



# Meet your irrigation consent needs and improve productivity – with a single, smart solution

NIWA can provide complete end-to-end solutions for most of your water monitoring, flow control and consent compliance needs.

NIWA, in association with irrigation companies such as Aqua Irrigation Ltd, has developed an open-channel irrigation water monitoring and control system that ensures you take what you are entitled to, and provides flow data, so that you should never run into trouble with your local council.

Local NIWA staff can retrieve and archive the water flow data and submit it to the council for you.



## Here's how NIWA can meet your requirements

NIWA has been successfully designing, assembling, installing and supporting flow monitoring and control systems for large and small irrigation schemes since 2000.

**Before considering the nice-to-haves, here are the basics. We can:**

**Select a suitable monitoring location** - Our experienced hydrologists can identify and discuss with you the best location and method to monitor and/or control your take, in accordance with your consent conditions. If required, we can also assist with preparing monitoring variation appeals.

**Configure a suitable system** - We can configure a system from one of our standard options which will meet your specific monitoring needs, such as basic monitoring only or a controlled system. Either can have wireless remote access (telemetry).

**Provide flow monitoring structures** - NIWA associates can install standard or custom prefabricated drop-in-place, accurate flow monitoring and control gate structures, with minimum excavation and disruption. NIWA's hydrologists will only recommend systems most likely to conform to emerging national standards for flow monitoring.

**Supply all instrumentation** - We prefabricate standard subassemblies for fast, easy installation and commissioning at your site by our very capable, local field staff.

**Collect and manage the data** - We can take care of all the data. We can retrieve it, check it, secure it and send it to you and/or the council when needed.

## Those are the basics, but what else is available?

NIWA can also:

**Provide a 'window' on your system** - So you can check your system remotely at any time or change flow targets (sites with flow control gates) by viewing secure data from your telemetered sites over the internet.

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Springvale Creek irrigation scheme: In the foreground you can see the targeted flow emerging at the outlet. The mast behind it supports a communications aerial and a solar panel for power. Behind this, on the left, are the structure and instrumentation that measure and transmit the flow. In the background, you can see the top of the intake control gate structure and gate-control enclosure.



Programmed flow.

**Offer a Smartphone option** – For maximum user convenience, your Smartphone (Android) can provide a mobile view of flow and gate control status, wherever you have cellular coverage. If your site has a control gate, you can also use your cellphone to change the flow.

**Set up alarms** – With telemetered sites you can receive alarms, via text or email, for out-of-range flows or other malfunctions.

**Support your system** - We can also offer you a support contract where NIWA would ensure that the system continues to operate correctly. This can include providing spare equipment and software updates, maintenance and calibration checks (gauging) as needed.

### Check out our demo site

Visit an actual working site installed by NIWA and Aqua Irrigation Ltd, on Springvale Creek, near Alexandra in Central Otago. Talk to our staff (details at the end of brochure) for directions. If that's too far away to see what's happening live - go to <http://neon.niwa.co.nz>

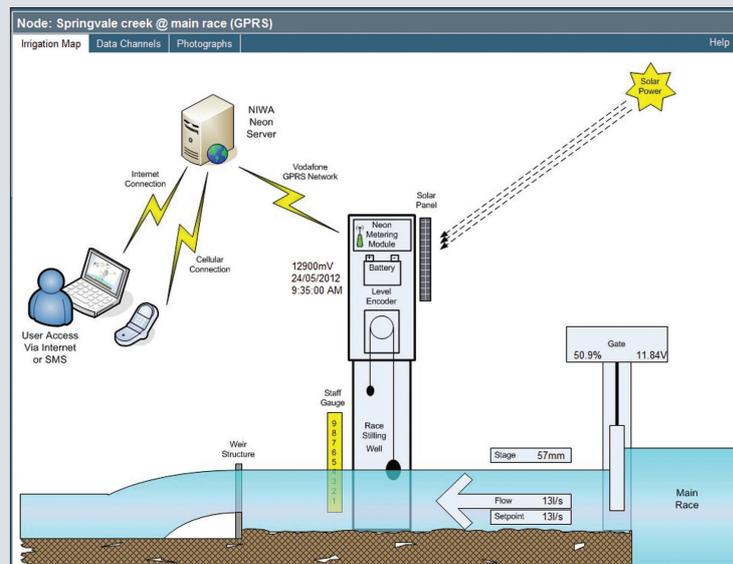
- Enter: Username: NIWA.Guest Password: NIWAGuest
- At left of screen, click on 'Springvale Creek'.
- Click on the 'Irrigation Map' tab at top of screen.

