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SEAMAP data?

Rester, Jeff K. <JRester@gsmfc.org> Thu, Jun 28, 2012 at 3:07 PM
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SEAMAP originally choose sites based upon the following method.

Sampling was conducted around the clock with an equal number of day and night stations. Day and night are sampled as independent strata. Several of the state vessels will not be able to operate around the clock or at night due to size limitations and availability of personnel. SEAMAP sampling sites are chosen randomly within strata determined by depth and statistical area (two or three areas per stratum). Sampling sites in water depths of 5-20 fathoms, stations occur at 1 fathom strata; 20-22 fathom stations at 2 fathom strata; 22-25 fathom stations at 3 fathom strata; 25-50 fathom stations at 5 fathom strata, and finally a 50-60 fathom stratum. Trawls are towed perpendicular to the depth contours and cover the entire depth stratum for each sample site. Towing time can vary from a minimum of 10 minutes to a maximum of 55 minutes. For sample sites with depth strata that cannot be covered by a single 55 minute tow, a series of consecutive trawl tows (2, 3, or 4) will be necessary to cover that depth stratum. Each tow receives a separate station number. An extremely narrow stratum may be towed obliquely to ensure at least 10 minutes towing time.

This changed in 2008 with NMFS sampling and in 2010 with the states. The method is detailed below.

In the fall of 2008, NMFS changed their method of selecting sampling sites. The states adopted this change beginning in 2010. Diurnal stratifications were dropped in the selection process, and geographic strata (which were mostly 2-to-3 statistical zone groupings) were changed to single zones. Both station selection methods, the old and the new, are probability based designs. With probability sampling, each unit in the survey population has a known, positive probability of selection. This property of probability sampling avoids selection bias and enables one to use statistical theory to make valid inferences from the sample to the survey population. More specifically, the new method employs probability proportional to size (PPS) sampling. In this type of sampling, a unit's selection probability is proportional to its size measure which in this case is geographical surface area. For example, if Unit A has twice the surface area of Unit B, then Unit A will have twice the probability of having a sample selected from it than B. The end result is that Unit A will have about twice the number of samples as B. Even though diurnal strata were dropped in the sampling site selection process, this information is not lost since samples can be post-stratified. Following is an example of how sampling sites are now selected.

Bathymetry data were downloaded from the National Geophysical Data Center (NGDC) web site (Divins, D.L., and D. Metzger, NGDC Coastal Relief Model, http://www.ngdc.noaa.gov/mgg/coastal/coastal.html). Because of the magnitude of data, they were downloaded by single Gulf Coast Shrimp Statistical Zones (the download process allows for the definition of a desired data block through user supplied latitude and longitude boundaries). Since the data definition process is controlled by latitude and longitude only, some undesired depths were included in downloads (i.e., for NMFS, depths less than five or greater than sixty fathoms). These records were deleted later through a Statistical Analysis System (SAS) program. Each bathymetric record represents a 3 arc-second element of data (≈ 0.05-by-0.05 minutes of latitude and longitude); therefore, the number of data records was used as a measure of size for each respective statistical zone. The bathymetry data were then used as input to a SAS program which performed three functions; defined the sampling universe, determined the sampling proportions according to sizes of statistical zones, and randomly selected the sample sites according to the defined proportions.

Jeff

-----Original Message-----
From: Malin Pinsky [mailto:pinsky@princeton.edu]
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