

## FATHOMS' GUIDANCE NOTE 2

### SURVEY REQUIREMENTS

#### 1 INTRODUCTION

There are certain parameters and issues that Fathoms, like any other hydrographic surveyors, will need from our clients before we can be sure that we will be able to provide our clients with exactly what they want.

#### 2 THE OPTIONS

##### The Purpose

It is always helpful for us, as surveyors, if we understand the primary purpose of the survey and the use to which it is intended to be put. This can have an important bearing on how Fathoms conducts the work.

##### Horizontal Control

The coordinates in which the survey is to be conducted need to be determined. For UK work, the common geodetic control for inshore surveys, especially if coordinated with land detail, is OSGB36 – Ordnance Survey Datum 1936. Another common option is UTM – this tends to be for work further away from the coast.

Assuming that GPS, in one form or another, is being used for positioning, the specialist survey software will convert the GPS' lat/long positions on the WGS84 spheroid to the client's required grid coordinate system.

##### Vertical Control

To what level do you require your depths referred?

For nautical work, it is almost always Chart Datum which, in the UK as in many other parts of the world equates to LAT (Lowest Astronomical Tide). All British Admiralty charts are referenced to Chart Datum.

Some engineering surveys are required to be referenced to Ordnance Datum Newlyn. There should be a connection at each port between OD(N) and CD, if required. Another aspect to bear in mind for engineering surveys is that hydrographers always show depths as positive – except when there is a drying height – whereas engineers usually have depths as negative.

##### Accuracy

The accuracy required of the survey will undoubtedly have a large impact on the cost of the survey. Again, the purpose of the survey should help determine to what precision the positioning should be undertaken. There is normally little or no point over-specifying on a cost-benefit analysis if this is not what is really required by our clients.

Almost all surveys are positioned these days using a form of GPS either differential or Real Time Kinematic (RTK). The former requires correction signals which are usually transmitted on a national basis. RTK requires a localised base station to provide line of sight corrections thus requiring an extra and more expensive receiver/transmitter for the survey as well as time required to set it up and obtain its accurate position. An alternative to a localised RTK is a satellite based system – but, as always, there are cost implications. Typical positioning accuracies from dGPS are c.1m and RTK c.20cm.

##### Deliverables

There is a wide variety of options available to clients. However, the output will be driven by the primary purpose of the survey.

For charting purposes, soundings will be plotted on a chart at a suitable scale. Of necessity, the soundings will merely represent typical depths across the area. For safety of navigation surveys, a bias towards shoal depths will always be used.

Other formats available include colour coded soundings, colour coded contours, infilled contouring, three dimensional models and fly-throughs. All modern digital systems will be able to provide x,y,z data in ASCII format. The latter, in particular, are useful for input into clients' systems e.g. for further processing or GIS systems.

### **3 WEATHER**

By its very nature, hydrographic surveying is highly dependent upon the available 'weather working days'. If the seas are too rough, it becomes impossible to obtain good reliable data or even be at sea at all. There is no one set of optimum conditions – local conditions will prevail as will what is required of the survey.

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