In early 2006 a Marine Controlled Source Electro-Magnetic Survey (CSEM) was carried out over the “XYZ” discovery offshore “ABC” in West Africa. The target comprises a complex reservoir system within a much larger but simpler structure and one of the challenges of the survey was to see what level of reservoir detail could be seen by the CSEM data. The target reservoirs are further complicated by overlying gas sands, varying water bottom and channelised shallow section all of which need to be taken into account in the survey design, acquisition, and subsequent data processing and interpretation. This talk will discuss the survey, planning, modelling, acquisition and some of the results seen to date.