Project Title : DETERMINATION OF OPTIMUM SAMPLE SIZE TO EVALUATE THE CATCH AND EFFORT FOR USE IN MARINE FISHERIES

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- The Monte Carlo Bootstrap methodology was applied to the data on trawl landings for each month at the Cochin Fisheries Harbour during 1992 and 1993 to evaluate the sampling scheme in terms of estimates of the coefficient of variation and determining the number of days for observation.
- The bootstrap evaluation was carried out in two stages, one for the days and the other on the number of boats on the selected day.
- Analysis of variance revealed that major contribution to the total variance is mainly from variation among the first stage units only and hence for the remainder of the study, the variance of the first stage units was only considered and the variance due to the second stage units was ignored.

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- The bootstrap software for this study was developed in C language. The bootstrap experiment was carried out with 1000 bootstraps for the first stage and the coefficient of variation was estimated for different bootstrap sample sizes.
- The monthly coefficient of variation for different sample sizes starting from sample size of 2 days during 1992 and 1993 ranged from 40% to 8% for 2 days to 18 days observation respectively.
- In most of the months, the coefficient of variation ranged between 10% to 15% for 10 or more days of observation per month. If it is assumed that a precision level of 10 to 15 % for estimating the total landings from a centre is satisfactory, in general, 10-12 days observation in a month would be sufficient to estimate the catch statistics.