Route Steering feature saved substantial time during pipeline monitoring survey in the Caspian Sea

Teledyne RESON

Imaging

The Situation:

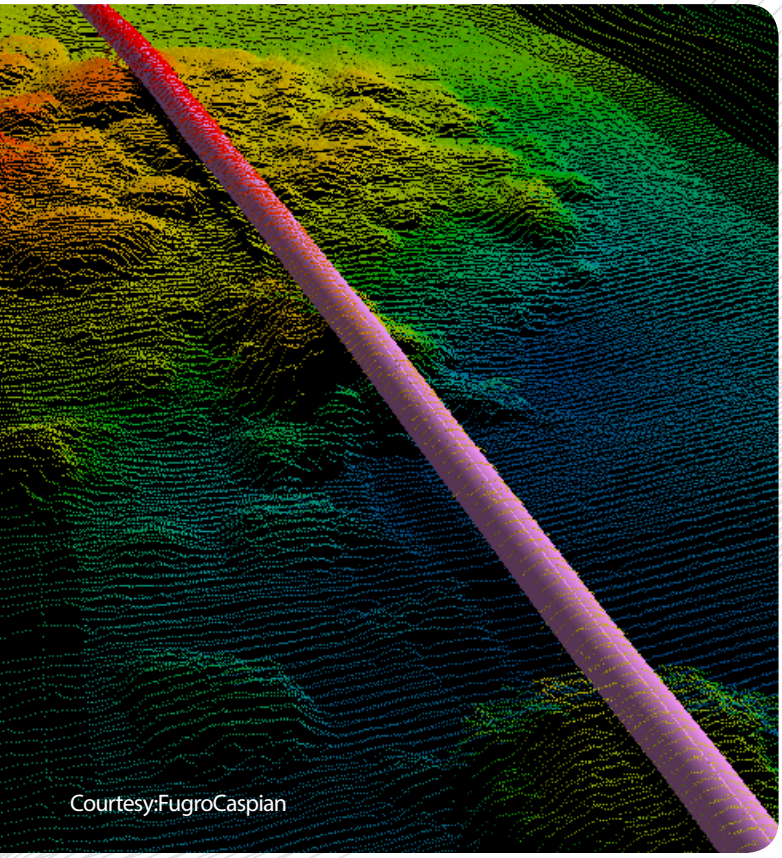
In a special collaboration between BP, Fugro Caspian and Teledyne RESON, an unconventional approach was used to survey pipelines in the Caspian Sea, which has been carried out every year since 2012. The vessel was equipped with 2 pole-mounted SeaBat 7125 SV2 multibeam echosounders using Feature Pack 4 (with Flex Mode, X-Range and Full Rate Dual Head). A total of 710 km of pipe were surveyed in just seven days.

This article describes how the new Route Steering feature in Teledyne PDS was used to yield substantial time savings during the survey.

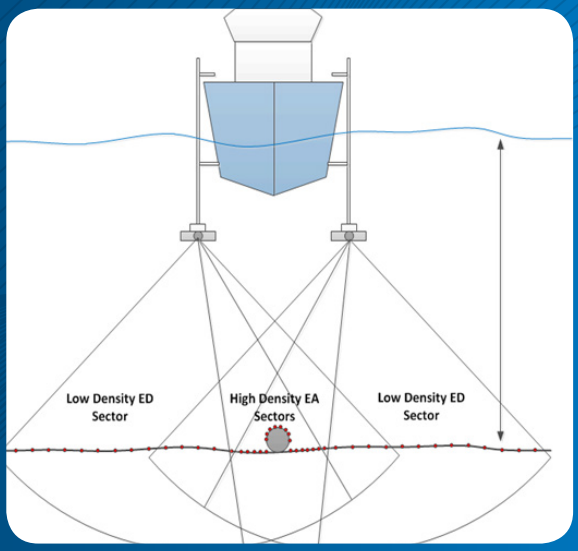
Product:
SeaBat 7125 SV2
Teledyne PDS

Application:
Pipeline inspection

Client:
Fugro Caspian



Courtesy:FugroCaspian



SeaBat 7125 SV2 Dual Head configuration for pipeline inspection in the Caspian Sea.

Challenges discovered during the pipeline surveys in 2012 and 2013

Part of the surveyor's job was to ensure that the pipe was centered in the high density Flex Mode sector, since the aim was to achieve a high number of hits over the pipe and the area immediately surrounding it. This was achieved by manually adjusting the position of the sector using the Flex markers shown in Figure 2.

However, this required a lot of concentration as the pipe position moved on the sonar display whenever the vessel deviated from the pipe route. If the pipe moved outside the Flex Mode sector, the vessel had to turn around and repeat the last section of the survey. It took up to one hour to turn around the large vessel, adding extra time to the project.

