

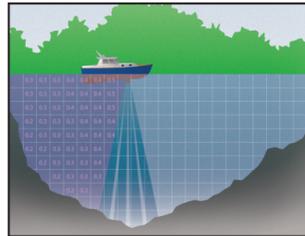
What is an ADCP?

An Acoustic Doppler Current Profiler (ADCP) is a type of sonar that measures and records water current velocities over a range of depths. Teledyne RD Instruments actually designed and delivered the industry's first ADCP in 1982. The ADCP is now considered an essential tool for oceanography, estuary, river, and stream flow current measurement worldwide.

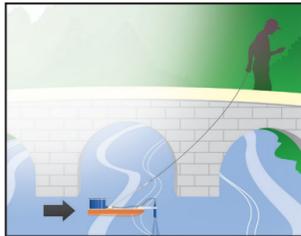
How do they work?

An ADCP transmits sound bursts into the water column. Suspended particles carried by water currents produce echoes (from these sound bursts) which are "heard" by the ADCP. Echoes arriving later, from deeper in the water column, are assigned greater depths in the echo record. This allows the ADCP to form vertical profiles of current velocity. The ADCP senses in four directions simultaneously. Particles within the current flow moving towards the instrument exhibit different frequencies from those moving away. This is the famous Doppler shift, which enables precise measurement of current speed and direction.

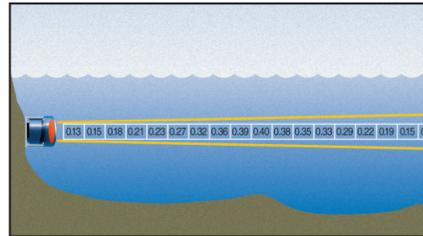
How are they used in the field?



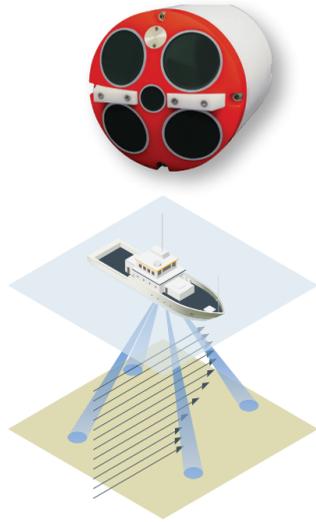
Boat Mount:
Collect current profiles and discharge measurements from a moving boat or platform.



Float Mount:
Collect velocity and discharge measurements in shallow-water environments without entering the water.

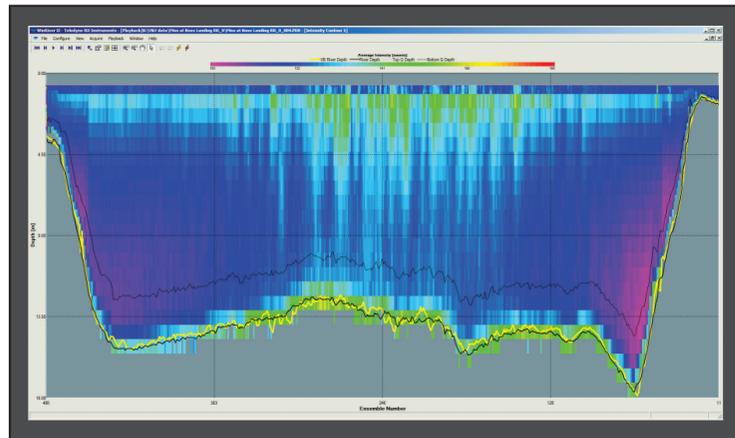


Fixed Mount—Side:
Collect water velocity, stage, and discharge data across an entire waterway.



How is my data displayed?

Teledyne RDI offers an array of software suites designed to quickly convert data into a variety of graphical display options, allowing you to quickly and easily view and assess the data you've collected. Our versatile software packages allow you to study the results of long-term self-contained deployments, or watch your measurements in real time.



Sample RiverRay ADCP data collected on the Mississippi River in Baton Rouge, LA.

For those new to data collection, Teledyne RDI's software offers Wizards that quickly walk you through your system setup and data collection functions. For those with advanced or highly specific data requirements, Teledyne RDI offers the most comprehensive and powerful ADCP software in the industry. From rivers to deep ocean projects, Teledyne RDI has a software solution to meet your project needs. Consult with our sales staff to see which option is right for you.

