

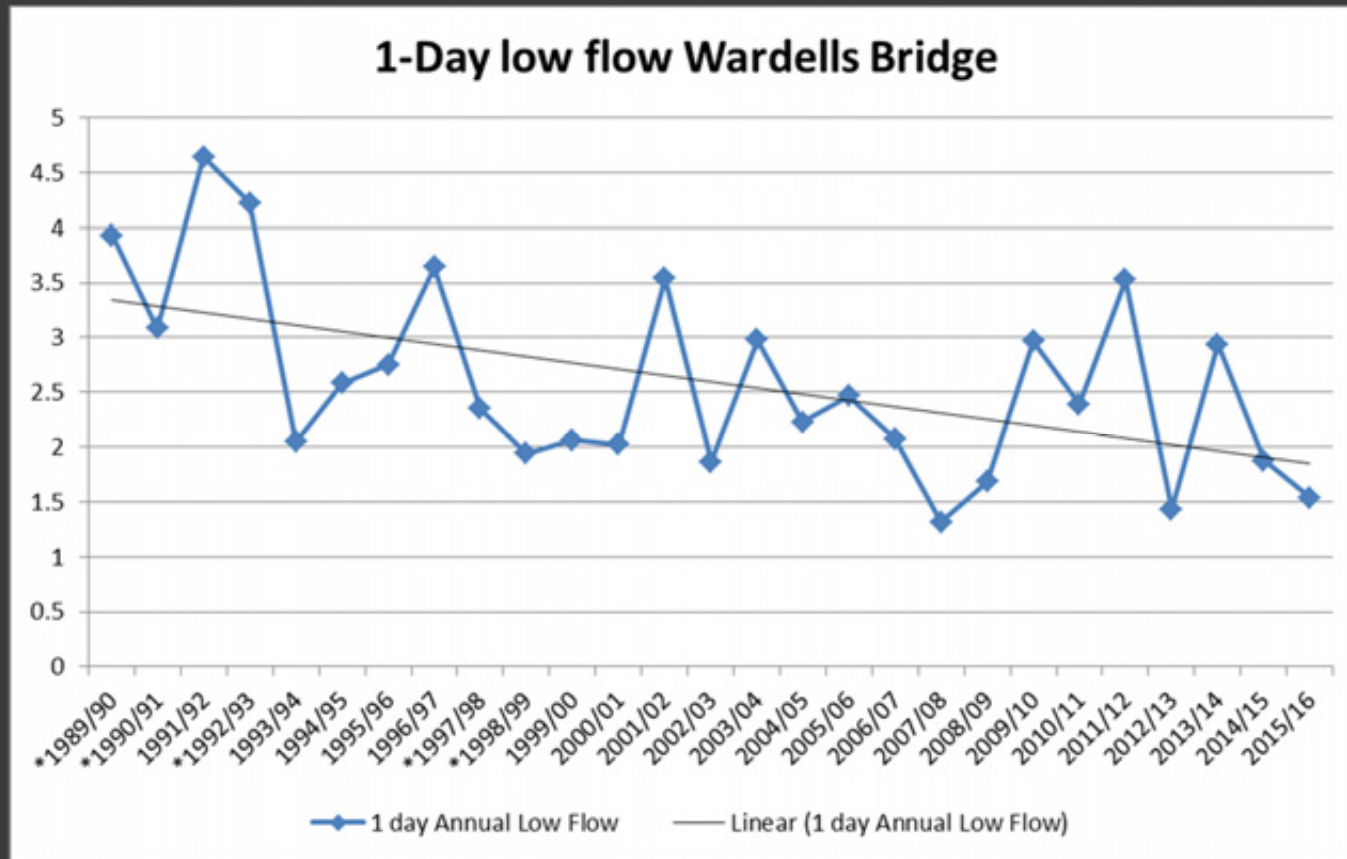
Low Flows in the Ruamahanga Catchment

Andy Duncan, Ruamahanga Whaitua Committee
11th May 2016

Water quality vs quantity

- Much talk about water quality
- Quality discussions are irrelevant without discussion about quantity
- Low flows are typically synonymous with poor water quality
- Water supply underpins the economy of the Wairarapa
- The committee has received strong feedback from the community that low flows are an issue

Low Flow Trend



Cause

- Abstraction?
- Normal Rainfall patterns?
- Climate Change?
- Land use change?
- Specific areas or catchment-wide?

