

#92016

U. S. Geological Survey
Branch of Atlantic Marine Geology
Quissett Campus
Woods Hole, MA 02543
11 August 1992

To: Butman, Aldrich, Soderberg, Bothner

From: Jim Robb

Subject: Administrative Cruise Report:

1. **Ship:** RV Oceanus

2. **Cruise:** 251

3. **Dates and ports:** 25 July - 3 August 1992,
Woods Hole - Woods Hole

4. **Parent Project:** USGS cooperation with "Processes governing the fate and effects of material flux on deep-sea communities at a long-term ecosystem laboratory (LEO-2500) on the continental slope off New Jersey." NOAA Undersea Research Program to Fred Grassle, Rutgers University. More succinctly known as DWD-106 Sewage sludge investigation. USGS Project Number: 9470-64042

5. **Funding Agency:** Primary funding for this cruise from USGS; NOAA funding for 2.5 ship days.

6. **Area of Operations:** Continental Rise offshore New Jersey and New York, environs Municipal Sludge dumpsite, DWD 106

7. **Chief Scientist:** James Robb, USGS

8. **Cruise Data Curator:** none assigned

9. **Scientific party:**
W. Schwab USGS
T. O'Brien "
W. Danforth "
Melissa Walden "
Jana DaSilva "
Molly Gowen "
Jane Denny "
Tom Crook WHOI
Denzel Gleason WHOI

10. **Ship's Captain:** Paul Howland

11. **Purpose of Cruise:** Sidescan-sonar imaging of the ocean bottom around the DWD-106 Municipal Sludge dumpsite, for support of DSRV Alvin dives and to characterize sea-floor microtopography.

12. Synopsis of results:

AMS-120 sidescan unit with the QMips processing system functioned very well, with only 4 hours lost when a wire termination failed apparently due to tow strumming.

Site surveys were accomplished at 4 off-dumpsite sites, and two areas within the dumpsite study area were imaged and mosaicked while at sea.

The data commonly show features indicating offshore-directed bottom flows. A control site (2600 m at 70°40'W) and 2 sampling sites SW of the main study area show a smooth ocean bottom, with minor flow indications, such as elongated moats or dune structures. Within the study area, in contrast, our 8-line mosaic shows striking offshore lineations, evidently erosional furrows (parts were observed last year using Jason), as well as smooth bottom where a tongue of muddy sediments overlies the furrowed surface. The furrows lie downslope from where canyons debouch. Also mosaicked with three lines was a rough area of greater relief and high backscatter that may be part of a large olistostrome (landslide block).

13. Navigation techniques:

GPS and Loran C navigation aboard Oceanus.

USGS navigation data logging system

WHOI transducers to measure slant distance to towed fish.

13. Scientific Equipment:

WHOI (DSL) AMS-120 sidescan-sonar vehicle, with coax wire.
WHOI-owned traction winch.

3.5kHz echo-sounder and graphic recorder aboard Oceanus.

USGS topside equipment for at-sea sidescan-sonar processing
(Q-MIPS, Unix-based Work Stations, Thermal printer).

14. Tabulated Information:

a. Days at Sea: 10

b. Data acquired:

11 QMIPS tapes 8-mm exabyte

17 navigation log diskettes, 3.5" DOS.

~9 days 3.5KHz echosounder 18" paper records

Field trackplots:

Plot of dumpsite area, 1:100,000, mylar overlay on
GLORIA and seabeam map.

Mylar ad-hoc maneuver plots (2) of

control site (70°40') and 50-2600 site (50 nmi
SW of dumpsite area).