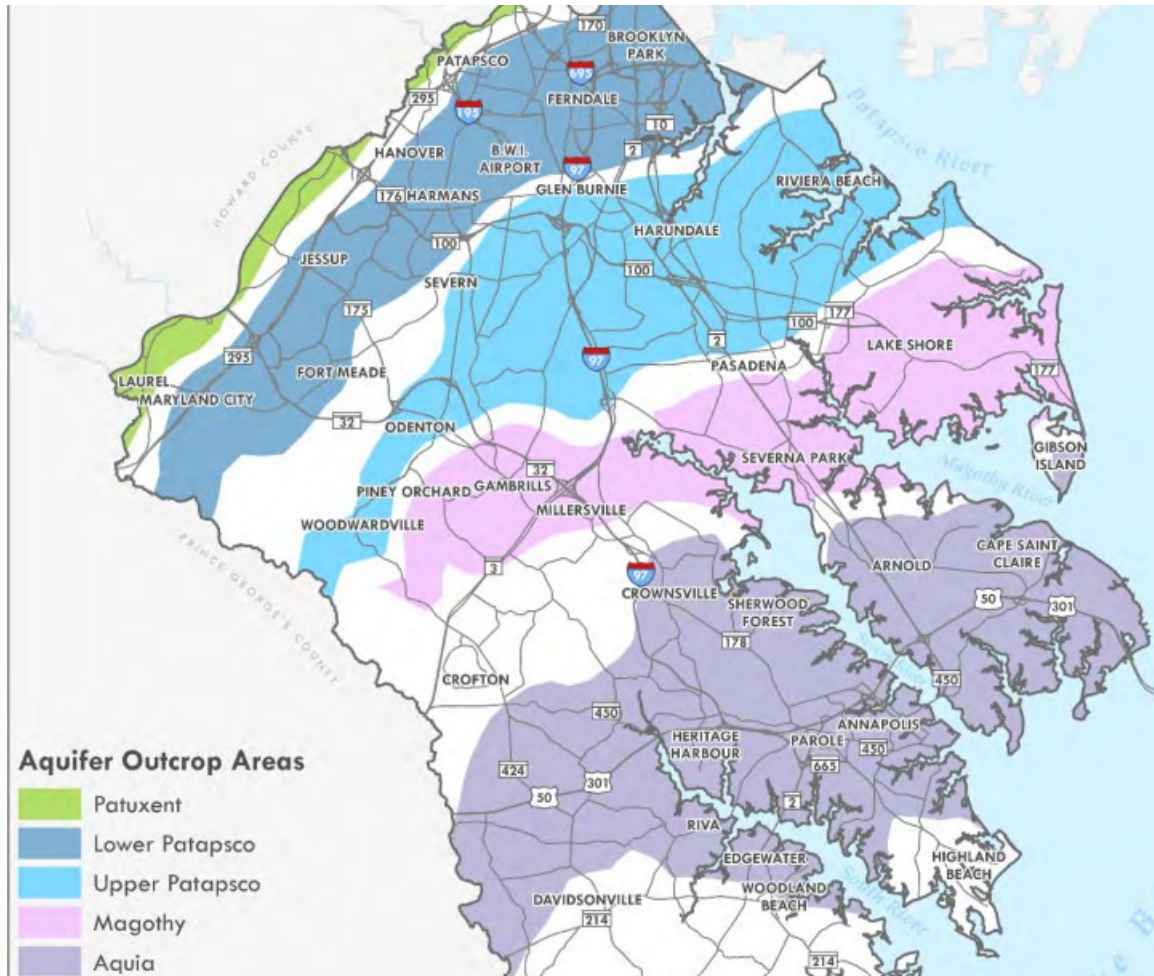
"Abandoned or improperly constructed wells are a source of contamination for Aquifers."

It is hardly a stretch to imagine digging into a sand layer in a 20-acre site would then allow contaminants to enter the Aquifer if just a drilled well is considered a source of contamination.