Current knowledge

- Inter-decadal Pacific Oscillation (IPO) and El Nino/La Nina conditions do have an effect
- Rainfall not exceptional
- Climate change will exacerbate peakiness
- Low flow trend stronger at Waihenga
- Abstraction has increased by >80% since 1990

FIGURE 5.2. 5 year running mean of the IPO versus 5 year running mean of the annual rainfall minima (3 month duration) for 'Masterton'.

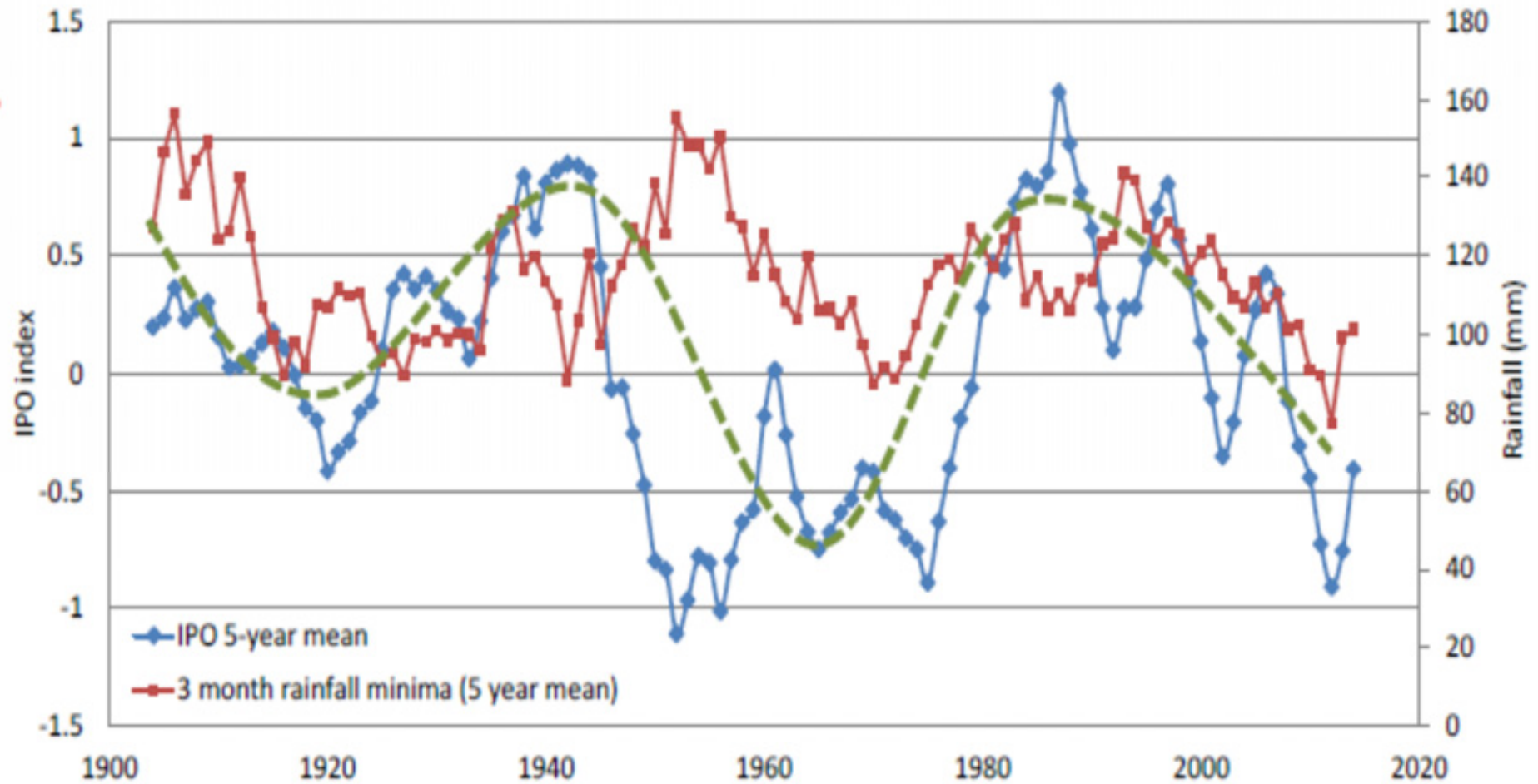


FIGURE 4.7. Bannister Basin annual 3 month duration rainfall minima

