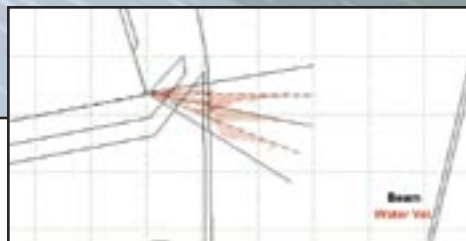
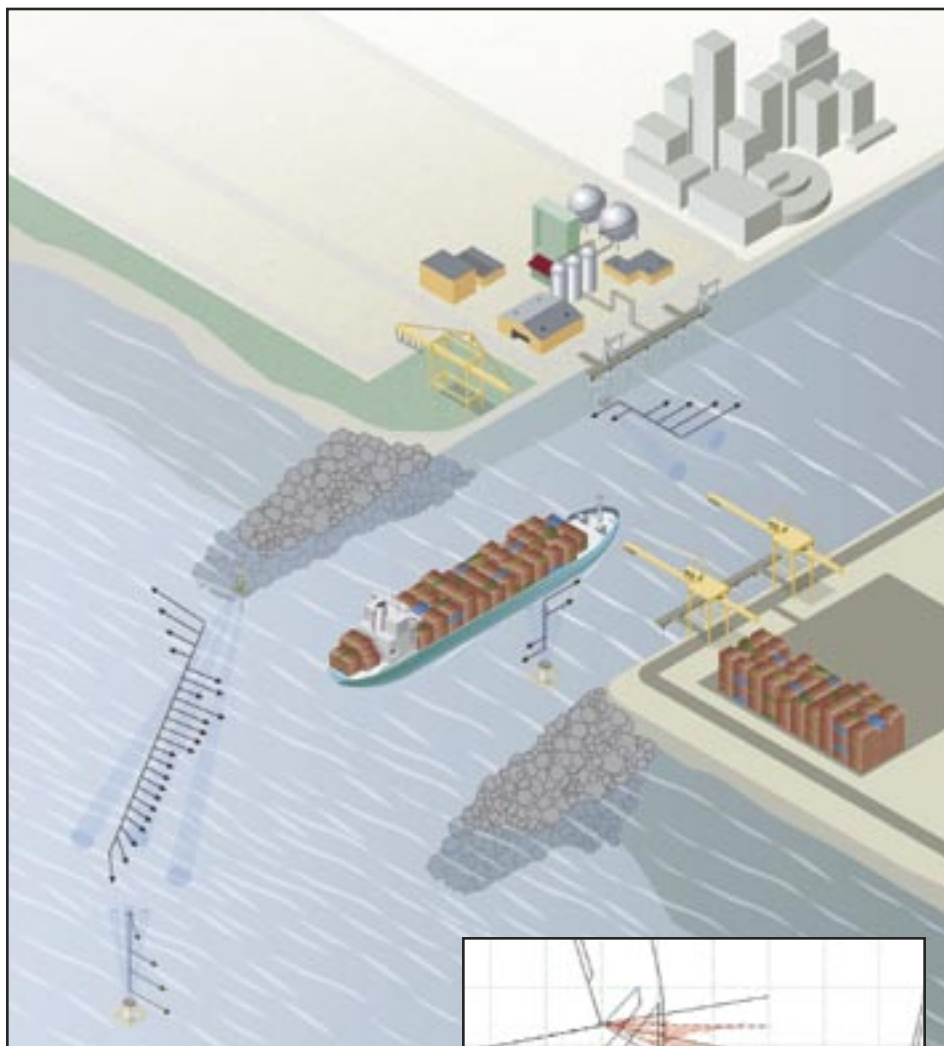


# Ports and Harbors

Access to accurate, real-time current and wave information is a critical component of Vessel Traffic Safety (VTS) operations in the port and harbor environment. RD Instruments Acoustic Doppler Current Profilers (ADCPs) and multi-directional Waves Array products are ideal tools for this environment, offering highly reliable environmental data when and where you need it most.



## Why do you need current and wave data in the port and harbor environment?

**Improved port efficiency** Accurate current and wave information can be effectively used to significantly enhance the efficiency of vessel traffic.

**Vessel safety** Real-time environmental information is an essential component of vessel safety.

**Enhanced security** Historical and real-time data is critical to understanding the flow structure in the event of an accidental or intentional spill into waterways.

