Clean Ocean Action

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Ocean Advocacy Since 1984

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January 6, 2005

William Slezak, Acting Chief, Harbor Programs Branch
US Army Corp of Engineers
New York District
26 Federal Plaza
New York, NY 10278-0090

Douglas Pabst, Team Leader, Dredged Material Managment
US Environmental Protection Agency, Region 2
290 Broadway
New York, NY 1007-1866

RE: PN # Buttermilk-05
Comments regarding the USACOE application for maintenance dredging of Federal Navigation Channel at Buttermilk Channel, New York with proposed placement of dredged material at the HARS

Dear Mr. Slezak and Mr. Pabst;

Enclosed are comments on behalf of Clean Ocean Action (COA, representing 170 organizations), including the over 200,000 citizens who signed petitions against ocean dumping of contaminated dredged materials.

The current proposal will perform maintenance dredging of Buttermilk Channel federal navigation project with subsequent placement of approximately 100,000 cubic yards (CY) of dredged material at the Historic Area Remediation Site.

COA's concerns regarding this proposal are listed below:

1) Tissue and sediment chemistry data obtained using Buttermilk Channel sediments indicates this material is not appropriate "clean" cap material for remediation.

a) Whole sediment toxicity tests using *Ampilisca abdita* reported only an 81% survival in the reference sediment. The unexplained low survival rate in the controls resulted in the acceptance of only a 71% survival rate in the test sediment because although the difference in the two values were statistically significant, the difference was not greater that 20%. Previous HARS data reviewed by COA have reported survival rates on reference sediments average ~92%. Reference sediments used by EPA/USACE to designate HARS showed a 94% survival rate[i]. What are the QA/QC procedures for % survival in the

b) controls? What is the explanation for a ~20% mortality rate in the reference samples? A high mortality rate in the controls usually indicates a problem with the test organisms or the test procedures. It is difficult to accurately assess effects of the test sediment on the organisms when the control mortality is so high.

c) The following table lists the number of contaminants that bioaccumulated in the clam or worm to statistically significant levels from the Buttermilk Channel mud (which is 58% silt/41% clay particle sizes). Although none of these contaminant concentrations violated the FDA Action Levels or Regional Matrix levels, they do trigger concern based on the several of the eight additional factors for assessing the significance of bioaccumulation.[ii] The relevant factors are listed below:

i) "number of contaminants for which bioaccumulation from the dredged material is statistically greater than bioaccumulation from the reference material"
   (1) **Clam-52 Contaminants** including: All 16 PAHs including Total PAHs, Total DDTs including dieldrin, a-Chlordane, trans Nonachlor, 4,4 DDD, 2,4 DDD, 4,4 DDE, endosulfan II, Total PCBs including 19 individual congeners, 1,4 Dichlorobenzene, Chromium, Lead, and 4 dioxins
   (2) **Worm- 52 Contaminants** including: Total PAHs including 15 different PAHs, Total DDTs including dieldrin, a-chlordane, trans Nonachlor, 2,4 DDT, 4,4 DDD, 2,4 DDD, 4,4 DDE, Total PCBs including 20 individual congeners, Lead, and 6 dioxins

ii) "magnitude by which bioaccumulation from the dredged material exceeds bioaccumulation from the reference material." Below is a list of contaminants that show up to a 15-fold bioaccumulation rate from test sediments compared to the reference material.

CLAM	**Reference (ppb)**	**Test (ppb)**
PCB 28	0.05	1.02
PCB 52	0.16	1.17
Total PCBs	2.71	17.67
Fluoranthene	2.04	27.58
Pyrene	2.29	38.48
Benzo(a)anthracene	0.48	14.89
Chrycene	1.11	18.60
Benzo(k)fluoranthene	0.75	10.01
Benzo(a) pyrene	0.64	10.72
Total PAHs	**9.91**	**148.87**
WORM	**Reference (ppb)**	**Test (ppb)**
PCB 28	0.15	2.21
PCB 49	0.12	2.02
PCB 52	0.31	3.26
Total PCBs	16.94	50.57
Fluoranthene	0.28	23.74

Pyrene	0.23	35.28
Chrycene	0.36	9.52
Total PAHs	**3.13**	**84.29**

iii) "toxicological importance of the contaminants whose bioaccumulation from the dredged material exceeds that from the reference material"

Clams and worm bioaccumulated individual and total PCBs and PAHs at levels an order of magnitude higher than from reference sediments (see table above). Considering PCBs are the main contaminants of concern for the HARS and one of the reasons behind the remediation effort, and PAHs are known mutagens, carcinogens and teratogens, the elevated bioaccumulation of these contaminants would be considered toxicologically important.

iv) "propensity for the contaminants with statistically significant bioaccumulation to biomagnify within aquatic food webs"

Both test organisms that bioaccumulated these high levels of contaminants represent lower trophic levels, therefore the opportunity for biotransformation of the contaminants up the food web are quite high.

d) Levels of specific chemicals of concern in the sediments are extremely high. The total polycyclic aromatic hydrocarbon (PAH) concentration measured in the composite sample was **14,977.79 ppb**. This is an order of magnitude higher than levels found within HARS. Sediment surveys performed in the HARS by Battelle in 1994 show that PAH concentrations averaged 4164.4 ppb (with a 95% confidence interval around this average of 1928.8 ppb).

