

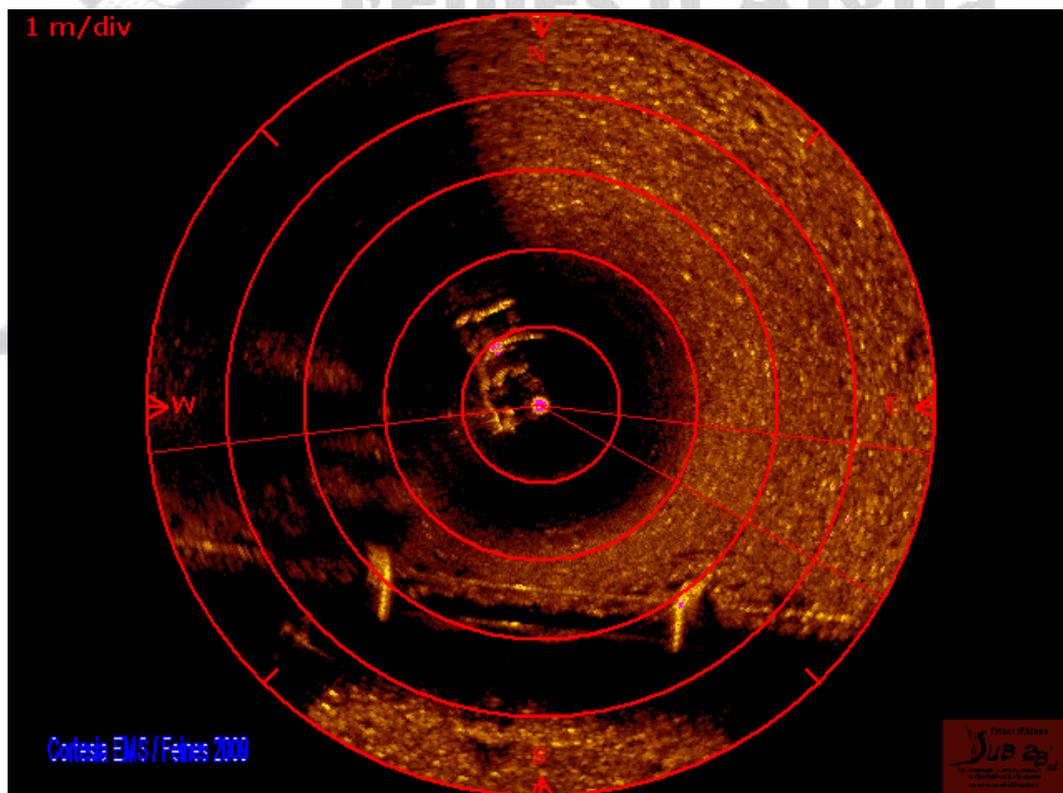


UNDERWATER INSPECTION EQUIPMENT

**HIGH RESOLUTION SONAR
Kongsberg V-1071**

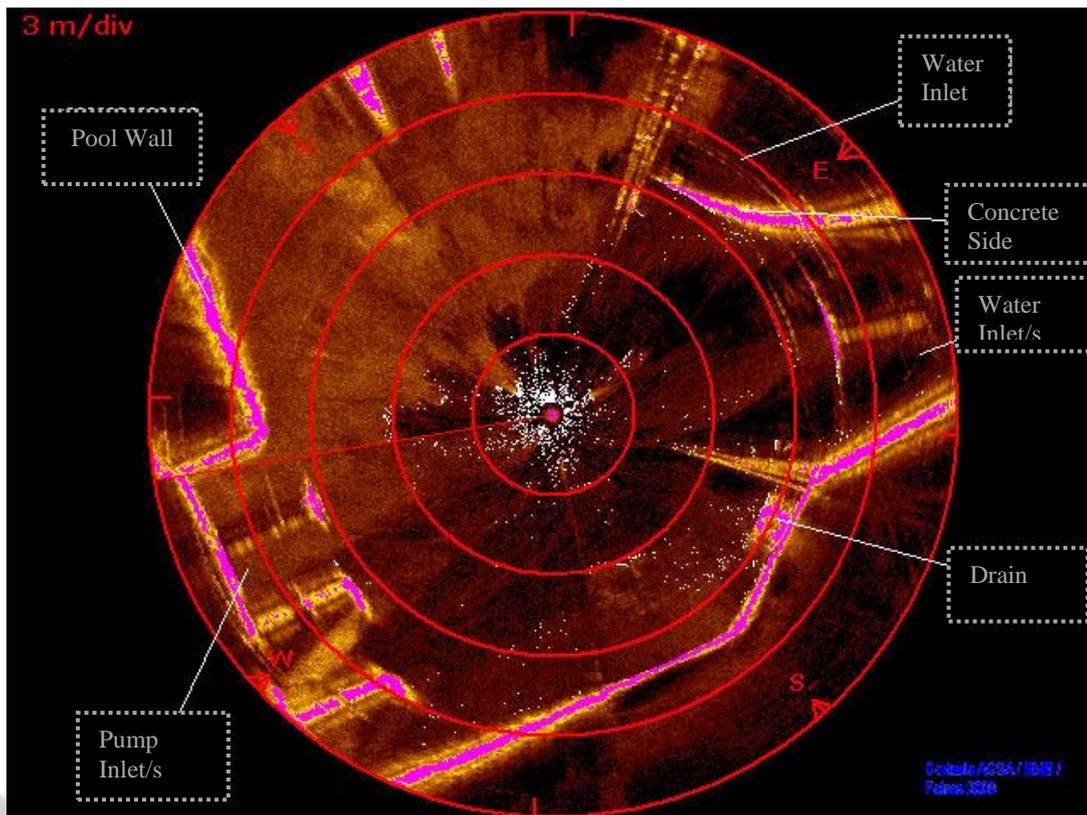
- ✚ We know that when an inspection or reconnaissance is taking place in an aquatic environment, the team and equipment employed to carry it out need to be highly specialised.
 - *Environmental factors always have the last word. The presence of material in suspension causes a decrease in or even total loss of visibility which affects our equipment and therefore our work.*

- ✚ Due to this and thanks to an inter-company collaboration agreement we would like to introduce a device which will allow, in reduced or zero visibility conditions, the reconnaissance of large areas or to see details which are otherwise practically invisible to our efforts.
 - *We are talking about the V-1071 675kHz High Resolution Image Sonar, manufactured by the company Kongsberg, with a range of 0.5 to 150m and a maximum operating depth of 3000m.*



- *Allowing us to sonically acquire images of structures or reliefs on the horizontal and vertical planes, thereby being able to carry out our work in very low and zero visibility.*
 - *Either precise positioning of structures in real time.*
 - *Or the calculation of areas, perimeters or heights in confined zones or open water.*
 - *The location of flotsam, pipe work, chains, objects or other things.*
 - *Providing Essential Assistance in the navigation of submarine vehicles.*

- ✚ For the acquisition of the best definition, the sonar only needs 2 minutes to update the image of a specific area of the bed with a radius of up to 50 m around it.



- *In order to keep them in a fixed and vertical position with respect to the bed, and on top of it, we use a tripod as support and to which the device is attached by means of an articulated joint. Allowing us to obtain a detailed image of any nearby marine structure or bed.*
- *To achieve an increase in the operating depth, and better mobility, it can also be installed on a ROV type vehicle, which has a greater operating range.*
- *In the example image it is mounted on a Phantom HD2+2.*



