



AMURI IRRIGATION CO

ENVIRONMENTAL COLLECTIVE NEWSLETTER

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Nitrogen and Phosphorous Loads in the Hurunui River

Dr Peter Brown, AIC's Water Resource Engineer has undertaken analysis of nitrogen load trends in the Hurunui River and tributaries for the Zone Committee's Science Stakeholder Group.

In-river measurements of nitrogen provide an important cross-check against calculated root zone losses (as used in Overseer nutrient budgets). Almost all the nitrogen discharged from AIC's command area to the Hurunui River is measurable from the four primary Amuri Basin tributaries:

- Pahau River at Dalzell's Bridge;
- St Leonards Drain at confluence;
- Dry Stream at confluence; and
- Pahau Drain at confluence.

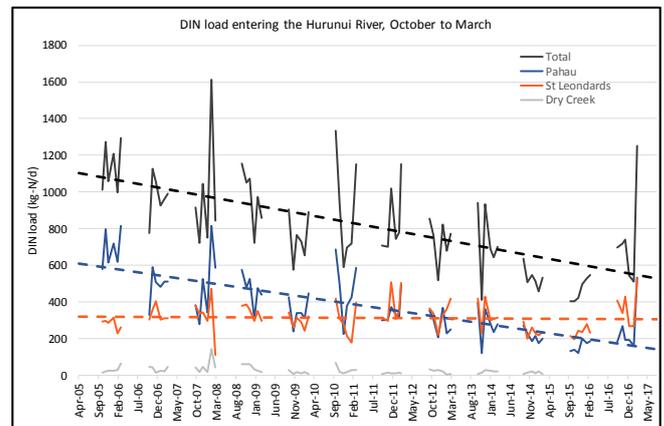
Between 2005 to 2017, nitrogen loads from the Amuri Basin during the irrigation season (October to March) are trending down while phosphorous loads are strongly trending down. This reduction has been achieved despite a 50% increase of dairy platform area over the same period. It also indicates that AIC's nutrient modelling and predicted gains from efficiency improvements are broadly correct.

On-farm improvements and meeting GMP targets, particularly for irrigation and nutrient management, have the greatest potential to reduce loads further during the irrigation season. Over winter, climate variability plays a greater role, making it more difficult to manage losses and detect trends.

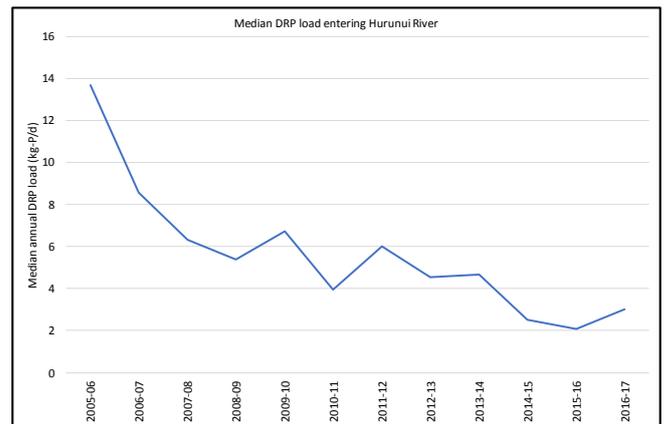
The trends for phosphorus loads are likely due to the reduction in borderdyke wipe off water which was the main phosphorus source from Amuri Basin. Median annual loads are now three to four *times* lower than in 2001 to 2006.

Peter's work highlights the importance of investment in science to understand the challenges we face in addressing water quality issues. The work

also underlines the importance of working together to meet GMP standards.



Dissolved Inorganic Nitrogen (DIN) Load from Amuri Basin, October to March.



Median annual Dissolved Reactive Phosphorus (DRP) Load from Amuri Basin

St Leonards Drain is recognised as a significant and concentrated source of nitrogen entering the Hurunui River. Options suggested to address nitrogen leaching are pumping from the drain to reduce the flow or constructing a wetland. Wetland development is challenging as a large area is required to treat the flow. Pumping is more economically feasible as the water can be used for irrigation. The new pipe network helps to reduce flow creating a higher nitrogen concentration means that pumping the drain will be twice as effective as it was prior to piping.

Irrigation Workshops

We will be organising two Irrigation training workshops over the current season in conjunction with Irrigation New Zealand.

A short Irrigation Efficiency workshop will be held on **Friday 8th December 2017** in Culverden.

This half day workshop will focus on the day to day management of irrigation systems to meet high irrigation efficiency standards. The content will be structured around the irrigation management objectives and targets set out in Farm Environment Plans (FEPs) and evaluated through FEP Auditing.

Topics will include:

- Considerations for Irrigation development
- Soil moisture monitoring
- Irrigation Scheduling
- Operations and maintenance
- Irrigation system performance assessment

Places on this workshop are free but must book in advance as spaces are limited.

An Irrigation New Zealand Irrigation Operator/Managers Training Course will be held on **Wednesday March 7th, 2018** in Culverden. This is a comprehensive full day course and includes a site visit. It is ideal for owners, operators or managers, particularly those new to irrigation. A full set of INZ resources will be supplied as part of the course at a cost of \$200.

These workshops are open to all Environmental Collective members.

Please contact Renee Dampier-Crossley (admin@amuriirrigation.co.nz) or phone 03 315 8984 to book a spot.



AIC Environmental Collective Membership

The AIC currently has 162 FEPs on file, including 140 shareholders and 22 non-shareholders. A further seven FEPs are currently being prepared which will bring the membership up to around 170 farms.

2017/18 FEP Auditing

This season's FEP Auditing is already underway. 108 farms will be audited (including 53 first audits and 55 repeat audits). Due to the large number of audits, we have contracted the AgriBusiness Group to undertake much of this work. The team includes Dave Lucock, Sue Cumberworth, Katherine McCusker and Dave Ashby who will be auditing from now through to March 2018. All farmers who are to be audited this season have already been notified. Renee Dampier-Crossley will oversee all related administration for these audits.

An auditors' briefing day was held recently in Culverden to ensure that all auditors were familiar with the AIC auditing process and were operating to the same standard. The day included a visit to Jane and Mark Schwass' property, Kaiora Downs facilitated by Jamie McFadden from Hurunui Natives and looked at wetland and riparian management options for a range of situations.

We will look at holding a field day in the Autumn looking at riparian management objectives and potential solutions to follow up and share thinking on some of the issues discussed.

