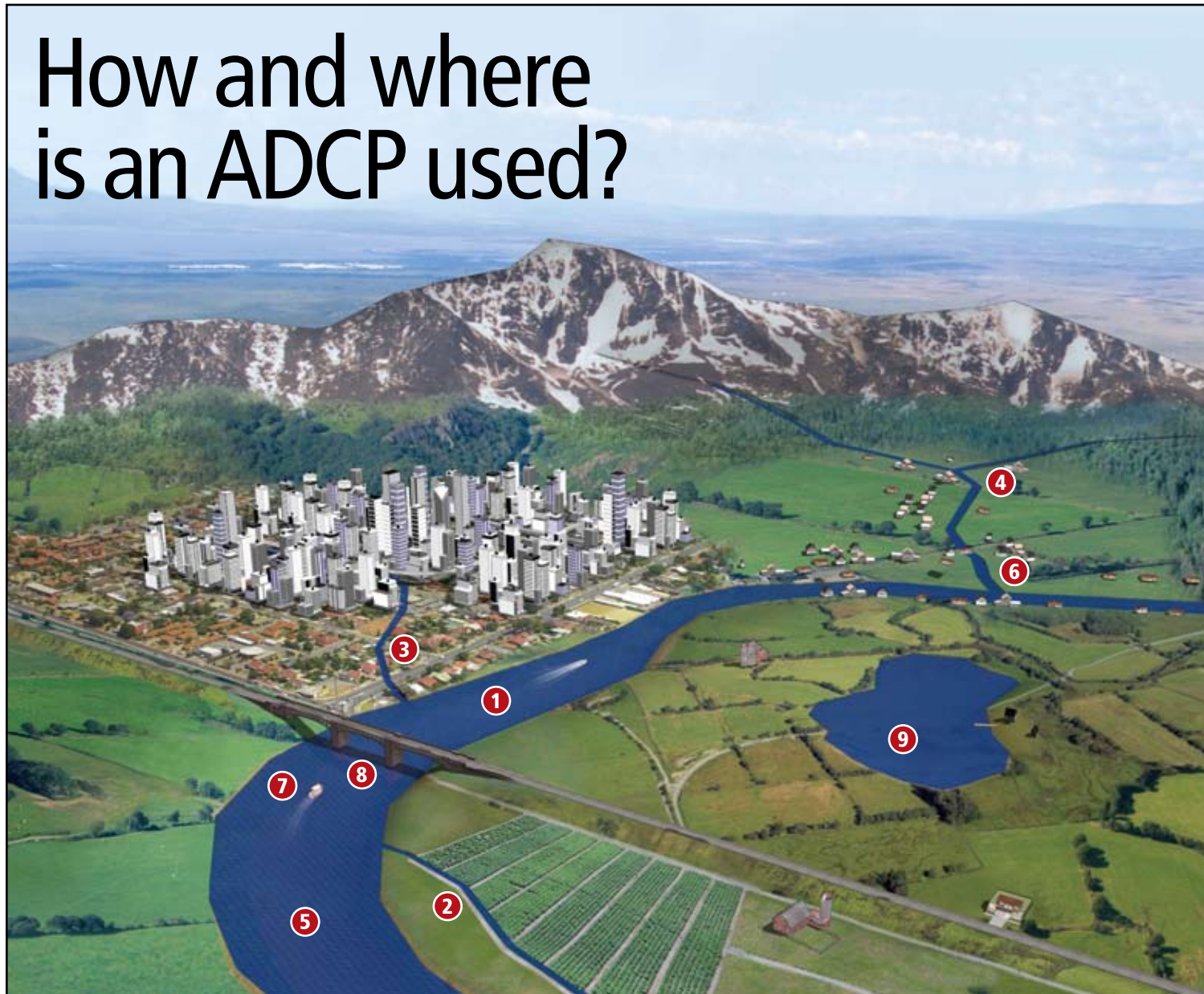




How and where is an ADCP used?



- 1. River Hydrology:**
Discharge measurements in rivers, streams, and open channels for regulatory, industrial, recreational, and ecological purposes.
- 2. Irrigation Monitoring:**
Highly accurate real-time, continuous or spot measurements of flow data for irrigation management.
- 3. Storm Channel Monitoring:**
Real-time or online discharge and water level monitoring in storm channels.
- 4. Environmental Impact Studies:**
Current data to quantify and manage environmental effects of natural or man-made ingress into rivers, lakes, or streams.
- 5. Fisheries Studies:**
Real-time or spot measurements of flow velocity and direction for fishery habitat classification.

- 6. Flood warning:**
ADCP data integrated into a flood warning system for real-time water level and discharge measurement.
- 7. Safe Navigation:**
Water speed and direction utilized to improve vessel navigation within, or approaching bridges and locks.
- 8. 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.
- 9. 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...