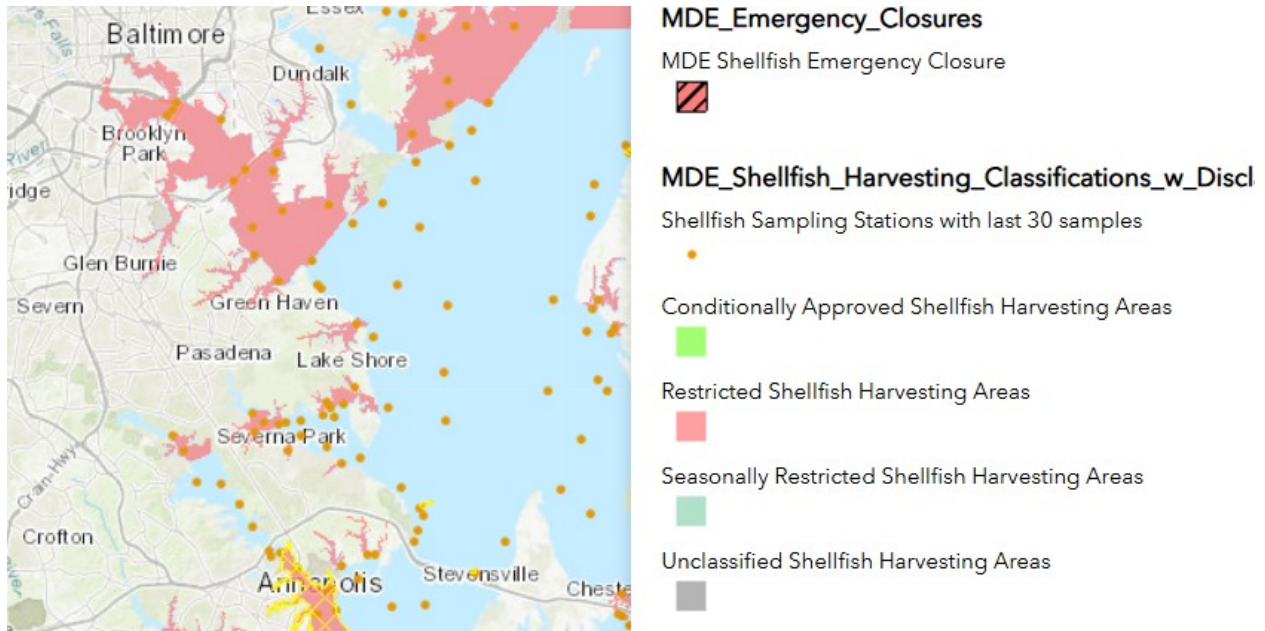
Page 56:

"The results of the study produced the following:

- a. An aquifer vulnerability map depicting four (4) qualitative degrees of aquifer vulnerability to potential contamination,
- b. A set of maps depicting a 1-year, 10-year and 20-year zone of transport along with the zones of contribution (recharge), and
- c. A written report detailing methodology and findings. The major findings indicated:
  - a. The overall water quality of the Lower Patapsco aquifers is good, although some contaminants have been determined at several sites.
  - b. The water produced from the aquifer in 1991 was water that entered the ground after 1945.
  - c. Particle tracking from known contaminant sites posed no threats to the production wells currently in use, as most contamination sites are down-gradient of the production wells. Releases from contamination sites up-gradient of the Glendale and Sawmill wells would, without remediation, pose a threat; however, the Sawmill wells have been abandoned, and the Glendale wells are out of service and are in design for decommissioning and well abandonment.
  - d. Particle tracking indicated that the time for groundwater to flow from land surface to the wellhead at the 1990 extraction appropriation rates range from less than 10 years to as long as 60 years, depending on the location of the well."



Area of CAD is already a Restricted Shellfish Harvesting Area.  
See following illustration:



#### Water & Sewer Masterplan:

“Part 3.3 Hydrology of Anne Arundel County. Anne Arundel County is underlain by a wedge-shaped mass of stratified unconsolidated sedimentary deposits, the Coastal Plain sediments, which dip and thicken to the southeast. The wedge thickens from about 50 feet in the northwestern part of the County to as much as 1,800 feet below ground level in the southeastern part of the County. It consists of layers of sand, silt, clay, and gravel and overlies much older consolidated bedrock, which has little or no water supply potential for the County. The water-bearing aquifers, which overlay bedrock, are from oldest to youngest, the Patuxent, Lower Patapsco, Upper Patapsco, Magothy and Aquia. The four deepest aquifers are the sources of water supply for most of Anne Arundel County.

