STAFF REPORT

Meeting Date: 3/11/05
Agenda Item: 8

To: BEACON Board of Directors
From: Technical Advisor
Date 11/28/04

Subject: **Kiddie Beach**

REQUIRED ACTION:

Receive report.

BACKGROUND:
At the last Board Meeting, BEACON staff was asked to contact the US Army Corps of Engineers about the possibility of nourishing Kiddie Beach using sand from their biannual dredging of Channel Islands Harbor. The purpose of the project would be to restore the beach to its original width and hopefully improve its water quality.

DISCUSSION:
I contacted the following people to learn more about the problem: Jim Estomo, Supervisor Flynn's office; Jeff Cole and Susie Ming, US Army Corps of Engineers; Kim Sterrett, CA Dept. of Boating & Waterways; and Jack Teveler, Ventura County Harbor Department. I visited Kiddie Beach and looked at some aerial photos of the site. My investigation centered on three questions:

- Will a nourishment project impact the nearby navigation channel?
- Will a nourishment project improve water quality at the beach?
- Who might fund or sponsor the project?

The following is a summary of my findings.

Kiddie Beach has clearly eroded over the past 40 years. The amount of erosion was difficult to estimate from the few aerial photos I had at my disposal, but I would guess 40 to 50 feet. In conversations with Mr. Cole and Mr. Teveler, I discovered there is a submerged concrete wall in front of the beach holding the toe of the beach in place. Without the wall, most of the sand on Kiddie Beach would slide into the navigation channel under normal wave action. A recent diver inspection showed that the wall was intact with the toe of the beach coming right up to the top of the wall. This indicates the wall is doing its job and the observed erosion of Kiddie Beach is just the profile moving towards its equilibrium shape in response to occasional storm wave attack. On a natural beach, sand moves offshore under large wave conditions and onshore under small wave conditions. On Kiddie Beach, sand is prevented from moving back onshore by the submerged retaining wall so it suffers net long-term erosion.

B.E.A.C.O.N.
Beach Erosion Authority for Clean Oceans and Nourishment

A California Joint Powers Agency

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Based on this reasoning, I would anticipate a beach nourishment project at Kiddie Beach will temporarily widen the beach, but eventually the added sand will migrate out into the navigation channel. Key questions are how quickly this process will take place and how the rate of loss is affected by the nourishment volume. One way to slow down the process would be to use coarser than normal sand for the nourishment project, allowing a steeper beach to remain in place. Another option would be to increase the height of the submerged retention wall.

Improving water quality at Kiddie Beach is a difficult issue and considerable time and expense has gone into studying the matter. It turns out that the source of the problem is a heavy bird population coupled with poor water circulation in front of the beach. The poor circulation is the result of the beach's location at the end of the entrance channel where the navigation channel makes a sharp left turn into the harbor. This creates a dead water zone in front of the beach that separates it from active tidal flushing in the adjacent navigation channel.

The idea of using a beach nourishment project to improve water quality at Kiddie Beach is to move the shoreline closer to active tidal flow, thereby reducing the size of the dead water zone. Unfortunately, there is a limit to how much sand can be placed on the beach since the added sand volume increases the rate of sand loss into the navigation channel. If too much sand is placed on the beach, it will rapidly migrate into the navigation channel. If too little sand is placed on the beach, the water quality problem will persist. A key question is whether enough sand can be placed on the beach to improve water quality without impacting the adjacent navigation channel. This question requires careful analysis and modeling.

Finally, there is the question of who might fund the beach nourishment project. At first glance it would appear an easy matter for the Corps of Engineers to divert some of the sand they dredge from Channel Islands Harbor onto Kiddie Beach. However, Mr. Cole pointed out that the Corps or Engineers lacks Congressional authorization for such a project as well as regulatory permit approval. Furthermore, he said the Corps of Engineers is responsible for maintaining safe navigation at the harbor and that any action impairing local navigation would be a concern. I then contacted Mr. Sterrett of the CA Department of Boating & Waterways. He said he didn't think the project was a good fit to the agency's mission.

CONCLUSIONS:

The beach erosion and water quality problems at Kiddie Beach are complex and not amenable to a "quick fix". A beach nourishment project will require careful analysis and modeling to avoid impacting the nearby navigation channel and to determine if there will be a benefit to local water quality. Critical issues include: the longevity of the nourishment volume, its effect on the navigation channel, its effect on the water circulation, and its effect on water quality. Any type of project at Kiddie Beach will require the development of engineering plans and specifications, securing of environmental permits, and a source of funding.

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