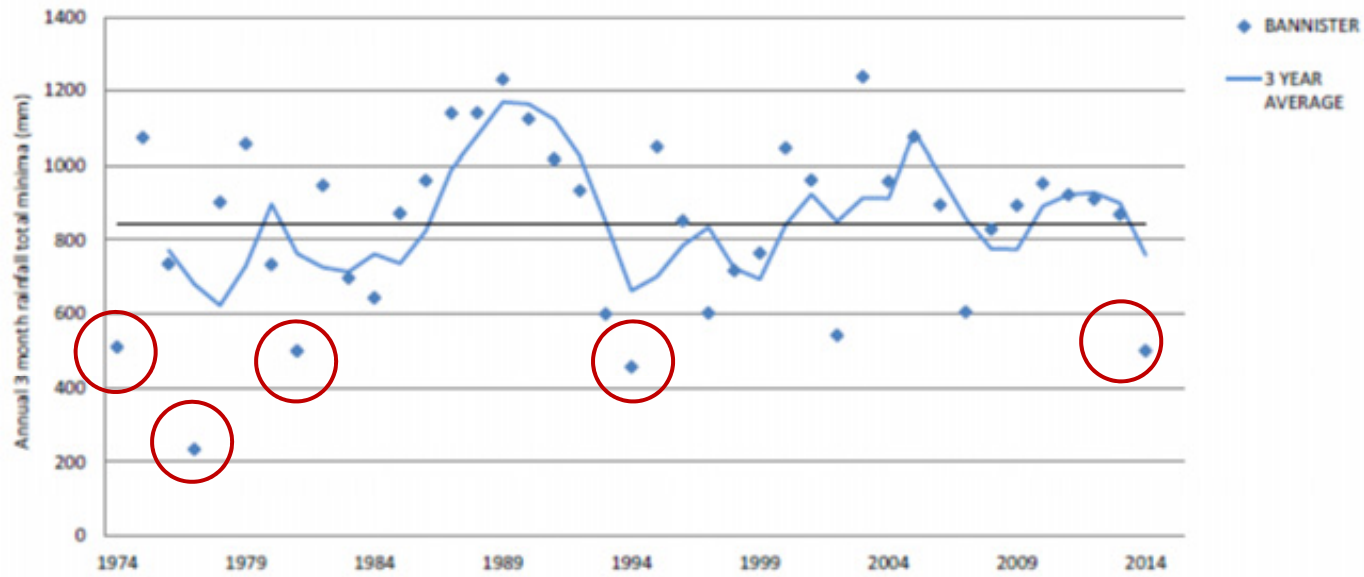


FIGURE 4.8. Masterton annual 3 month duration rainfall minima

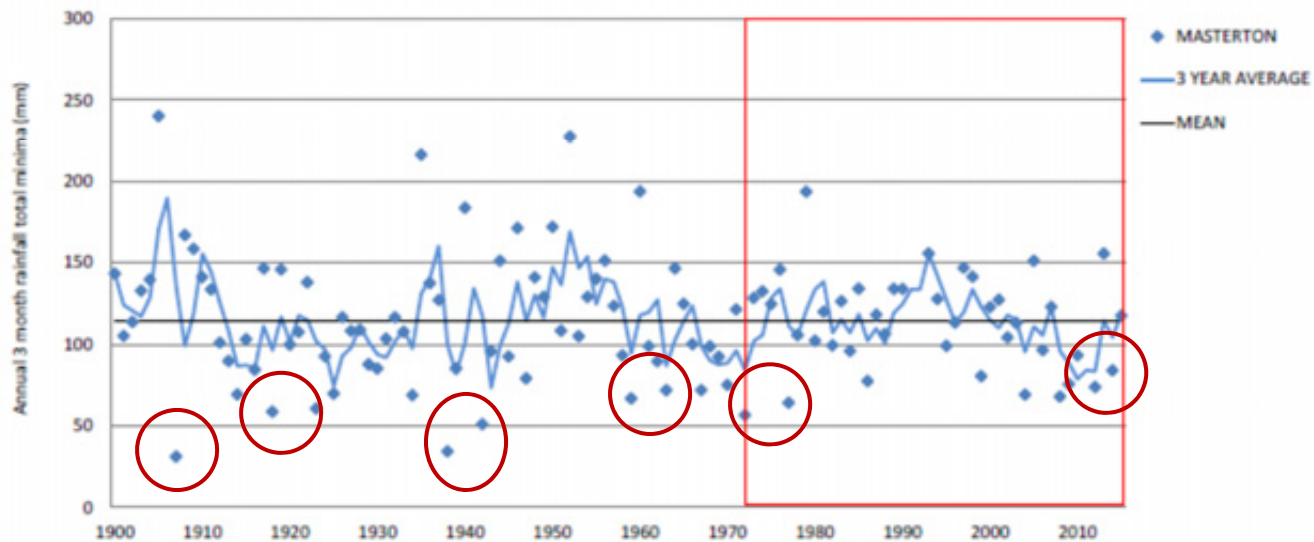
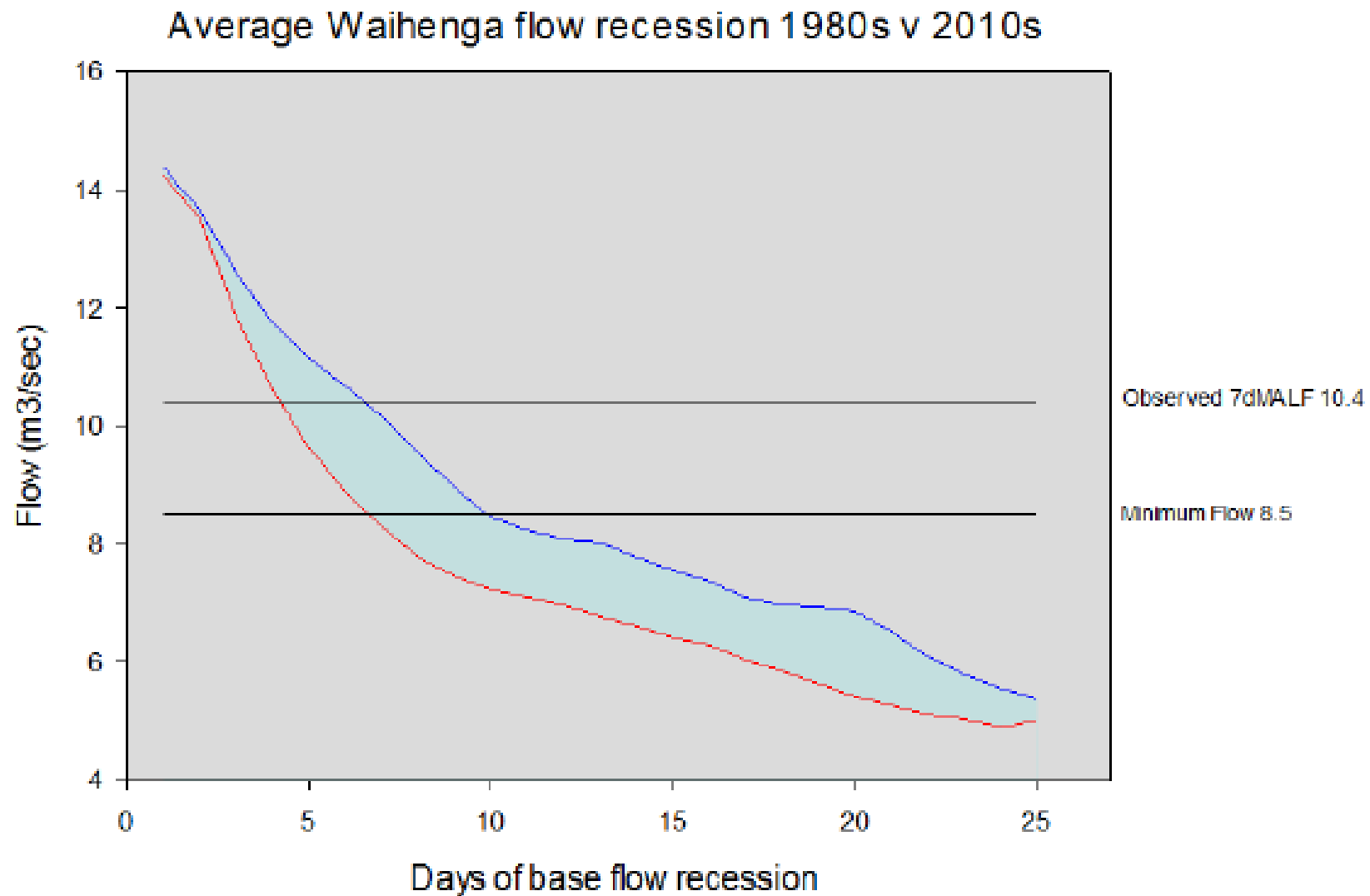