RiverRay



Rio Grande



StreamPro



ChannelMaster



Monitor



Horizontal ADCP



Vertical ADCP

“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 new phased array transducer and next gen electronics. Just power and go—the advanced system takes care of the rest!

Versatile River Discharge Measurement System

The **Workhorse Rio Grande ADCP** is an accurate, rapid-sampling current profiling system designed to operate from a moving boat. The result is the fastest, safest, and most flexible method for measuring discharge. The Rio Grande can be used for a wide range of river conditions, from shallow streams to rushing rivers and tidal estuaries.

Your Shallow Water Solution Teledyne RDI’s **StreamPro ADCP** represents a revolutionary advancement in velocity and discharge measurement. Now you can 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.

Reliable Remote Monitoring The compact, flexible, and 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.

Direct Read Unit for Real-time Current Monitoring The **Workhorse Monitor ADCP** is Teledyne RD Instruments’ most popular direct-reading unit. The Monitor is typically bottom frame-mounted and hard-wired to shore to provide real-time monitoring of currents. The unit also offers a flexible upgrade path, which includes an external battery pack, pressure sensor, directional waves measurement, and bottom tracking capability for moving boat applications.

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.

Flow and Velocity Profile Solution The **Vertical Acoustic Doppler Current Profiler (V-ADCP)** is designed for high-accuracy velocity profiling in open channels. The versatile V-ADCP can be used in a stand-alone configuration for long-term monitoring with stored or real-time data, or can be used as a portable flow meter for spot checks.



Measurement Required	RiverRay ADCP	Workhorse Rio Grande	Stream Pro	Channel Master	Workhorse Monitor	Horizontal ADCP	Vertical ADCP
Stage				*			*
Depth/Bathymetric	*	*	*		optional		
Velocity Profile	*	*	*	*	*	*	*
Discharge Measurement	*	*	*	*	optional	optional	*

Operating Environment

Stream/River	*	*	*	*	*	*	*
Lake/Reservoir	*	*		*	*	*	
Estuary	*	*		*	*	*	
Irrigation Canal	*	*	*	*			*
Storm Channel							*

Application

River Hydrology	*	*	*	*	*	*	*
Irrigation Monitoring	*	*	*	*			*
Storm Channel Monitoring							*
Environmental Impact Studies	*	*	*	*	*	*	*
Fisheries Studies	*	*	*	*	*		
Flood Warning	*	*	*	*		*	*
Safe Navigation						*	
Bridge Scour						*	
Circulation Studies	*	*		*	*	*	

Product Specifications

Frequency (kHz)	600	1200/600	2000	1200/600/300	1200/600/300	600/300	2400
Data Output Rate—Typical	1-2Hz	2Hz	1Hz	user select	user select	user select	1Hz
Profile Resolution—Min Cell Size	10cm	5/10cm	2cm	25/50/100cm	25/50/100cm	50/100cm	3cm
Number of Cells	200	128/255	30*	128	128/255	128	150
Minimum Profiling Range (m)	0.4	0.3/0.7*	0.1	0.75/1.5/3.0	1.2/1.8/2.2	1.5/3.0	0.2
Maximum Profiling Range (m)	40	25/80	6*	20/90/300	25/80/120	85/250	5
Internal Recording Capability	16MB	optional		4MB	optional	optional	4MB

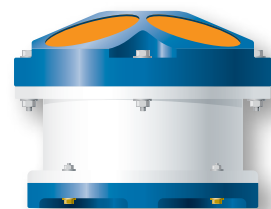
Method of Deployment

Float Mount	*	*	*				
Boat Mount	*	*			*		
Fixed Mount—Bottom					*		*
Fixed Mount—Side				*		*	

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

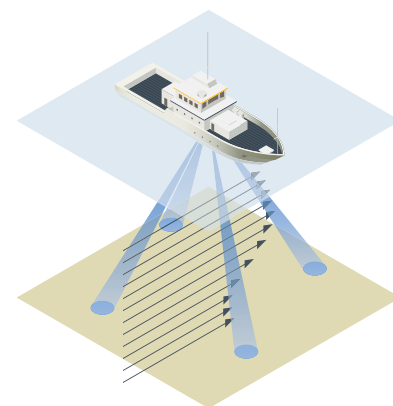
What is an ADCP?

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.

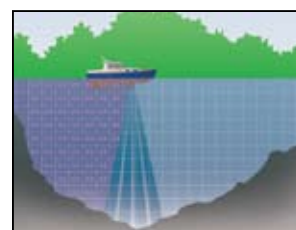


How do they work?

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 orthogonal 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.



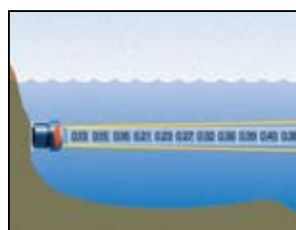
How are they used in the field?