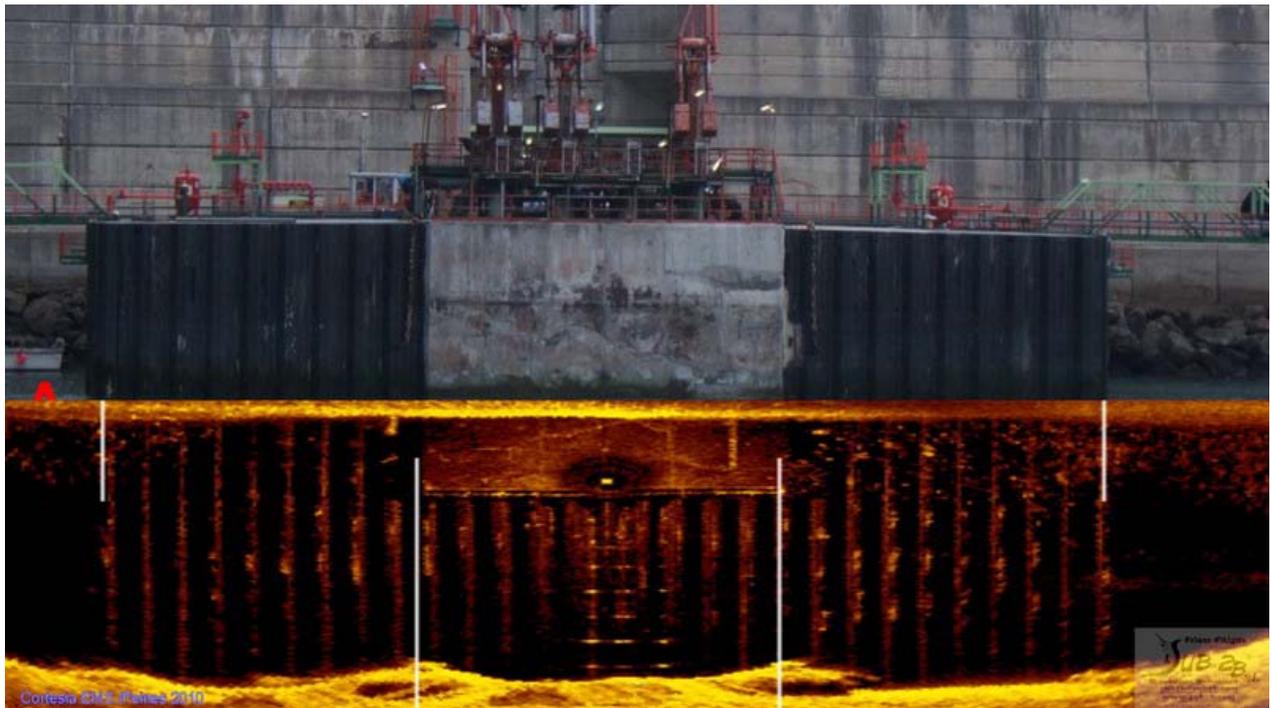
HR Sonar Head >

HR Sonar Body >>



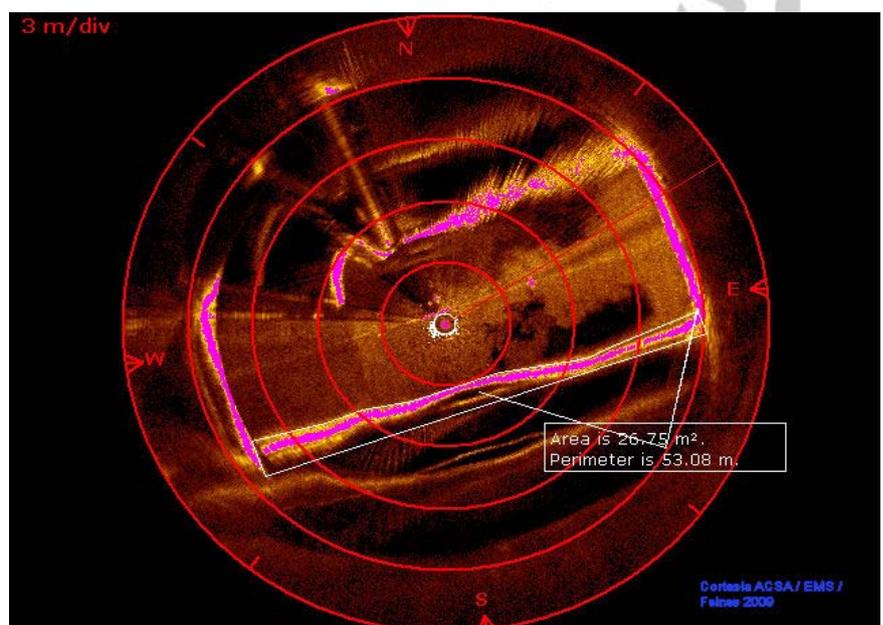
- The high definition of the images taken by the sonar, its speed in updating them and the capacity for calculation of distances horizontally, and heights in the vertical plane, with the “acoustic shadows” as a reference, make this sonar a frequently used instrument when it comes to precisely positioning large structures in real time.
- *By correcting the position the sonar maintains with respect to a GPS which is undercover or in the wharf, or by the use of acoustic positioning systems for great depths, we can assign a geographic position to the sonar and georeference, the whole structure thereby being located with respect to a specific geographical position.*
- *We can also mark any object or event in such a way that its position and description are saved in memory.*
 - ✚ **The software which manages the images taken by the sonar allows us to measure distances and heights with great precision; being able to know the exact dimensions of what is being observed.**