Water level, flow rate, battery voltage and gate position are shown in the graphic representation, with data updates every five minutes.

- Click on the 'Data Channels' tab at top of screen.
- Under 'Sensor Name' click on 'Flow(RAW)'.
- At 'Choose 2nd Channel to Compare', click the 'Channel:' menu arrow.
- Click on 'Target(RAW) - Active'.

You should see the water flow rate (blue trace) tracking the target (red trace), provided there's enough water available.

- Click on 'Log Off' at top right of screen to log off.



A 'window' on the Springvale Creek irrigation scheme.

## Options

### Monitoring only

If you already use a manual gate and don't need automatic targeted flow control, then our simple monitoring-only option may be all you need. However, if your time spent operating a manual gate could be put to better use, consider adding the target control option.

### Target control

Adding flow control can save time to let you focus on doing what you do best - being productive. Just set the target flow and leave the rest up to the system. If you don't want to visit the site to set the target flow or to check that it's operating correctly, consider our telemetered option.

### Telemetered control

See what's happening, or change flow targets remotely, from your living room, truck or an overseas holiday location. Cellular coverage of the site (NB. access via satellite for more remote sites is surprisingly affordable) allows you to view activity and data, and to change flow settings via the internet. This option can save time and reduce operational costs significantly.

## The system structure – in a nutshell

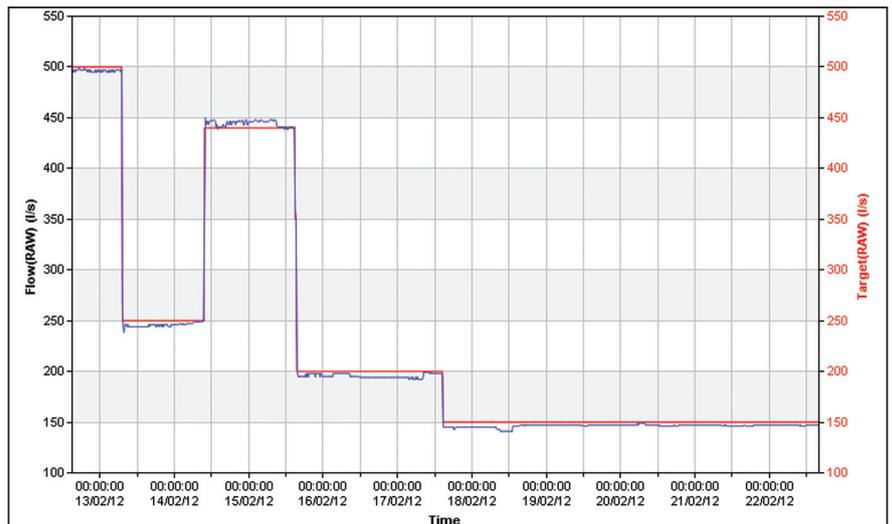
A typical small irrigation system comprises interlinked parts:

- A flow measurement section comprising a weir/flume fitted with water level sensing structure.
- A system for logging data and, optionally, transmitting it.
- An optional inlet gate structure with gate-control system.