Helpful ADCP Accessories



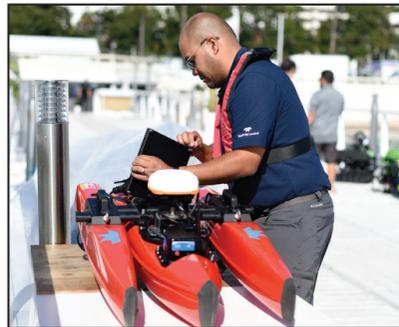
TETHERED BOATS

Rugged, stable, and corrosion-resistant, Teledyne's tethered boats allow for safe, easy ADCP measurements of flow and discharge. Slow and fast flowing water can be handled with ease, and available radio communications options complete the total discharge monitoring package.



REMOTELY CONTROLLED BOATS

The new Q-Boat 1250 has been designed specifically for shallow water applications. This one-man portable remote vehicle is easy to set up, easy to operate, and accepts most industry standard ADCPs, including Teledyne RDI's RiverPro, RiverRay, and StreamPro—allowing you to get straight to work!



GPS/GNSS

Moving bed conditions, high sediment loads, and other challenging bottom track conditions may prompt the use of GPS/GNSS systems as the preferred navigation and boat speed reference. Teledyne offers a variety of GPS/GNSS solutions integrated into the data collection system to address these issues, including vector systems that provide robust heading information in environments which are challenging for a magnetic compass.



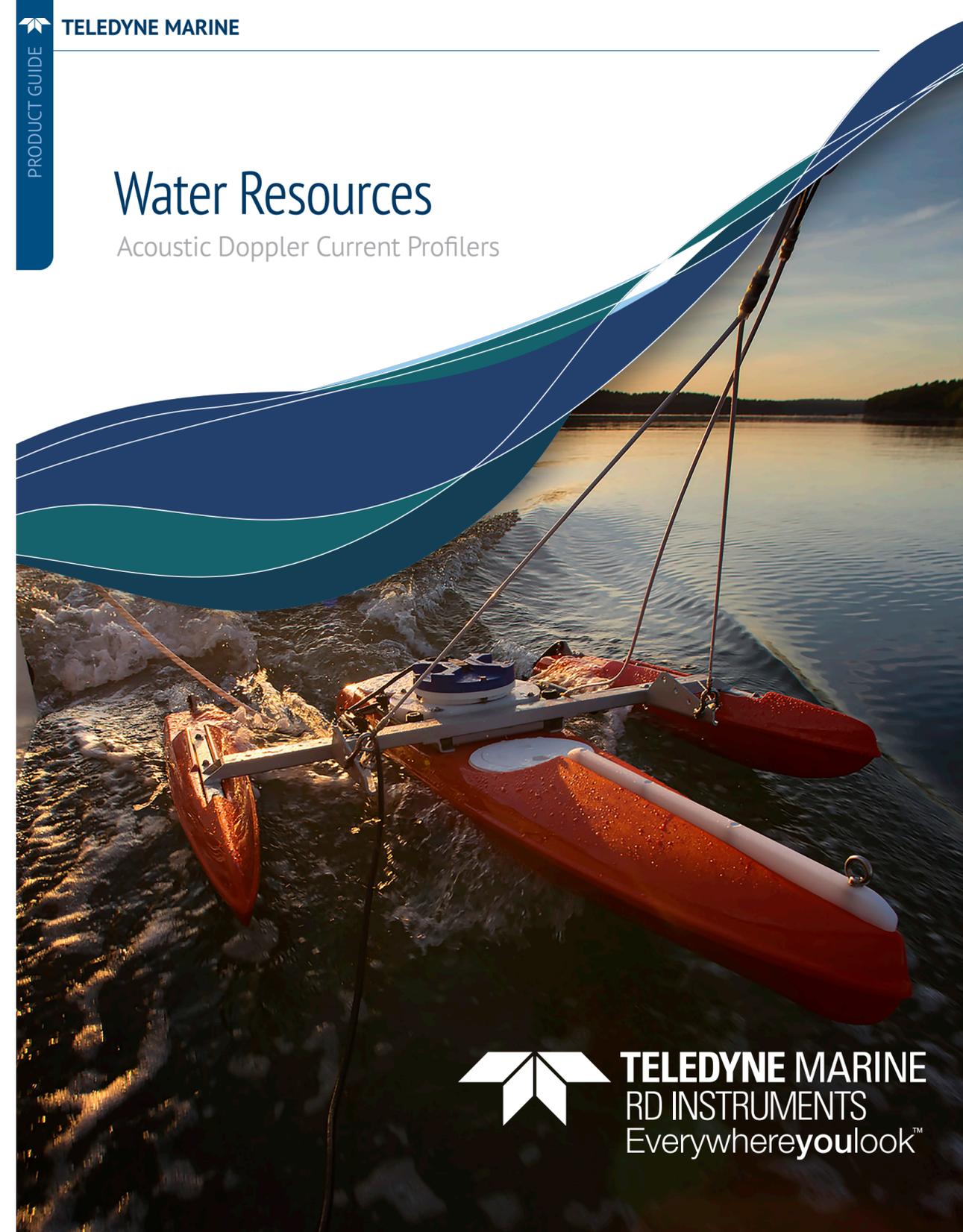
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For over 30 years, Teledyne RD Instruments has been the industry's leading supplier of Acoustic Doppler Current Profilers (ADCPs) for oceanographic and inland waterway applications. Teledyne RDI's Water Resources business unit offers a full family of innovative ADCP products that provide fast, easy, highly accurate flow and discharge measurements in environments ranging from shallow streams to raging rivers. Teledyne RDI's sister companies provide complementary products for imaging sonars, remotely operated vehicles, autonomous surface vehicles, and more, offering our customers one-stop shopping.

