



[In Archive] Re: Mudflat Delineation/Determination Issues

Matt Schweisberg to: Chet Myers

08/25/2010 05:19 PM

Cc: "christopher.boelke@noaa.gov", Jay Borkland, Deerin.Babb-Brott

Bcc: Ann Williams

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Chet,

Thank you for the field work and pinning this down better. Chris and I reviewed the information, and we appreciate the effort to clarify the mudflat issue. We discussed the issue this morning and have a few comments to offer in response.

1. As we all recognize, there is no bright line standard (i.e., percentage of fines that exist) that dictates whether a particular intertidal area qualifies as "mudflat." It is clear to us that while the intertidal area evaluated at the South Terminal site is dominated by mostly medium and fine sands, there are portions that have finer grained materials that could be considered mudflat. We are less concerned about whether we make an official determination regarding how to classify this area according to the regulations, and are far more focused on point 2 below.

2. It is helpful to have gained a better understanding of the nature of the substrate there as we evaluate potential adverse impacts. This is the key point as we move forward. Having that improved understanding and a more complete description of the aquatic life using this area (e.g., shellfish in the substrate, fish in the intertidal zone when flooded, birds that feed there) will allow us to assess ecological importance, adverse impacts, and determine the type(s) of compensatory mitigation needed to address those adverse impacts. Its these factors that we're now better positioned to deal with.

So, thank you again for the information. We'll use this material as we review the rest of the state's submittal, which we expect this week.

If any questions, please let me know.

Matt

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Chet Myers

Hi Chris and Matt, Apex has completed the sampling th...

08/19/2010 06:13:17 PM

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Date: 08/19/2010 06:13 PM
Subject: Mudflat Delineation/Determination Issues

Hi Chris and Matt,



Superfund Records Center
SITE: _____
BREAK: _____
OTHER: _____

Apex has completed the sampling that we previously discussed in a teleconference with Deerin Babb-Brott on June 28th, in order to confirm the presence or absence of mudflat within the intertidal area at the proposed location of the South Terminal CDF. Samples were collected on a grid within the intertidal zone (mostly biased toward Mean Lower Low Water, please see attached map). Survey equipment was utilized in order to locate Mean Lower Low Water, to ensure that the samples were being collected at an elevation low enough to ensure that the lowest reach of the intertidal area was being investigated. A plan with the sample locations is attached. Samples were submitted to a laboratory for grain size analysis. We have received the grain size analysis information from the laboratory today (the raw data is attached).

As per usual, the laboratory sorted the sediment particles into categories, which are: Cobbles, Coarse Gravel, Fine Gravel, Coarse Sand, Medium Sand, Fine Sand, and Total Fines. Fines are typically silts, clays and organic material (see attached data sheets and summary table below).

For reference, the definition of mudflat within 40 CFR 230, 404(b)(1), Subpart E (citation attached) is:

§ 230.42 Mud flats.

(a) Mud flats are broad flat areas along the sea coast and in coastal rivers to the head of tidal influence and in inland lakes, ponds, and riverine systems. When mud flats are inundated, wind and wave action may resuspend bottom sediments. Coastal mud flats are exposed at extremely low tides and inundated at high tides with the water table at or near the surface of the substrate.

The substrate of mud flats contains organic material and particles smaller in size than sand. They are either unvegetated or vegetated only by algal mats.

(b) Possible loss of values: The discharge of dredged or fill material can cause changes in water circulation patterns which may permanently flood or dewater the mud flat or disrupt periodic inundation, resulting in an increase in the rate of erosion or accretion. Such changes can deplete or eliminate mud flat biota, foraging areas, and nursery areas. Changes in inundation patterns can affect the chemical and biological exchange and decomposition process occurring on the mud flat and change the deposition of suspended material affecting the productivity of the area. Changes may reduce the mud flat's capacity to dissipate storm surge runoff.

Approach to Results Interpretation

Based upon the above definition, we assumed that if the samples presented "mud" or a high degree of fines, it would indicate an area that should be categorized as mudflat, and we would be able to then delineate the mudflat area and quantify it for resource area delineation purposes. Although the definition of mudflat does not specify what percentage of fines would be the cut-off point for making a delineation of mudflat, we had discussed that 100% fines would clearly qualify, greater than 50% fines would likely qualify, that 1% would likely not qualify, and that it was possible that percentages between 50% and 1% might theoretically qualify. The following is a summary of the percentage of fines within the samples sent for grain size analysis:

Sample	% Fines
A1	0.6%
A2	9.1%

B1	0.5%
B2	1.6%
C1	0.9%
C2	0.9%
D1	1.2%
D2	12.8%
E1	1.1%
E2	0.1%
F1	2.3%
F2	0.1%
G1	4.2%
G2	0.5%
G4	0.5%
G5	0.4%
G6	0.8%
H1	4.5%
H2	2.5%
H4	0.2%
H5	0.2%
I1	5.6%
I2	1.0%
I3	0.9%
I4	0.5%

Chris had mentioned the presence or absence of benthic invertebrates as being important in this discussion, so I am also attaching the map showing our shellfish survey grid, as well as Table 1, which catalogued all of the shellfish and invertebrates that we located during the investigation.

The data seems to indicate that, although the area in question may be important intertidal area that provides significant ecological function/habitat, it may not meet the regulatory definition of "mudflat".

We would like to get your input on this hypothesis prior to advancing our report.

Thanks,

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[attachment "40cfrPart230[1].pdf" deleted by Matt Schweisberg/R1/USEPA/US] [attachment "Grain Size Analysis Info.pdf" deleted by Matt Schweisberg/R1/USEPA/US] [attachment "SOUTHERN_TERMINAL_Sieve_Samples.pdf" deleted by Matt Schweisberg/R1/USEPA/US] [attachment "Shellfish Survey Figure and Benthic Recovery Table.pdf" deleted by Matt Schweisberg/R1/USEPA/US]