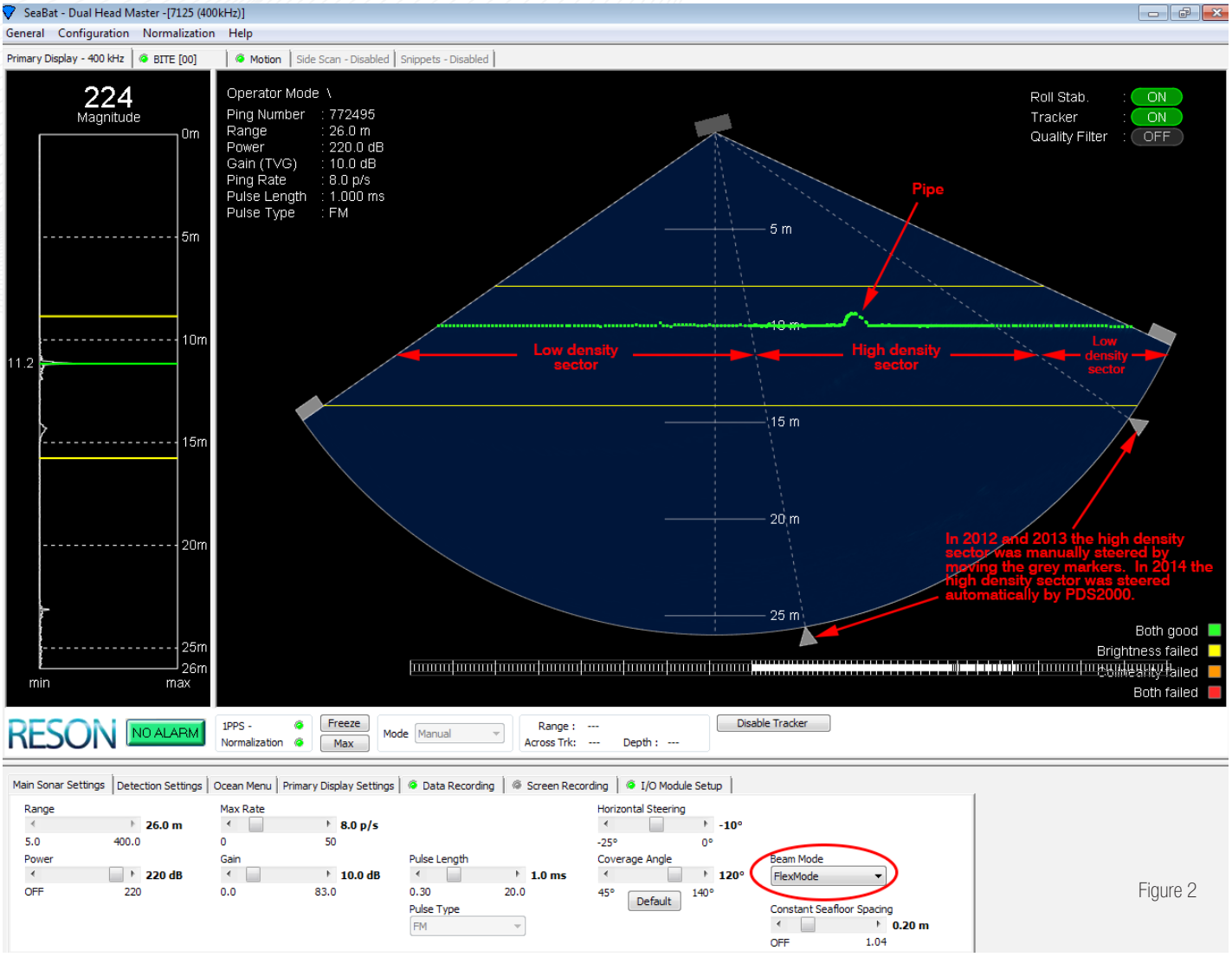


Figure 2

Teledyne
RESON

To make the task easier, Teledyne PDS was improved to steer the Flex Mode sector automatically by detecting the pipe in the sonar wedge and steering the Flex to the detected pipe position. However, as discovered in 2012, the feature did not work when multiple pipes were present.

As shown in Figure 3, when two pipes appeared on the sonar wedge, Teledyne PDS steered the Flex to the average position of the two pipes, which did not provide the right result.

