

T104, R105, R105A, T106, T106A, R107, R107A, R108, R109, R110, and R111. For all these profiles, the D.N.R. monuments serve as the baseline points for the survey except for profiles R-102, R-105, and R-108 where the 'G' monuments established on the gulf front seawall by the University of South Florida are used as the baseline points.

The field surveys are divided into a landward portion (conducted by USF) and a gulfward portion (conducted by UF).

#### Landward Portion of Profile

The technique of documenting the landward portion of the profiles has been described in earlier USF reports, but will be presented briefly here.

The survey procedures for the landward portion of the profile are standard for land surveying. Basically a leveling rod is held vertical at points of interest by a 'rod-person' and in this case the elevation is read using a transit. The distance from the transit to the rod is established optically by reading stadia hairs on the telescope of the transit. This procedure is continued out to wading depth where the boat surveys continue the profile line into the gulf. In order to obtain the maximum possible overlap between the landward and gulfward portions of the lines, it is desirable to conduct the landward surveys at low tide and the gulfward surveys during high tide.

#### Gulfward Portion of Profile

The offshore profile survey is performed using a computer controlled survey system installed on a 26 feet aluminum power boat. The survey system includes a fathometer unit (Model 412 Auto Track) and a range finder (Mini-Ranger Falcon 484). The fathometer is able to measure water depths ranging from 2.0 to 999.9 feet and provides an accuracy within  $\pm 0.1$  foot. The range finder can measure distance between the receiver transmitter located on the boat and a microwave transponder located on shore up to distances of 10 nautical miles with a probable error range of  $\pm 6$  feet. When sampling a profile, the boat moves relatively slowly along the profile in order to obtain dense data points. In the shallower water depths, a boat speed of 4 knots is maintained and in deeper water where the bottom slopes are less, a speed of 6 knots is maintained. The measured profile data obtained from the fathometer and the range finder are recorded in a PDP-11/23 Micro-computer at a sampling rate of one data point per second. Therefore, the horizontal distance between any two contiguous sample points is about 7 feet in the nearshore area, and 10 feet in the offshore area.