APPENDIX B
TABULATED OCEAN SCIENTIFIC DATA

The following is a tabulation of the scientific data collected during the 30-day drift mission:

1) Approximately 900, 000 temperature, sound velocity, and salinity measurements were recorded with time and depth. The water sensor recorded on magnetic tape each parameter every 2 seconds. The data have been "dumped" and 80% looks "good". The 20% "bad" data have not been looked at very closely. The problem on these data were not in the sensors, but appears to be due to uneven tape take-up on the magnetic tape recorder. These data may still be salvaged.

2) Stereo-photographs (848) of the bottom were taken at five different locations in conjunction with 3 miles of bottom mapping performed by the side scan sonar. All the film has been processed, but only a few samplings have been printed.

3) The Gulf Stream current was measured continuously by tracking the BEN FRANKLIN over the entire 30-day mission. In addition, a total of 6 hours of in situ current measurements were made while the BEN FRANKLIN was bottomed.

4) The side scan sonar operation was stalled in the beginning due to its over-voltage protection circuit (more than 30 volts). Although this was anticipated, the dropping resistor added to the input was too low a wattage rating and operation could not begin until 28-volt BUS dropped below 30 volts. The data that were collected (approximately 3 miles) are available.

5) Over 371 hours of ambient light measurements were recorded on BEN FRANKLIN and on the M/V PRIVATEER. These data were recorded on the WASP's magnetic tape. The transmissometer flooded due to improper seating of seals just before GSDM and light transmission experiments were voided.

6) Two hours (4 miles) of magnetic anomalies were recorded on paper strip charts before the magnetometer sensor flooded during early stages of GSDM. A rubber pressure-equalizing diaphragm ruptured - cause unknown.

7) Over 1100 bottom reflectivity and volume reverberation measurements were made by setting off explosive charges from both the M/V PRIVATEER (blasting caps) and the USNS LYNCH (SUS charges). The direct and bottom reflected pulses were recorded on magnetic tape aboard the BEN FRANKLIN. Preliminary analysis of the tape is presently underway and the data looks very good. Typical views of the scientists in the BEN FRANKLIN performing the volume reverbera'ion experiment are illustrated in Figure C-1.

8) Approximately 24 hours (50 miles) of gravitational anomalies were recorded on strip chart recorder aboard the BEN FRANKLIN; data are still to be analyzed.

9) Forty-one temperature-depth transits across the Gulf Stream were conducted from the USNS LYNCH, resulting in a total of 500 profiles made by expendable bathythermographs (X-BT). Three surface temperature transits were made by airborne radiation thermometer (ART) to assist in positioning BEN FRANKLIN in the Gulf Stream.

10) A minimum of 360 hours were spent directly viewing and selectively photographing the organisms within the water column from the BEN FRANKLIN. This work was assigned by 24 plankton sampling tows from the USNS LYNCH. Twenty-four deep Nansen casts were also conducted to further assist in positioning BEN FRANKLIN.

11) The 70-mm camera system did not function properly; a bad external wire-splice is suspected. Films are being processed, but no images expected since strobes seemed to be out of synch.

Some general comments in conjunction with experiments and the GSDM that come om NAVOCEANO's F. Busby:

1) The deep scattering layer along the path followed by BEN FRANKLIN was non-existent.

2) There was a notable scarcity of any form of sea life.

3) When the submersible was trimmed for a selected depth, vertical displacements up to 100 meters were experienced as the vessel followed undulating isotherms.

4) One swordfish was observed to attack the vessel, reluctantly accepted defeat, and retreated (similar to an occurrence experienced by ALVIN).

In addition to the data taken by the NAVOCEANO, a log was kept by Dr. Piccard in hich he recorded a time history of depth, salinity, inside temperature, outside tempera-ure, humidity, and control actions pertaining to the variable ballast system.