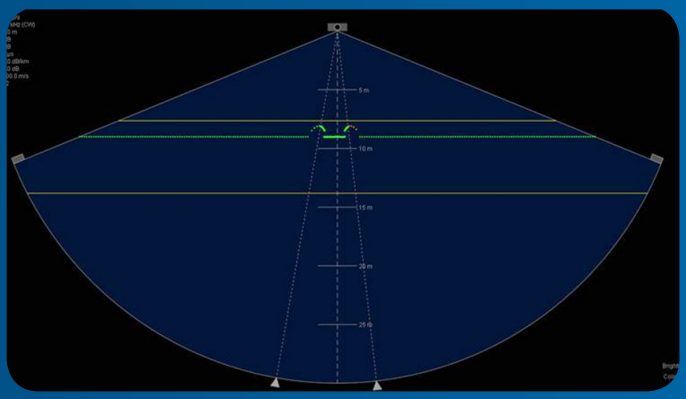


Figure 3

New Route Steering feature solved the problem

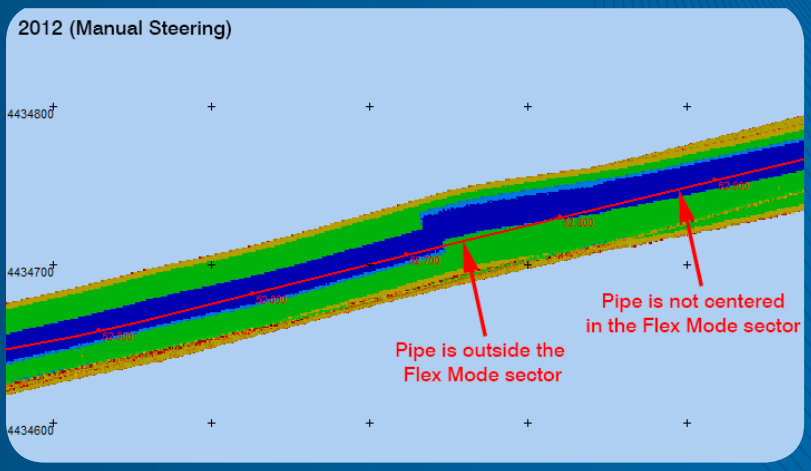
In 2014, Teledyne PDS added the new Route Steering feature, which is able to steer the Flex Mode sector automatically using a route file (a file containing XY coordinates of the pipeline) instead of steering to the detected pipe position. It required that the exact position of the pipe was known. Instead of asking Teledyne PDS to find the pipe and steer the Flex to the detected position, the operator entered the XY data and instructed the program to steer on the route.

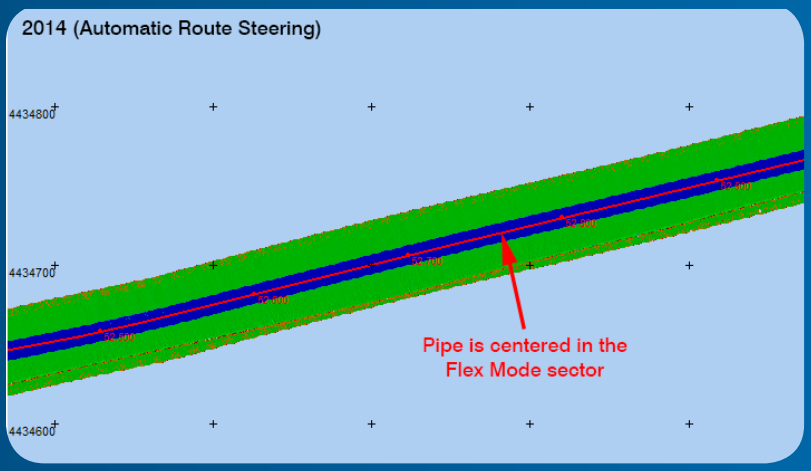
Route steering benefits

In conclusion, Figure 4 shows the difference between manual and automatic steering. It shows a grid model colored by the number of hits, with blue cells representing the high density Flex Mode sector where the most hits were achieved. The automatic steering gives a smoother result and the pipe is always centered in the Flex Mode sector.

On the basis of the Route Steering feature, Fugro Caspian has obtained important time savings, and thus cost reductions, by reducing the number of survey reruns.

Route Steering feature saved substantial time during pipeline monitoring survey in the Caspian Sea *CONTINUED*





"...THE AUTOMATIC STEERING GIVES A SMOOTHER RESULT AND THE PIPE IS ALWAYS CENTERED IN THE FLEX MODE SECTOR.

Contact RESON for product information:

TELEDYNE RESON

Fabriksvangen 13

DK-3350, Slangerup

Denmark

www.teledyne-reson.com

Member of:

TELEDYNE MARINE
Everywhereyoulook™

www.teledynemarine.com