

Changing Role of the Hydrographic Surveyor

Over the last year, I have been in a very privileged position of being an active member of a design team responsible for a major re-organisation within my company. During this process I have had to look long and hard at the changing role of the modern Hydrographic Surveyor. One of the visible changes has been the ratio of male to female surveyors.

When I first started in this business, I must admit that I had a very limited view of the ramifications of my work as a field surveyor. At that time my main concern was how to achieve the best practical accuracy with the tools and resources available. One factor has not changed over the years and that is the pressure to complete the work as quickly as possible. I gave very little thought to the final use of the charts that I produced because survey was a very peripheral activity in the early stages of much larger projects. How my view has changed...

Technology has advanced so much that many of the fundamentals of error source and mitigation that I grew up with have gone away. How many young surveyors know of the problems of dawn & dusk on Decca Mainchain or Hi-Fix or any of the other similar systems? I well remember doing surveys offshore East Africa using a lead line from a rubber dinghy with position fixing being done by theodolite intersection from the beach. 'Levelling in' from 35 kilometres up the coast derived local datum. Tidal observations had to be undertaken by an observer noting tidal readings (in Arabic) from a wooden pole that we fixed onto the coral reef. Calculations were done by candlelight using seven figure log tables and a hand cranked Facit calculator. I had no idea that the information that I gathered was to be used for the design and construction of an oil offloading facility – still less foresight to know that the information would still be used 30 years later as the best available!

Modern surveyors gather far more data than I could have ever conceived in my youth. Calculations involving hundreds of thousands of data points with many multiples of position lines from a multitude of different sensors are now undertaken routinely. No hand cranking of a Facit calculator or log tables nowadays. In fact one of the major challenges for the modern surveyor is how to handle the tremendous volumes of data that the modern Hydrographer gathers every minute of data acquisition. Imagine how this applies in a large multinational when the data from many of our international operations is all gathered in one place. There are literally petabytes of data.

Then increase the complexity of the problem by determining the number of different formats the data has been stored in, multiply by the number of spheroidal models which have been used, multiply this by the number of projections associated with each spheroid, add in the different relative accuracies and subtract that data which does not have an adequate descriptor field and you can begin to imagine the nightmare of Data Management. Then try and combine many of these different data sets into the multiple formats that can be used across different computer applications...

At the heart of all this, in my company at least, is the surveyor. Why? Because the co-ordinates are the only common factor across multiple data sets from multiple sources. Surveyors with their geodetic training are the wizards who can make all of this bountiful supply of goodies available to engineers, planners, geologists, geophysicists AND cartographers. Are we IT experts? Yes. Are we Data Managers? Yes. Are we magicians? Yes. Why? Because we are Hydrographic Surveyors.