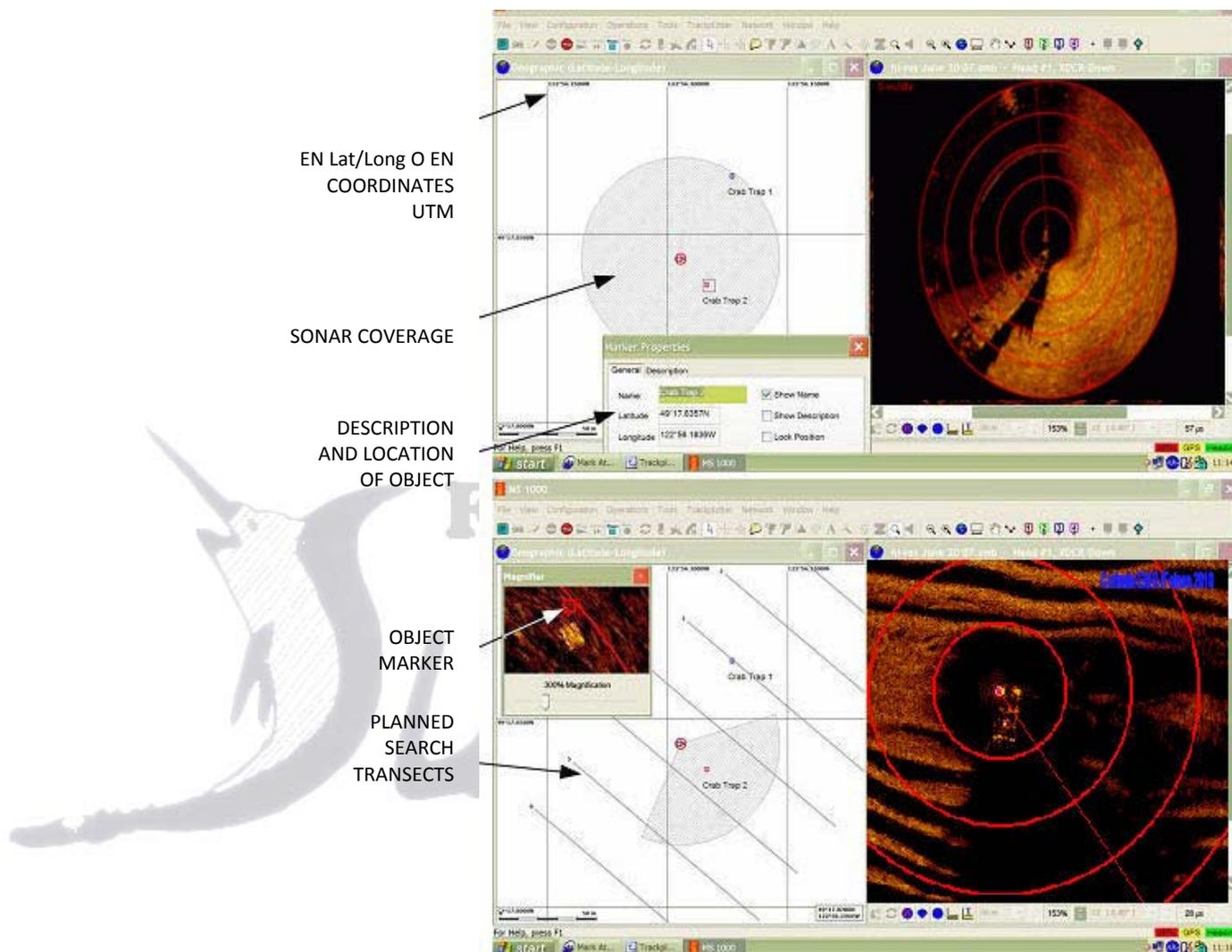
-  Moreover, by means of specialised software, the images can be processed and mounted in tiles covering large areas such as that of a port or presenting the entire section of a structure which is partly submerged.



- Or the profile at the same point, being able to calculate the volume which it represents, in this case sediment.

-  In another context the software included allows us to design a preliminary work system, in order to be able to observe an area of the bed covered by the sonar in real time.





- ✚ This device represents a great, invaluable assistance in the use of human resources and in the time used in conditions of adverse visibility, and we therefore believe that it could be of interest to you in your future projects .
- ❖ We would be more than happy to answer any question or requests which you may have. Please do not hesitate to send them to us by the following means:
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