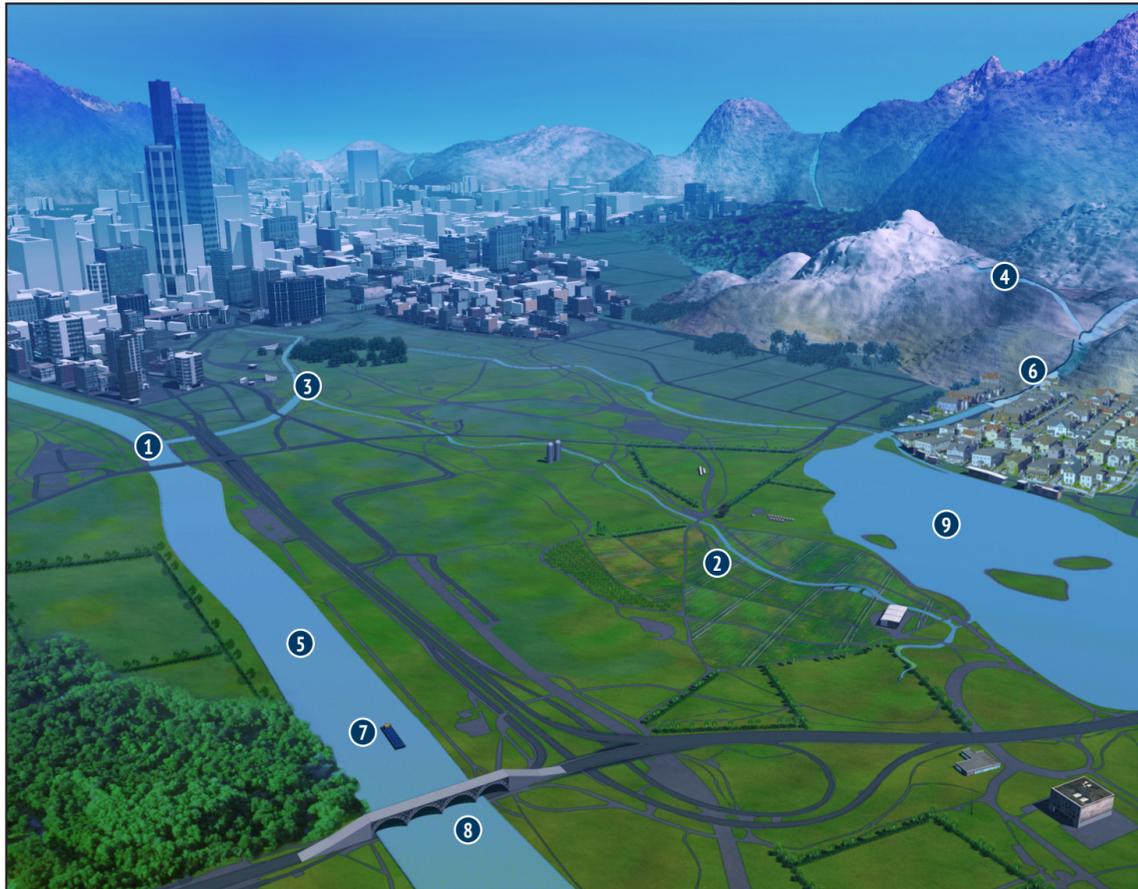
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Water Resources

Acoustic Doppler Current Profilers



How and where is an ADCP used?