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



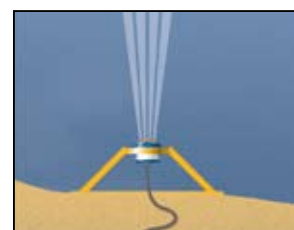
Float Mount: Collect velocity and discharge measurements in shallow-water environments without entering the water.



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



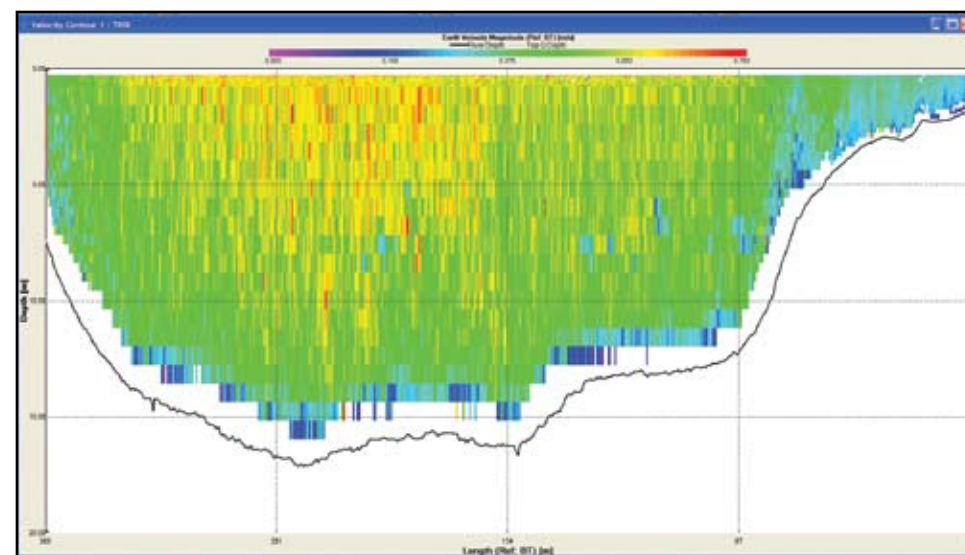
Fixed Mount—Bottom: Collect current or flow profiles from environments ranging from open channels to riverbeds to coastal areas.



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.

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.



Sample RiverRay ADCP data collected at Cache Slough near Rio Vista, California.

Teledyne RD Instruments Water Resources Business Unit

What makes Teledyne RDI's ADCPs unique?

With nearly 15,000 Doppler products delivered worldwide, Teledyne RDI's ADCPs have become the de facto standard instrument used around the globe by scientists and field engineers to improve their understanding of flow and discharge in rivers, streams, lakes, and coastal environments. Only Teledyne RDI's proven ADCP products can provide:

- Patented Broadband processing for data quality, power efficiency, and error detection capability unobtainable by competing narrowband systems.
- A unique 4-beam configuration designed to ensure data quality and reliability.
- A highly flexible design that allows your instrument to meet your current needs—with expansion to meet your future needs.

Teledyne RDI's ADCPs have become synonymous with high-quality data, ease of operation, and unsurpassed value. Each and every product is backed by:

- The best customer services team and philosophy in the industry.
- 24/7 emergency service and support to ensure you'll never have to go it alone.
- Worldwide offices and the industry's leading representative network to ensure local support when and where you need it.
- Free ongoing online training and product support via our highly dynamic Teledyne RDI University.
- Our uncompromising commitment to your complete satisfaction.



Teledyne RD Instruments, Inc. specializes in the design and manufacture of underwater acoustic Doppler products and oceanographic sensors for a wide array of commercial, academic, and defense applications. The company currently employs over

200 multi-disciplined scientists, engineers, technicians, sales, and support personnel, and resides in an 80,000 square-foot ISO-9001:2000 facility that includes state-of-the-art engineering, laboratory, manufacturing, and test areas. The company is comprised of three distinct business units, each focused on acoustic Doppler technology:

Marine Measurements: Acoustic Doppler current-profiling, wave-measurement, and CTD products for coastal and deepwater oceanographic environments.

Navigation: Precision acoustic Doppler navigation products for the marine environment.

Water Resources: Acoustic Doppler discharge and flow-measurement products for inland environments.

Since 1982, Teledyne RDI has led the industry by providing our customers with the highest quality, innovative Doppler technology backed by our unparalleled customer service and support.


Our Commitment to you...

At Teledyne RD Instruments, we aspire to maintain leadership in our marketplace, enlisting customers as partners to work together in enduring relationships built on mutual trust and mutual benefit. From this foundation, we will continually evolve our products and services to meet our customers' needs.

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WATER RESOURCES
PRODUCT OVERVIEW
GUIDE

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