Data display created by AquaVisions VISEA-H software provides 3x velocity profiles based on three combinations of the three independent beams for quality assurance. Note: HADCP Data from the port of Rotterdam.

## RDI's Product Solutions:



**Workhorse 300 kHz Horizontal Acoustic Doppler Current Profiler (H-ADCP) with optional Waves Array** looks out

horizontally from its mounting structure to measure near-surface water currents and multi-directional waves out to 200M ranges. The H-ADCP can be placed at the port entry to measure currents and waves in the harbour approach channel, or variations of the currents across the navigation channel.



**ChannelMaster Horizontal ADCP (H-ADCP)** provides critical horizontal current information for short range applications such as vessel docking.



**Workhorse Acoustic Doppler Current Profiler (ADCP)** collects internally logged or real-time information about the vertical variation in water speed and direction. The flexible, bottom-mounted Workhorse platform can be

upgraded to include multi-directional wave measurement capability.



**Workhorse NEMO** provides real-time data capability when installed in concert with an ADCP/

Waves array. NEMO compresses vast amounts of data for wireless transmission to the surface.



**RD Instruments**  
Acoustic Doppler Solutions

# Ports and Harbors

## Where are RDI ADCPs being used?

RDI's ADCP and waves measurement products are hard at work collecting data in ports and harbors around the globe. Two specific recent examples include:

### Port Kembla, Australia



At Australia's Kembla port, the pilots were asking for wave and current information. Port managers answered by giving them real-time data from two RD Instruments ADCPs. Pilots now receive real-time wave and current data, information that has helped them operate safely, especially at night. **Installed RDI Products:** Bottom Mounted Sentinel ADCPs.

### Rotterdam, The Netherlands



In an effort to widen the port's operating windows, managers at Rotterdam installed an RD Instruments horizontal ADCP. The real-time data is also being used to improve safety as ships are required to make a sharp turn into the harbour at slow speeds, a situation in which current speed plays a big role. **Installed RDI Products:** 300 kHz H-ADCP.

For additional details and data samples from these projects, visit [www.rdinstruments.com/ports.htm](http://www.rdinstruments.com/ports.htm)



## RD Instruments

Acoustic Doppler Solutions

[www.rdinstruments.com](http://www.rdinstruments.com)

## What can RDI's data provide?

### Improve Port Efficiency

As shipping vessels become larger, time windows for port entry and exit become smaller. The key to moving more ships is to know what's happening with the waves and currents. Real-time wave and current information puts an end to reliance on tide predictions and uncalibrated models, resulting in larger windows of operation, improved efficiency, and lower costs.

Bottlenecks cost money. Demurrage fees add up quickly when ships are waiting offshore or inside a port. Real-time current and wave measurement solutions from RD Instruments can help reduce these costs.

### Ensure Vessel and Personnel Safety

Large vessels operate with minimal underkeel clearance, which means safe port operations require accurate current information to understand the true underkeel clearance from excessive vessel squat. Accurate wave information is crucial for predicting extreme vessel pitch and roll, which can cause potential groundings. Sending a ship out when the tides are wrong (a decision too often based on imprecise models and predictions rather than on solid, real-time data) can result in a costly incident.

### Enhance Security

Precise knowledge of a port's currents can enhance security operations by helping to predict the effects of a contaminant spill and by predicting likely methods of attack by SCUBA equipped terrorists.

Whether a contaminant is released deliberately or as a result of an explosive attack, the need to know where that contaminant will end up is paramount. Any model that attempts to predict this must have up-to-date and precise current data. Without it, there's no telling where contaminants will end up, and damage control resources will not be as effectively applied.

## Why RD Instruments?

The RDI Advantage: RD Instruments invented the industry's first ADCP over twenty years ago. With tens of thousands of instruments in operation around the globe, RDI is the undeniable leader in acoustic Doppler technology, products, service and support.

RDI's current and wave measurement devices are the most accurate in the industry and provide the capability to accurately measure wave directions in situations where buoys and pressure based wave measurements provide erroneous data. Whether you need the convenience of a horizontal ADCP with full directional wave measurement capability, or the accuracy of a vertical ADCP, RDI has the solution. You can count on RD Instruments to provide you with the real-time information you require to operate your port efficiently, safely, and securely.

### RD Instruments

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