DMMIWG

Memo: DMMIWG
From: Jim Tripp and Tom Wakeman, Co-chairs
Date: February 27, 2002

The next DMMIWG meeting is scheduled for Wednesday, March 6, 2002, starting at 9:30 a.m. PLEASE NOTE! The meeting will be held at the office of Environmental Defense, 257 Park Avenue South, between 20th and 21st Streets, Manhattan, 17th floor. Convenient subway stops are the East Side IRT local at 23rd Street or express at 14th Street and the N or R at 23rd Street or N, R or W etc. at 14th Street.

Major items on the agenda will include:

1. **CARP.** Report by Dennis Suszkowski et al. How is CARP doing? How is the water quality, sediment and track-down/source identification data collection process doing? Are there any problems? What have we learned about sources of contaminants of concern that we did not know before? What does that mean in terms of regulatory and pollution control investment programs? What is the status of the modeling effort?
2. **Air pollutant emissions.** Recent articles describe significant emissions of ozone precursor and other pollutants from large ships and tug boats in harbors, as well as cranes and other equipment. What do EPA and the two States know about emission loadings from these port-related sources? What regulatory programs apply? What is the status of those programs? What do ozone attainment SIPs from the two states say about this issue? Is it a significant issue? It would be useful for EPA to give a report.
3. **Lower Passaic River.** Status of discussions, if there is anything to report.
4. **CPIP.** Report about the stakeholders meeting. Can the DMMIWG play any kind of useful role in terms of helping CPIP meet its public outreach goals?
5. **Restoration projects.** Jamaica Bay – what do NYCDEP, DEC and the Corps envision in terms of wetland island restoration? On what schedule? What is the scope of the Hackensack Meadowlands restoration study?
6. **RMWG.** Status of the EPA HARS remediation/restoration policy goal white paper.

At the February 6 meeting, we discussed the following:

1. Arthur Kill 41/40 foot project. The agenda set forth a number of questions concerning evidence of historic erosion and contribution of navigation operations historically to erosion. The basic question about wave wash and erosion is: if we do not know the historic erosion rates and have no model that is verified against historic data that explains the causes of erosion, why should we give credence to a model that addresses just incremental impacts? In addition, Baykeeper and NRDC had written a letter raising questions about the Corps' erosion model and mitigation plan. The Corps responded in January. Houston indicated that the Corps uses a coastal process model for

most of its projects. It used the same model for the 1997 AK EIS and the supplemental EIS. Corps engineers believe that they have done a good job of assessing impacts of the deeper channel. CZM consistency has been given; the EFH determination is complete; the NEPA process is complete.

Willner stated that he had noticed wave wash hitting against the unbulkheaded banks of the Arthur Kill in a small boat going 12 knots. Ships must have an impact on the narrow waterway, particularly south of Howland Hook. There is a significant impact now from ships in the 35 foot channel. They have a significant draft and cause erosion. The deep-draft ships will exacerbate erosion. Yes, there are other factors. We are not convinced by the Corps' response. Another question is the appropriateness of bringing larger ships into such a narrow channel.

Smeal pointed out that the model that the Corps' consultant Moffett & Nichols used presents two different methodologies for calculating wave energy without giving the values that they use. It is not clear which model they are using. It is a two-dimensional model. Matsil added that we have a team on site. We have been losing wetlands at our test plots. Waking yields the highest mortality and exacerbates erosion. There is no USCG enforcement of speed limits. The problems of ships and eutrophication that are evident in Jamaica Bay are exacerbated by the narrow AK channel. Tugs are a problem. How do we get the USCG to enforce the speed limits?