Furthermore, total PCB concentration in the composite sample was **147.86 ppb** [levels were calculated by EPA methods where the sum of 22 congeners is doubled to approximate the sum of 45 congeners and hence total PCB concentration[iii]]. Sediment surveys in the NY Bight by REMAP surveys indicated that most of the surface sediments that were in the NY Bight in 1993 and 1994 had concentrations near or less than 50 ppb. This is also consistent with results at the MDS reference site in 1994 that show an average of 58 ppb in the sediments. Sediment surveys performed in the HARS by Battelle in 1994 show that PCB concentrations averaged 278 ppb (with a 95% confidence interval around this average of 147 ppb).

The levels of PCBs in the Buttermilk Channel mud are essentially the same as what are already present in HARS mud and the levels of PAHs are significantly higher than what are found at HARS. To cite USACOE/EPA's own language:" the presence in the HARS of toxic effects, dioxin bioaccumulation exceeding Category I levels in worm tissue and TCDD/PCB contamination in area lobster stocks. Individual elements of the aforementioned data do not prove that sediments within the Study Area are imminent hazards to the New York Bight Apex ecosystem, living resources, or human health. However, the collective evidence presents cause for concern, justifies that a need for remediation exists, that the site is Impact Category I and the site should be managed to reduce impacts to acceptable levels[iv]

Using the above-cited logic exhibited by the USACOE/EPA, the collective evidence presented in the sediment test results conclude the Buttermilk Channel sediments presents a "cause for concern". Buttermilk Channel sediments will not reduce levels of PCBs or PAHs at HARS and they will only persist the elevated levels of these contaminants at this site relative to areas outside of the HARS.

Failure of the USACOE/EPA to update the evaluation framework developed in 1996 (using data from 1980) in a timely manner has undermined remediation efforts at the HARS by continuously allowing the disposal of sediments containing elevated levels of Heavy Metals, PAHs and PCBs. The current proposal is a perfect example of the lack of protection provided by the current framework.The fact that the current framework did not identify these sediments as inappropriate serves to illustrate the fact that the framework cannot select for sediments that will reduce levels of contamination at HARS and cannot select against sediments that have the potential to cause adverse ecological effects to the NY Bight.

2) The composition of Buttermilk Channel sediments is not compatible with the sediments already present at PRA 2.

COA appreciates the inclusion of the HARS placement location in the PN, stated as Area Number 2 at 40°23'N, 73°52.840'W. This is the first time such information has been provided in a PN and we look forward to the inclusion of this information in future PNs as this information is essential to review remediation proposals. COA requests information on placement locations for previous projects.

COA questions the placement of Buttermilk Channel sediments in PRA 2 due to incompatible sediment composition. According to USACOE/EPA documents, the characterization of sediment originally present at this location (40°23'N, 73°52.840'W) in the HARS was described as "Brown sand over mud to black sandy mud".[v] The PN states Buttermilk Channel sediments contain only 0.06% Sand with 58.6% silt and 41.3% clay. This does not appear to be of similar grain size/composition, as is required by the USACOE/EPA Site Management and Monitoring Plan for the Historic Area Remediation Site.

In conclusion, given the levels of contamination in this material this permit application must be denied for ocean placement. Other alternatives must be used for this dredged material. A written response to these concerns is expected.

In addition to the above listed issues, there are additional issues that have been raised in previous PNs that we still do not feel have been adequately addressed. For this reason, we are requesting a meeting with both the EPA and the ACOE.

Sincerely,

Cindy Zipf
Executive Director

Jennifer Samson, PhD
Principal Scientist

[i] USACOE/EPA Site Management and Monitoring Plan for the Historic Area Remediation Site, Section 8.2.2 *Sediment contaminant concentrations/toxicity test results*. pp.12

[ii] USACOE/EPA Memo for the Record for the Buttermilk Channel Federal Navigation Project, October 29, 2004, Section 2: Solid phase bioaccumulation evaluation.

[iii] in this analysis of bulk sediment chemistry, any "non-detects" were calculated as: 0.5 X detection limit

[iv] HARS rulemaking preamble (62 Fed. Reg. 46142; 62 Fed. Reg. 26267).

[v] Batelle. 1996. Sediment survey at the Mud Dump Site and Environs. Report prepared under contract to U.S. Envrionmental Protection Agency, Region 2, New York, Contract # 68-C2-0134. Work Assignment 3-133, May 15, 1996.