3.9.3 Northern Anne Arundel County - Elevated Radium New and replacement wells in Northern Anne Arundel County are required to be installed to a minimum well depth and meet gross alpha and Radium 226 / 228 drinking water standards. The region within which wells are tested by the County for these parameters is shown in Figure 3-4. A minimum well depth is determined by the Department of Health and is based on an aquifer with acceptable radionuclide concentrations. A computer model showing the distribution of radionuclide data, well depths, property elevations, and deep test wells is used to determine the minimum well depth requirements. Owners of existing private wells are encouraged to test for gross alpha particles. Where levels are found above the drinking water standards, a water treatment unit or a replacement well in a deeper aquifer is recommended. See Section 3.5.3.1.11 for more details on ongoing capital projects to reduce elevated radium in three SCWs in the Glen Burnie area.”

My thoughts based on the Master Plan and local knowledge regarding MPA proposed CAD Pilot:

The proposed CAD location, size, and 90-foot depth potentially could lead to the Upper Patapsco Aquifer recharge area being exposed to any contaminants in the dumped dredge material and intrusion of river water. The maps clearly indicate the recharge area along the shoreline (limited to extent of Master Plan) and CAD exploration borings have indicated sand and gravel in that location. Logically the recharge area extends beyond the shoreline into the CAD area. Presently the river bottom is in a natural state and sand is covered by 6' to 8' of what could be considered topsoil if it was dry land. The excavation of the river bottom area to receive the dumped channel dredge material will create a significant sloping side surface of the aquifer's sand bed exposing it to a much increased level of exposure than occurs naturally. This CAD dredging is significant as the 50-foot shipping channel only required dredging 35' +/- . The depth of this excavation will be 16' water depth + 90' or 106'. Assuming the angle of repose of the sand is 30 degrees we end up with an excavation in plan 52' greater than the size of the planned size of bottom of the hole. The exposed side of the aquifer recharge sand face (hypotenuse) will be 100'+/-. Multiply this 100' by the length of the CAD cell (100s of yards) and we are not even in the same universe of potential negative impact to the aquifer of that caused by one well (as mentioned in the Master Plan). We all know water pressure increases with depth. In my opinion that could lead to a faster penetration of whatever is contained in the dumped material as well as brackish river water into the aquifer. This aquifer is being drawn down which could lead more rapid penetration into the active water supply than might be anticipated.