One of the agenda questions had to do with historic evidence of erosion. Summers indicated that she had been unable to find historic erosion information for the AK. Our concern is particularly south of Howland Hook. Houston responded that the Corps could conduct a trend analysis, but there has been no local sponsor. There is therefore no historic analysis of erosion of the AK, nothing compared to what we have for Jamaica Bay. Smeal added that NOAA does an annual aerial photo survey of the US coast, going back to the 1950's. It was generally agreed that we should undertake a quantitative trend analysis of habitat loss and erosion in the AK. Appleton stated that the assumption in the EIS is that impacts are mitigatable. There are unmitigatable impacts. If you are having erosion at 35 feet, you will have erosion at 41/40 feet. The deeper you go in carving the channel, you put pressure on the surrounding sediment. The AK is one of the hearts of the Estuary. The economic impact must be balanced against the impact of further deepening on the AK. We are making progress in bringing the Port and Estuary together, but choices will have to be made. The unmitigatable impact issue is critical.

Willner indicated that no one had thought about the AK as an ecosystem prior to the Exxon oil spill. It has become one of the primary wildlife habitats in the Estuary. This is the place where many birds have to go. The AK was originallhy a shallow channel. With channel deepenings, losses were never mitigated. Many factors have never been addressed, including illegal fillings, lack of enforcement of speed limits, CSO discharges, nitrogen etc. Summers underscored concern about the harm that a deeper channel could do. We are taking sediment out of the AK system, contributing to erosion. We have to compensate further because of the dollars and time that were spent on Matsil's salt marsh

restoration, funded by Exxon oil spill penalties. The loss of shallow water habitat will cause essential fish habitat to suffer. This loss has not been sufficiently quantified.

The mitigation proposed here relies on the concept that you can trade phragmites for spartina habitat with net benefits. Erik Kiviat of Hudsonia described the phragmites forum that brought together researchers from throughout the northeast. Recent research shows that phragmites is important habitat for fish and crustaceans, comparable to spartina except for larval gilly fish. This research militates in favor of site specific analysis of potential restoration sites with a careful investigation of what is happening in soils. Phragmites is very good at stabilizing sediments and mobilizing nitrogen.

Wakeman stated that questions have been raised about the impact of wakes and deeper channels. Harbor Operations asked for data about wave wash. The Port Authority went back to Moffett & Nichols to get field data. They have started looking at aerial photography. We have been missing basic field data.

John Hendland and Santiago Alfageme of M & N then gave a report on their investigation of wave wash and erosion in the AK. The model that they have used is an international standard. It was developed to estimate wakes from ships in canals, i.e., in narrow waterways. It is well tested. This model computes wave heights and lengths based on vessel speed. For the PA we are looking at other models as well. We believe that model predictions are on the conservative side. It is a fluid mechanics problem. It is not the large ships that cause the problem; it is the tugs traveling at high speeds. If you move the same cargo in bigger ships, there will be fewer ships. Getting an estimate of the impact of a specific wave on the shoreline is difficult. M & N did not include working looking at the impact of saves on different kinds of littoral habitats. Nor did we look at cumulative ecological stress. We have three-minute waves when big ships go by. It is the dissipation of wave energy in the surf zone that causes erosion. Smeal raised a question about the significance of the width of waves. The longer the wave, the faster the wave may move; bigger ships displace more water, i.e., longer waves with more energy. Peterson added that the major problem is speed. A big tanker goes four knots. The problem with big ships is less significant than high speed smaller ships.

Alfageme described the AK ships wave study. We are assessing the existing and future effects of ship-generated waves on existing wetlands along the northern reaches of the AK channel that are the subject of the 41/40 foot project. The study will establish whether or not coastal erosion is currently occurring in the project area. Historic erosion will be quantified based on aerial photographs and maps. An attempt will be made to correlate historical dredging events to erosion. We are looking at rectified USGS aerial photos from 1995 and 1996; non-rectified aerial photos from USCS and NYC for 1924, 1971, the 1980's, 1992 and 1994; 1974 NYDEC tidal wetlands inventory data; NYC Park surveys; nautical charts, Corps channel surveys and coastal maps. This historic study will be similar to that that DEC has done for Jamaica Bay. Existing conditions were be accurately determined. We will do some shoreline surveys and make recommendations for long-term monitoring. Willner and Flatow referred to a PhD thesis on changes in wetland habitat in the AK.