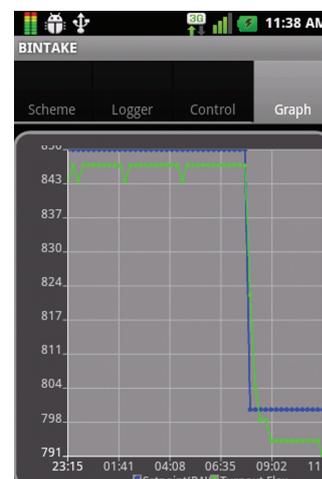
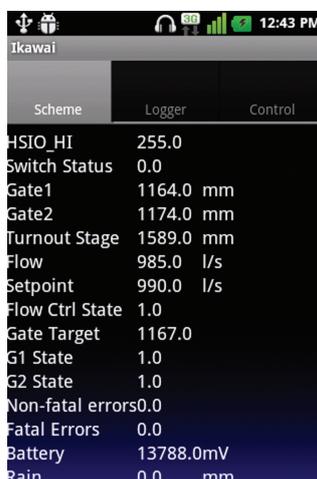
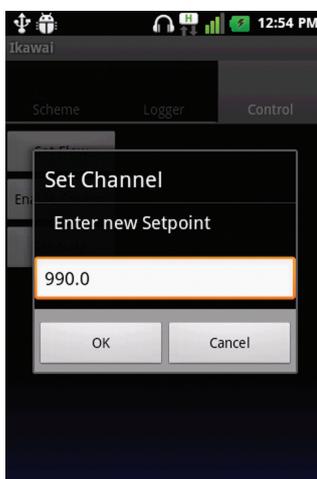
These can be fitted to many existing turn-outs or integrated with new turn-out structures.



Carrying out an initial flow calibration (gauging) at the scheme intake.



An example of gate control in action - showing actual water flow (blue) following the target (red).



Examples of what you can see and do with a Smartphone. Left and middle: changing and verifying the set-point. Right: Checking flow targeting at a different scheme (blue = target, green = flow).



A typical solar-powered gate controlled inlet with an Aqua Irrigation inlet structure.



A NIWA gate controller.



Targeted flow at an Aqua Irrigation Ltd outlet structure.

## Questions and answers

### Q: What will it cost me?

A: Uninstalled, typically between \$6,000 and \$20,000, depending on the size of the turn-out and which options you select. Installation costs depend on site location and local topography.

### Q: How do I know if these systems are any good?

A: Farmers and irrigation schemes throughout Canterbury already use these types of system successfully. Two telemetered systems were installed close to Alexandra in May 2012 and others are planned for installation soon. We also use the same instrumentation in NIWA's national river flow monitoring network and in a growing number of Pacific Island networks.

### Q: Should I consider a telemetered system?

A: We strongly recommend a telemetered option. It lets you do most things via computer or cellphone without having to go to the site; and to change the flow target, if you have the gate control option. Telemetered systems let you verify that the system is operating correctly, saving time and allowing you to focus on your core business.

### Q: Do I need to have cellular coverage at the site if I want to access my site remotely?

A: No. Cellular is a cost effective option, but if it's not available you can always use NIWA's surprisingly affordable satellite options.

### Q: What are the telemetry costs?

A: Cellular network and associated server charges combined are about \$1 per day.

### Q: Do I need to have mains power at the site?

A: No. The site can be solar powered. However, if mains power is available it may reduce establishment costs slightly.

### Q: How soon would the equipment become obsolete?

A: The instrumentation should have a life of more than 10 years. We routinely upgrade systems for service contract holders and may upgrade equipment before it wears out. NIWA majority owns the manufacturer (Unidata Pty) of the major non-NIWA electronic components, guaranteeing ongoing supplies.

## Contact us

Please contact: Martin Robertson or Neil Blair at NIWA's Alexandra office; Ian Maze, Evan Baddock or Andrew Willsman at NIWA's Dunedin office; or Rod McKay at NIWA's Christchurch office. They'll be very happy to answer your questions or provide you with a quote.

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