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Environmental Instruments
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Argonaut-SL used in Berth Management Systems

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Application
Note

One of Strainstall UK Limited's primary marine safety systems is their Berth Management System, which is used chiefly for the docking of VLCCs (oil tankers) and LNG (liquid natural gas) carriers. The Berth Management System provides assistance to vessels on their approach to the berth and during mooring by monitoring the conditions of the sea and surrounding area to ensure the complete safety of the vessel. The system undertakes continuous surveillance of the mooring and vessel related parameters, such as speed and position of the vessel on approach, weather conditions and oceanographic parameters.



An example of a berth vessel

A system such as Strainstall's needs to be in place to ensure that the docking operation is performed within defined environmental limits and strict approach speed limits, as large impact on the fenders and jetty equipment may cause considerable damage. In relations to this environmental monitoring of parameters such as current and tides needs to be undertaken as the conditions will affect the manoeuvring of the ship during berthing.

Strainstall use SonTek's Argonaut-SL sideways facing ADCP in their Berth Management Systems to monitor the current present at the time of



The Argonaut-SL range

berthing. SonTek recognised the need to measure water velocity and level in open channels during applications such as this and the SL was their solution. The SL, known as the Side-Looker, is intended for side mounting on bridges, canal walls and riverbanks, ideally on an existing structure. It is available in three models all with different sampling ranges, the SL3000's being 0.1m - 5m, the SL1500 0.2m - 20m and the SL500 reaching up to 120m. The assortment of ranges mean that the SL is suited to a variety of channels from narrow rivers to wide ports.

The Argonaut-SL's narrow beam width, combined with unmatched side lobe suppression, provides the superior acoustic directivity necessary for achieving maximum horizontal range, which is free of interference from boundaries and obstacles. The SL comes with the Windows software packages ViewArgonaut and FlowPack, but it is also compatible with other software, which Strainstall illustrates by using it with their Berth Management software.

For each Berth Management System set up by Strainstall, the right position for the Argonaut-SL needs to be ascertained so that sufficient data can be provided. In certain applications the SL





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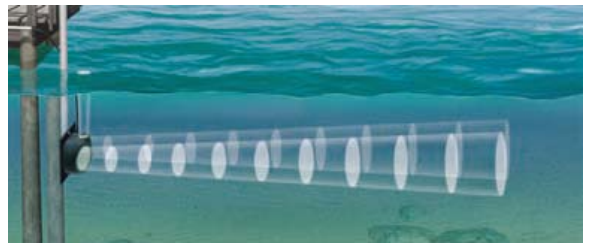
can be deployed on the seabed in the shipping lane, where the most accurate results can be achieved. However, installation, survivability, maintenance and cost constraints all point to the berth itself being the more appropriate structure for the sensor. From this position the SL can monitor the current as the vessel is approaching the berth which is the primary operational requirement and when current measurement is most critical.

Within the berth, Strainstall must also take practical restraints into consideration. The mooring dolphins can have an affect on the water flow into the berth and, therefore, can affect the data recorded. From this Strainstall have deduced that whenever possible the SL should be deployed from a catwalk, which is a walkway that links the mooring dolphins. To install an Argonaut-SL onto a catwalk a deployment frame or support is needed which must be designed to suit the structural design of the catwalk, allowing for easy deployment and recovery. The frame will need to be light enough so that it can be lifted for cleaning and be stiff enough to avoid vibration in strong currents.



A typical deployment frame

If deploying the SL on a catwalk the signal cable can be routed to a junction box on the catwalk which is then connected to a central control room via fixed site cabling. A PC is located in the control room running Strainstall's Berth Management software which integrates the SL's data with the other measured parameters.



An example of the SL in use

Mr Dave Vodden, Engineering Manager at Strainstall, explains that the Argonaut-SL was chosen because, "being an ADCP, marine fouling is far less of a problem than with impellor type current meters." This means that time can be saved by only having to clean the instrument every three months.

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