

**MONITORING REPORT No. 12  
DREDGING AND RECLAMATION PROGRAMME IN  
KINGSTON HARBOUR**

**June 28, 2002**

**Prepared for:  
The Port Authority of Jamaica**

**Prepared by:  
TECHNOLOGICAL AND ENVIRONMENTAL MANAGEMENT  
NETWORK**

## **1.0 BACKGROUND**

Dredging at Rackhams Cay continued until the early hours of Thursday June 27<sup>th</sup>, except for a break for repairs to pipes on June 24<sup>th</sup>.

Water quality sampling took place on June 26<sup>th</sup> and dives were done at Rackhams Cay on June 26<sup>th</sup> and June 27<sup>th</sup>. A monitoring flight was carried out on June 27<sup>st</sup>.

## **2.0 DIVES**

Dives carried out by TEMN concentrated on setting out sediment traps to monitor the impact of dredging plumes on the reefs that may have been affected by dredging and especially at the Rackham restoration site.

The examination dive carried out by NEPA on Wednesday 19<sup>th</sup> confirmed that there was little impact on the coral restoration area to date, and corals on the eastern (windward) side of Rackham Cay, north of the restoration, showed signs of stress, but were coping with the impact of the plume. Dredging was expected to continue until June 25. The activity so far did not appear to cause a major negative impact on the coral beyond the dredge site. However, it is recommended that a “clean-up” operation be carried out when dredging ceases to help speed the restoration of the site to its former condition.

## **3.0 AERIAL MONITORING**

Aerial photographs taken on June 27<sup>th</sup>, approximately 12 hours after dredging ceased at Rackhams Cay. The plumes have dissipated and photographs attached show the cut line at Rackhams clearly. A survey is being carried out by Jan De Nul with cross sections to indicate if the planned 1:1 slope has been achieved. Please note attached photographs. The latest photographs from Hunts Bay north of R1, taken on the flight of June 27<sup>th</sup> are also attached.

## **4.0 WATER QUALITY MONITORING**

This report is based primarily on fieldwork carried out on June 26, 2002.

The objective was to provide measurements of TSS (total suspended solids) and turbidity in the vicinity of Rackham's Cay dredging operations.

## 4.1 METHODOLOGY:

### 4.1.1 Field Work

Eight sites were identified for the monitoring exercise as follows:

- KTP 1 - Dredge Site (Bow of the Da Vinci – (Seaward/Starboard Side)
- KTP 2 - Rackham's Cay (At Screen – Landward Side)
- KTP 3 - Rackham's Cay (At Screen – Reef Side)
- KTP 4 - Rackham's Cay (Along South East Border)
- KTP 5 - Rackham's Cay (Along South East Border)
- KTP 6 - Rackham's Cay (Along South East Border)
- KTP 7 - Rackham's Cay (Along South East Border)

Sampling was carried out from a fisherman's canoe. All sites were assigned a GPS location (Table 1)

Table 1

Dredging And Reclamation In Kingston Harbour  
Water Quality Monitoring Sites June 18, 2002

STATION NO	DESCRIPTION	N COORD.	W COORD.
KTP 1	Bow of the Da Vinci – (Seaward/Starboard Side)	17° 55.622'	76° 50.240'
KTP 2	Rackham's Cay At Screen – (Landward Side)	17° 55.547'	76° 50.195'
KTP 3	Rackham's Cay – At Screen (Reef Side)	17° 55.547'	75° 50.195'
KTP 4-7	Rackham's Cay – Along South East Border	17° 55.427'	76° 50.319'

Sub-surface samples were collected using a Van Dorn type sampler. Samples were designated T (surface), M (middle depth) and B (bottom depth). Sampling was carried out between 0949 and 1029 hours.

### 4.1.2 Sample Analysis

Samples from were analysed by the Geological Survey Division laboratory in accordance with Standard Methods for the Analysis of Water and Waste Water to determine TSS and turbidity.

TSS was determined by filtration of a known sample volume through a dried, pre weighed filter. After filtration, the filter was dried and re-weighed. TSS in mg/l is obtained through a determination of the weight difference of the filter before and after filtration.

Turbidity was performed using the colorimetric method and reported in FAU (formazin attenuated units). FAU incorporates a correction for colour and thus gives a more realistic determination of turbidity.

## **4.2 OBSERVATION AND RESULTS**

### **4.2.1 General Observations**

The screens at Rackham's Cay appeared to be intact and maintaining their positions.

Sampling was carried out during sunny conditions. Sea state was choppy and winds easterly. During this sampling exercise the Leonardo Da Vinci was engaged in dredging. The dredge was positioned with the bow facing east, and the pipe extending towards the west.

There was a noticeable plume in the vicinity of the dredge. The plume was visibly more concentrated close to the bow of the dredge. Spread of the plume appeared visibly more concentrated to the north-east and north-west.

### **4.2.2 Laboratory Results**

Laboratory results are pending. They will be sent as soon as received as an addendum to this report.

## **4.3 CONCLUSION/ENVIRONMENTAL IMPACT**

- Sea conditions appeared to favour material remaining in suspension and spreading mainly in a north east to a north west direction.
- The silt screens appeared to be withstanding the rough seas
- Material from the dredge site appeared to be no visible threat to water quality at the restoration site.
- Material being deposited at West Middle shoal appeared to be no visible threat to the Rackham's Cay restoration area.

#### **4.4 RECOMMENDATIONS/MITIGATION**

- More intense sampling at the restoration site.
- Consider relocating screen from West Middle shoal to a position where it can provide additional protection to the restoration site.