ANTHROPOGENIC AND NATURAL DEBRIS ON A SOUTH TEXAS BARRIER ISLAND BEACH

Anthony F. Amos and Pamela T. Plotkin
Marine Science Institute
University of Texas at Austin
Port Aransas, Texas 78373, U.S.A.

ABSTRACT

The results of a long-term study to estimate the quantity of both natural and man-made debris that washed up on the gulf beach of Mustang Island, Texas, are presented. The study beach is 12 km long and has been monitored since 1978 with over 1,800 observations and 4,000 man-hours of observational effort. Four types of debris measurements are made: (1) estimates of 40 different categories of debris and litter using a ranking system (done bi-daily since 1983); (2) counts of some 70 categories of debris items (done weekly since early 1987); (3) quantity (weight) and quality of all debris at three 10-m-wide beach transects (done weekly for 1 year in 1987); (4) counts of four key anthropogenic litter items thought to be typical of four separate sources (done bi-daily for the past year). Method 1 shows seasonal tendencies but is not precise enough to indicate longer term trends. Method 2 gives much more accurate quantitative data but still reveals no trends over the 2-year period. Method 3 reveals associations of anthropogenic and natural material, quantifies "uncountable" items like tar balls, and allows examination of the world of "microtrash." Method 4 shows the short- and long-term variability of litter associated with commercial fishing and offshore oil activities, and material from south of the United States-Mexico border.

Some results of the study to date:

- There is a seasonal variation in quantity of most beach debris--highs in spring and autumn, lows in summer and especially winter.

- Most anthropogenic litter comes from offshore and is identifiable with commercial fishing, recreational boating, offshore drilling and production, and the international merchant marine (items from 60 countries have been found here).

In R. S. Shomura and M. L. Godfrey (editors), Proceedings of the Second International Conference on Marine Debris, 2-7 April 1989, Honolulu, Hawaii. U.S. Dep. Commer., NOAA Tech. Memo. NMFS, NOAA-TM-NMFS-SWFSC-154. 1990.