

Reliable, robust, secure m

Monitoring the marine environment and ensuring reliable, robust and secure access to marine data on an operational basis is where we all strive to be as an industry, writes TechWorks Marine, Ireland. But monitoring the environment is not only about making sure the flow of information happens on an ongoing basis – it is first and foremost about data, and ensuring that the information being collected on offshore and coastal platforms is of quality

In today's world, there is an increasing requirement and reliance on metocean data for a wide range of applications. These range from data buoy networks where the information collected is assimilated into numerical models to ensure accurate weather forecasting and ensure safety at sea, through to marine monitoring as part of compliance obligations such as real-time turbidity monitoring for dredging activities. Putting together such reliable, robust and scalable marine monitoring technologies requires a diverse range of expertise.

TechWorks Marine offers its clients a systems approach to their data requirements. In some cases this may just



Port of Cork
buoy solution

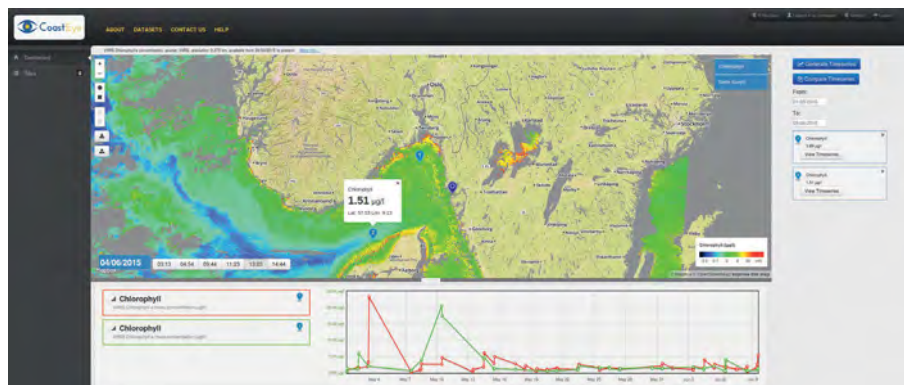
be the monitoring infrastructure, for example, real-time data buoys with a live data portal, as recently supplied to the Swedish Meteorological and Hydrological Institute, the Irish Marine Institute and the Port of Cork in Ireland. But increasingly, the company is asked to provide the whole data cycle from design, sensor integration and deployment through to ongoing service, recovery and provision of a secure data portal.

TechWorks Marine's in-house data portal, CoastEye, fuses real-time in situ data with earth observation and modelling data for clients' locations, ensuring access to a quality assured, consolidated decision support system. Underpinning all of TechWorks Marine's marine data offerings

are the TMBB data acquisition and transmission system and CoastEye secure data fusion portal. Below are described two recent examples of real-time marine data deployments highlighting the growing range of data users.

In September 2016, TechWorks Marine was awarded a contract by the Port of Cork to design and deploy a new operational wave buoy at the approaches to Cork Harbour at Roche's Point. Cork Harbour is the second largest port for shipping traffic in Ireland. The data from this buoy is linked directly to the port operations station to ensure that ships can get in and out of the harbour safely. The buoy was designed with the harsh local environment in mind. Traditional industry wave rider type wave buoys have not worked well in this environment historically. TechWorks Marine based its design on the Mobilis, France, buoy hull currently being used by the UK Met Office to upgrade its offshore 'K' buoys. The reliability of these platforms has been validated in the harshest of environments.

TechWorks Marine's team of engineers integrated the SeaView, USA, SVS-603 inertial wave sensor to the TMBB data



arine data buoy networks

acquisition and transmission system to form the core of the wave buoy. This was then fitted onto a Mobilis DB9000 buoy and calibrated ready for deployment at sea. Data is being transmitted every 20 minutes by cellular telemetry, and has backup Iridium as standard. Once transmitted, the data is received by email to a local version of CoastEye installed in the Port's operation centre. Through CoastEye it is possible to alter the sampling regime and carry out remote troubleshooting should it be required, reducing the requirement to send staff to sea for routine system maintenance.

Other recent developments include the development of multi-level turbidity monitoring on large dredging projects. Historically, dredging projects would require

turbidity monitoring at one or two depths, but today international best practice and public pressure has meant that in some cases clients require more complex longer term monitoring data buoys. In the last four months TechWorks Marine has been awarded a number of contracts linked to compliance of dredging permits. Although the data requirement is linked to dredging permits, the potential users of the data are much greater and extend as far as aquaculture in one instance.

These new projects, which are looking at multi-depth turbidity profiles in real-time and linking this information to live current and wave data, are the future of such coastal data buoys. It is no longer enough to simply know the suspended sediment at one point – international best practice is moving towards

an integrated systems approach, and as the deployments get longer it is important to ensure that the sensors used can conform to the data quality required. TechWorks Marine now offers clients real-time turbidity monitoring solutions which include current profiles and waves as standard for deployment in up to 100 metres depth in the harshest of environments, over multi-annual deployments.

This is where TechWorks Marine can provide real value to its clients. Not only can the company design and deploy robust, reliable data platforms, but it can also provide the single data portal to manage the systems, including remote maintenance, as well as data processing, quality control and other layers of data (earth observation and modelling).

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