

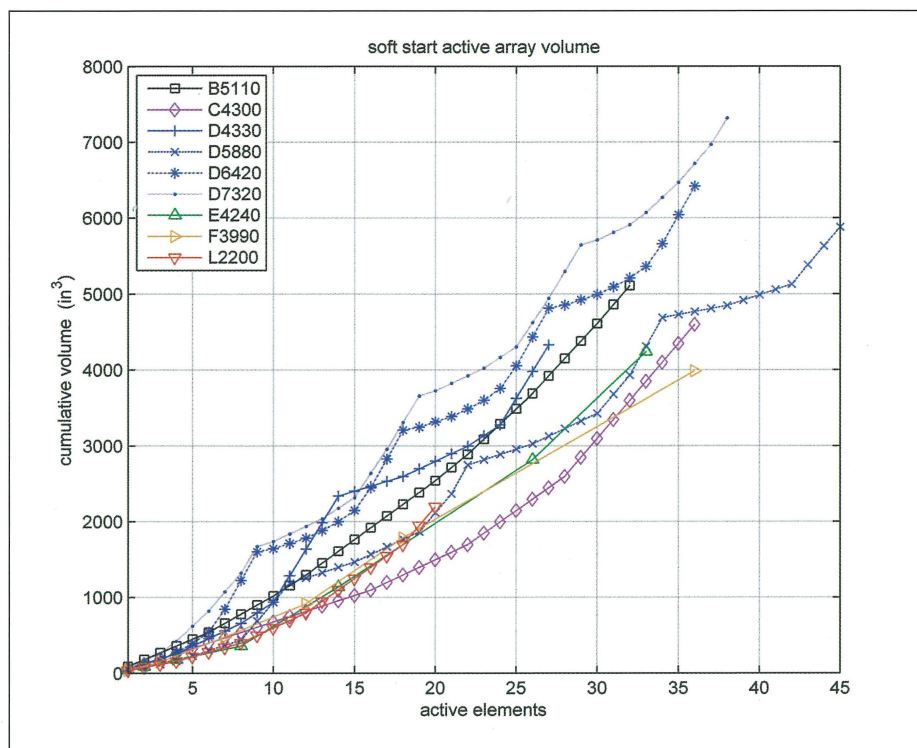
Planning For Second Year Of BRAHSS In Full Swing

By John Hughes

Further to the article in *PESA News Resources* (Issue No. 109), which described the first field season of the four year project, Behavioural Response of Australian Humpback whales to Seismic Surveys (BRAHSS), studying the behavioural response of humpbacks to seismic sounds, planning for the second season is now in full swing. The second field season will again occur at Peregrin Beach off Queensland's Sunshine Coast in September and October 2011, during the whales' southward migration. Many whales pass through the site during the 10 hours of each day's experiment. As in 2010, the second experiment will be conducted by researchers from the University of Queensland (UQ), the University of Sydney (USYD) and the Curtin University of Technology.

A single 20 cubic inch source was used in 2010 and it's planned that the source in 2011 will involve an array consisting of up to six individual elements which will add up to approximately 500 cubic inch. This configuration will facilitate relatively close simulation of the first three or four stages of 'ramp-up' or 'soft start' used in commercial surveys. As a result of the dimensions of the array (of the order of 2 m x 2 m) the source characteristics of the experimental array will have less horizontal beam pattern variation than from a similar source volume in a commercial array, having dimensions of the order of 10 m x 15 m. By reducing horizontal amplitude variation it will simplify the analysis, allowing a better understanding of the acoustic level received by the whales and how different noise levels may affect their behaviour.

The first stage of planning for the 2011 source array involved the International Association of Geophysical Contractors (IAGC) surveying its members to assess what constitutes the typical ramp-up methodology and the typical array volume used by the seismic industry. Given the wide range of geological objectives and imaging issues, it soon became apparent that there is no such thing as a typical array volume! In addition, given the ramp-up objective of 'gradually increasing the signal over a certain period – usually 20-30 minutes – to allow whales in the vicinity to swim away', it also became apparent that there are different ways of achieving this objective. Despite this, the survey results, together with a modelling study conducted by Curtin University researchers on a sample of nine industry arrays, were extremely useful in guiding the investigators'



Summary of the number of elements and resultant cumulative volume used in the ramp-up process for the nine industry arrays modelled by Curtin University.

and Joint Industry Program (JIP) representatives' deliberations regarding the optimum source array to be used for the 2011 season.

In addition to the deliberations regarding the source to be deployed for the 2011 field season, extensive planning is also being carried out in order to conduct such a complex study as efficiently as possible, and hence maximise its chance of success and therefore value in understanding the issue. To date, this has involved a two day workshop at the USYD in February at which most of the BRAHSS researchers plus some JIP and International Association of Oil and Gas Producers (OGP) representatives discussed all aspects of the upcoming field season. In addition, it involved a presentation to senior representatives of the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) in early March to provide them with a summary of the operational results of the 2010 field season, and also provide the researchers' preliminary thinking in terms of the source array and the experimental design to be used in 2011. The results of this project are expected to feed into SEWPaC's future guidelines for seismic surveys.

It is anticipated that the results of this research project will be very important in formatting

future guidelines governing the interaction of seismic surveys and whales.

Although funding is being provided by the JIP on E&P Sound and Marine Life and by the United States Bureau of Ocean Energy Management, Regulation and Enforcement (BOERME), there exists a unique opportunity for non-JIP companies to become participants in BRAHSS. This will mean that participants will have access to the results well before they are published.

Origin Energy Limited, Beach Energy Limited and AWE Limited have already agreed to become participants in the study through a data purchase agreement with OGP. It is also hoped that additional participants will join BRAHSS during the coming months as there is strong industry and regulator interest in the project.

By adding participants at this stage, JIP will be able to allocate much-needed funds into researching other unfunded projects that are needed to better understand the E&P Sound and Marine Life issue. Thus, if any other companies or organisations are interested in 'helping the cause' and, in turn, benefitting themselves by gaining early access to the BRAHSS results, contact John Hughes (jrhgeo@ozemail.com.au) or John Campbell (John.Campbell@ogp.org.uk) for more details. ■