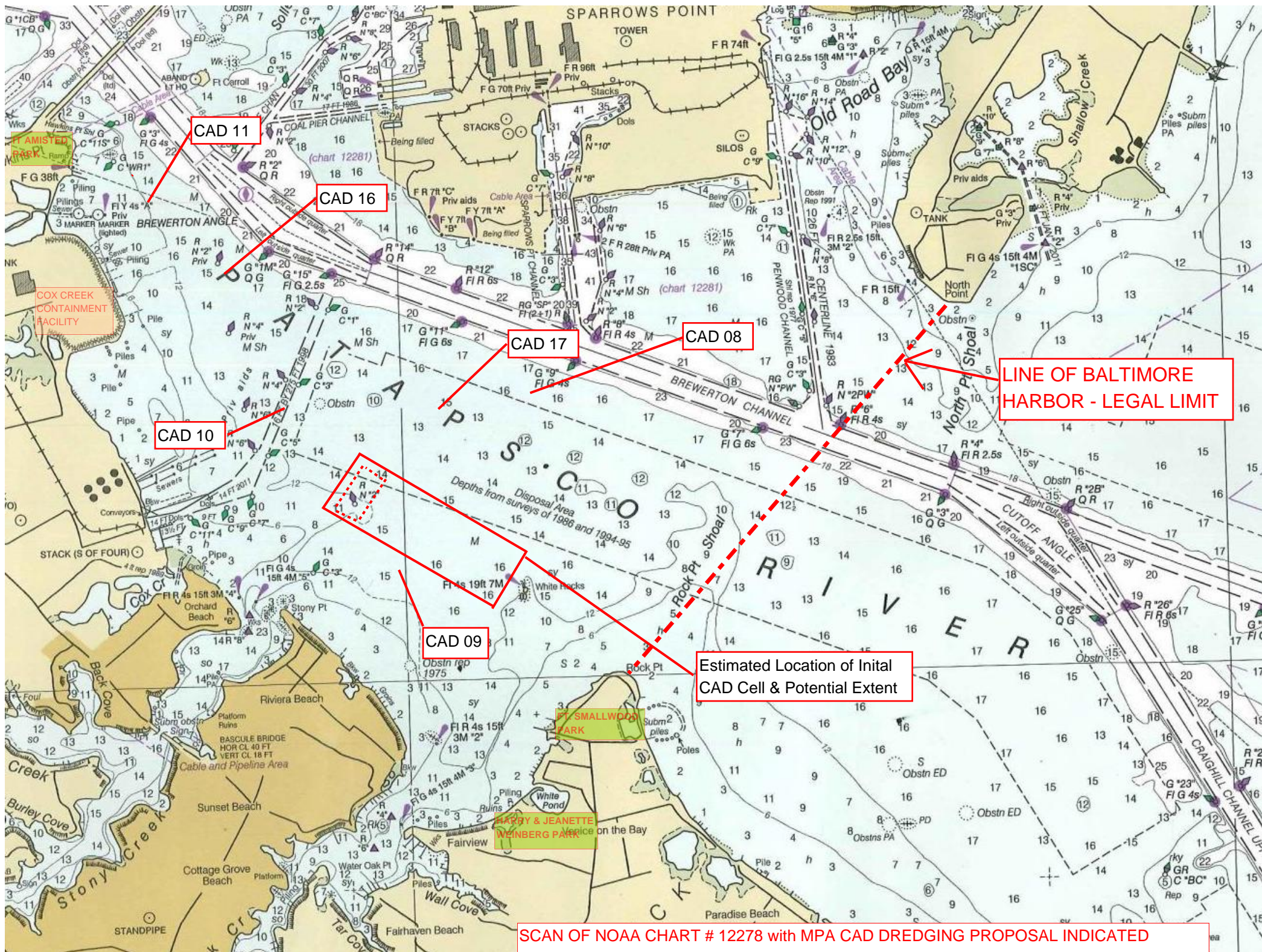
The Upper Patapsco Aquifer presently serves the rural area of Pasadena as well as county wells in the public water system. The rural area is NOT projected to receive extensions/connections to the county water system. Solutions for these rural area residents (should contaminant intrusion occur) would be to drill a deeper well and install a costly water treatment system to deal with the water quality (high levels of iron) in the Magothy Aquifer. The cost to the homeowner is in the tens of thousands of dollars.

In conclusion, the CAD Pilot should be dismissed on this potential to impact drinking water supplies alone. Let alone other negative impacts such as the known loss of biologies in this 20-acre site and repeated generation of turbidity negating the goals of the Critical Area Commission laws. The turbidity issue is significant as the dumped dredge material is dropped through a water column of up to 100'. The 20-acre CAD operation could be replicated 10 times before the buildout of the full 220-acre CAD area MPA identified is reached. As the CAD Pilot is potentially only the first of multiple year expansions, the extent of negative impact to the water source could indeed be expanded for years before the hazards showed up in wells. At that point the impact of the failed experiment would be with us forever.

Remember, fracking was "no impact" until wells in the vicinity started to release gas which was concentrated enough to sustain a flame and additional increases in earthquakes were documented in multiple other locations.

To aid in visualization of the issue, following is a NOAA chart with some information provided by MPA added.





SCAN OF NOAA CHART # 12278 with MPA CAD DREDGING PROPOSAL INDICATED