Applications

- River Hydrology:** Discharge measurements in rivers, streams, and open channels for regulatory, industrial, recreational, and ecological purposes.
- Irrigation Monitoring:** Highly accurate real-time, continuous or spot measurements of flow data for irrigation management.
- Environmental Impact Studies:** Current data to quantify and manage environmental effects of natural or man-made ingress into rivers, lakes, or streams.
- Fisheries Studies:** Real-time or spot measurements of flow velocity and direction for fishery habitat classification.
- Flood warning:** ADCP data integrated into a flood warning system for real-time water level and discharge measurement.
- Safe Navigation:** Water speed and direction utilized to improve vessel navigation within, or approaching bridges and locks.
- Bridge Scour:** Discharge and velocity measurements for the display/analysis of flow structure and characteristics used to assess the impact of scour on underwater structures.
- Circulation Studies:** Flow velocity and direction collected from the lake bed to near surface utilized to map circulation patterns in lake and reservoirs.

Pick your Perfect Profiler...



RiverPro

Intelligent River Discharge Measurement System

The 1200 kHz RiverPro ADCP is a highly accurate, rapid-sampling discharge measurement system designed for shallow river environments. The RiverPro offers users a 600 kHz vertical 5th beam, user-friendly interface, and auto-adaptive sampling with an optional manual over-ride for advanced users.



RiverRay

“Power and Go” River Discharge Measurement System

From a shallow stream to a raging river, the revolutionary RiverRay ADCP delivers highly accurate stream and river discharge data utilizing our lightweight phased array transducer, powerful next gen electronics, and vertical beam for improved bathymetric data.



StreamPro

Your Shallow Water Solution

Teledyne RDI's StreamPro ADCP allows you to accurately measure discharge in shallow streams in a matter of minutes—a fraction of the time required using traditional hand-held devices. With StreamPro there's no need to move from station to station to obtain single-point velocity data or compute the discharge by hand; discharge measurements are obtained in real-time.



ChannelMaster

Reliable Remote Monitoring

The compact, affordable ChannelMaster is a horizontally oriented Acoustic Doppler Current Profiler (H-ADCP) designed to collect high-accuracy water velocity, stage, and discharge data for a wide array of applications. The ChannelMaster's innovative design includes everything you need to collect high quality data, without costly options. The standard unit comes equipped with temperature, pressure, pitch and roll, and a vertical beam.



Horizontal ADCP

Long Range Horizontal Profiling

The Horizontal ADCP (H-ADCP) is an acoustic monitoring system that “looks” out horizontally from its mounting structure to measure near-surface water currents and optional multi-directional waves. The Workhorse H-ADCP measures currents at 128 individual points at up to 220 meters horizontal range, providing a detailed illustration of the complete flow structure centered at a single depth.

Measurement Required

Stage/Vertical Beam	●	●		●	
Depth/Bathymetric	●	●	●		
Velocity Profile	●	●	●	●	●
Discharge Measurement	●	●	●	●	optional

Operating Environment

Stream/River	●	●	●	●	●
Lake/Reservoir	●	●		●	●
Estuary	●	●		●	●
Irrigation Canal	●	●	●	●	

Application

River Hydrology	●	●	●	●	●
Irrigation Monitoring	●	●	●	●	
Environmental Impact Studies	●	●	●	●	●
Fisheries Studies	●	●	●	●	
Flood Warning	●	●	●	●	●
Safe Navigation					●
Bridge Scour					●
Circulation Studies	●	●		●	●

Product Specifications

Frequency (kHz)	1200/600	600	2000	1200/600/300	600/300
Data Output Rate—Typical	2Hz	1-2Hz	1Hz	user select	user select
Profile Resolution—Min Cell Size	2cm	10cm	2cm	25/50/100cm	50/100cm
Number of Cells	200	200	30*	128	128
Minimum Profiling Range (m)	0.12	0.4	0.1	0.75/1.5/3.0	1.5/3.0
Maximum Profiling Range (m)	25	60	6*	20/90/300	85/250
Internal Recording Capability	16MB	16MB		4MB	optional

Method of Deployment

Float Mount	●	●	●		
Boat Mount	●	●			
Fixed Mount—Side				●	●

* Results with high resolution modes. Refer to data sheet for full list of specifications.