We are making ship wave measurements at two locations, Bridge Creek and Old Place Creek. The gauges are in 6 to 10 feet of water. This is as close as we can get to the shoreline that is not exposed at low tide. We subtract out tidal effects. The filtered data record the actual wake. We have measured four to six vessel movements per hour. We have four days of record. At the Old Place gauge, we recorded the impact of a NYC police boat at 12 knots, a tanker at 4 knots and a tug at 10 knots. The largest wave was somewhat greater than 0.5 feet. Tankers go no more than 4 knots in order to navigate safely. The video film shows secondary waves. At the Old Place gauge, we see the front wave, then two minute depression, then secondary waves for the tanker at 4 knots. The wake has a 0.6 foot amplitude from the minimum to maximum elevation. How the wave breaks depends on the littoral slope. In the breaking process, the wave gets bigger, then curls, resuspending sediments.

Proven methodologies and models will be used to compute vessel wake magnitude and propagation characteristics of secondary waves as they break under existing and future conditions. Models will be validated with field data. For a 500-foot wide channel of 35 feet in depth, the current model shows wave heights increasing assymtotically as speed increases. The findings so far are consistent with other data and model predictions. The model predicts some decrease in wave height with the project vs. without the project. The size of waves would thus not increase with the project; whether waves are causing erosion is another issue. We will try to correlate wave data with erosion and habitat impact. Smeal asked about the impact of wave length.

Wakeman stated that, when M & N is finished, we will host a workshop to go through the data and issues. This could happen in the early summer. Even if there is no incremental impact on erosion from a deeper channel, we will still have to figure out how to address the current erosion problem. Houston added that, if the new study showed there to be additional erosional impacts, then the Corps would have to evaluate them. The project cooperation agreement is not yet signed. A question was raised as to when the AK dredging would start. Gimello responded mid to late summer. Flatow and others indicated that we would want to review the data et al. Before the project dredging starts. Tripp concurred.

2. Hackensack Meadowlands. Mills has produced many new studies. The DEIS is not out yet. The HMDC has asked the Corps to initiate a CAP study of marsh next to the Secaucus high school. HMDC has nomianted the Kearny Marsh as a restoration site as part of the Hudson-Raritan restoration study. The USFWS has approached the Corps about a larger plan for the Meadowlands. The Corps has approached HMDC about supporting a spun-off restoration study. We would then look at the Meadowlands as a whole, not piece by piece.

3. Jamaica Bay. In December 2001, the Corps received a letter from DEP. DEP is interested in working on salt marsh loss. The Corps responded. If we want to do something fast, we should do a pilot project. We met last week with DEP on the study. The conceptual proposal is to use clean dredged material or sand using CAP to restore

the interior of an eroding wetland island. There may be sediment loss from pits or otherwise. This is a DEC project as well. This builds off of the Blue Ribbon Panel recommendations. Sanoff pointed out that everyone supports the wetland island pilot project. Filling the borrow pits is another issue. The Corps' agenda is to dispose of dredged material. We cannot justify dumping contaminated dredged material in the pits. The borrow pits are not a dead zone. The Corps with DEC is doing a characterization study of the pits to find out what is going on. The data should be available this spring. Lechich of DEC stated that groups should await the results of this study.

4. RMWG. Pabst reported. We have started the peer review process on human health impacts. In 30 to 60 days we hope to get results back from the peer review team. Ecological values should be out within one month. We will then work with the work group to develop quantitative goals. EPA is also developing a white paper on remediation/restoration policy goals for the HARS. We hope to get this paper out on the list serve before the HEP Management Committee meeting on March 4. We are hoping that the scientific panel will look at data collected at the HARS by EPA and the Corps as part of the site monitoring and management effort in March.