FIGURE 5.6b. Comparison of 'average' 1980s base flow recession (blue line) with 'average' 2000s base flow recession (red line) at Waihenga. Shaded blue is the difference. Shaded blue area represents the average difference in flow.



Low Flow

65% of category A bores are unrestricted

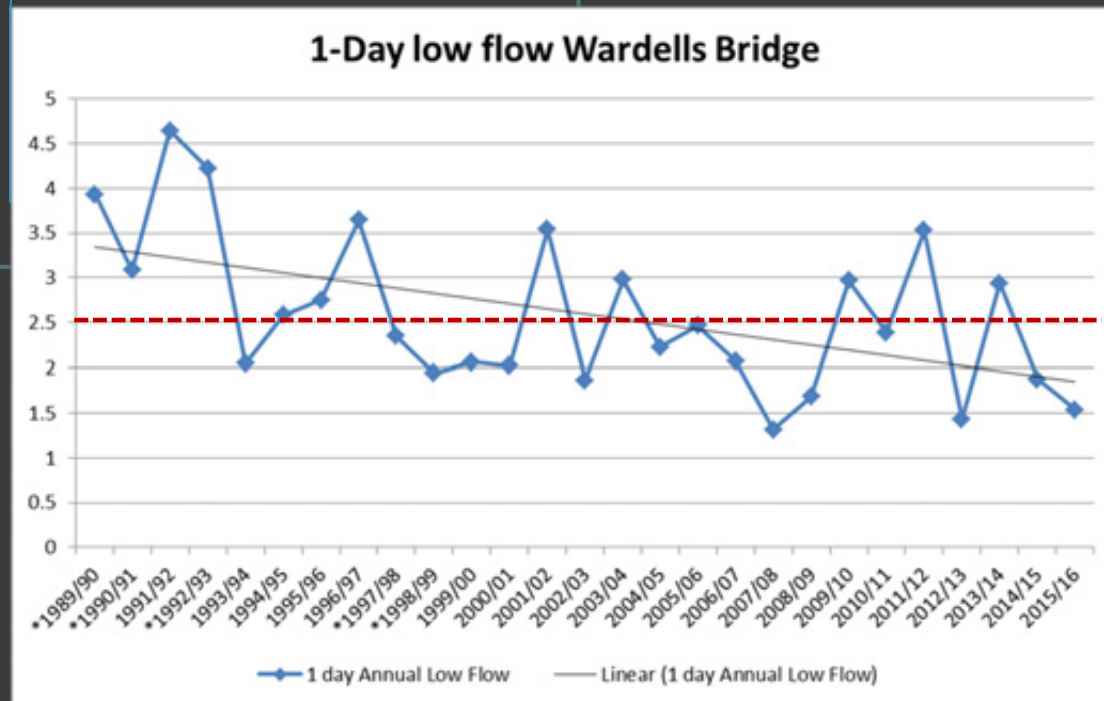
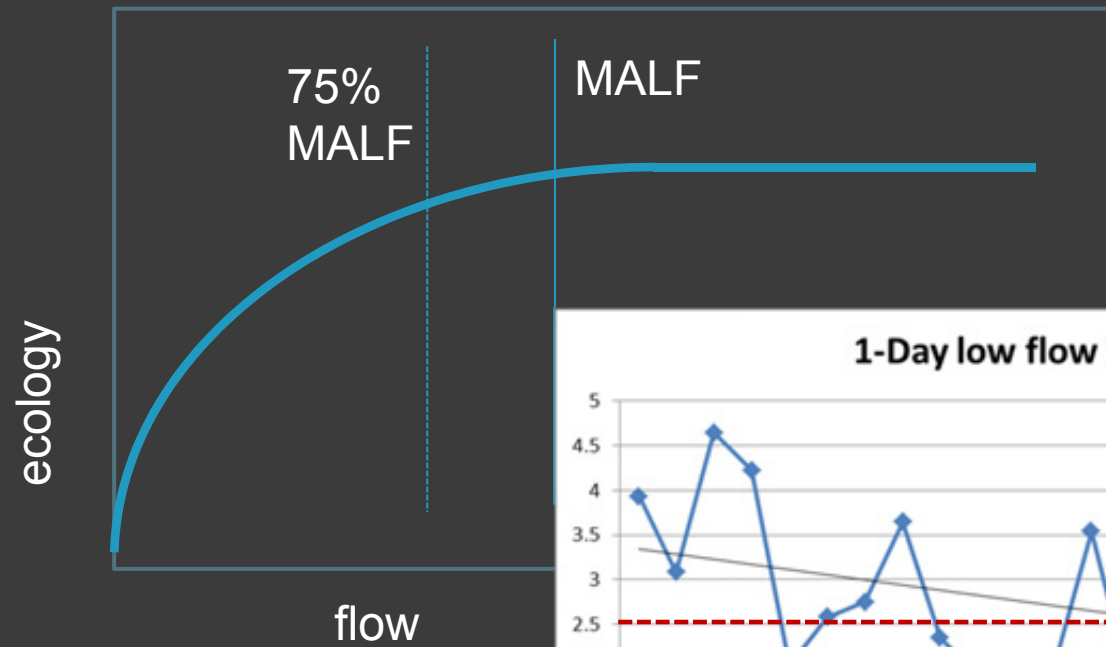
...ion to surface water, then the surface water flow will decrease sooner or later.

Abstraction in Wairarapa aquifer dramatically increased since 1990

>80% increase in abstraction 1990-2010

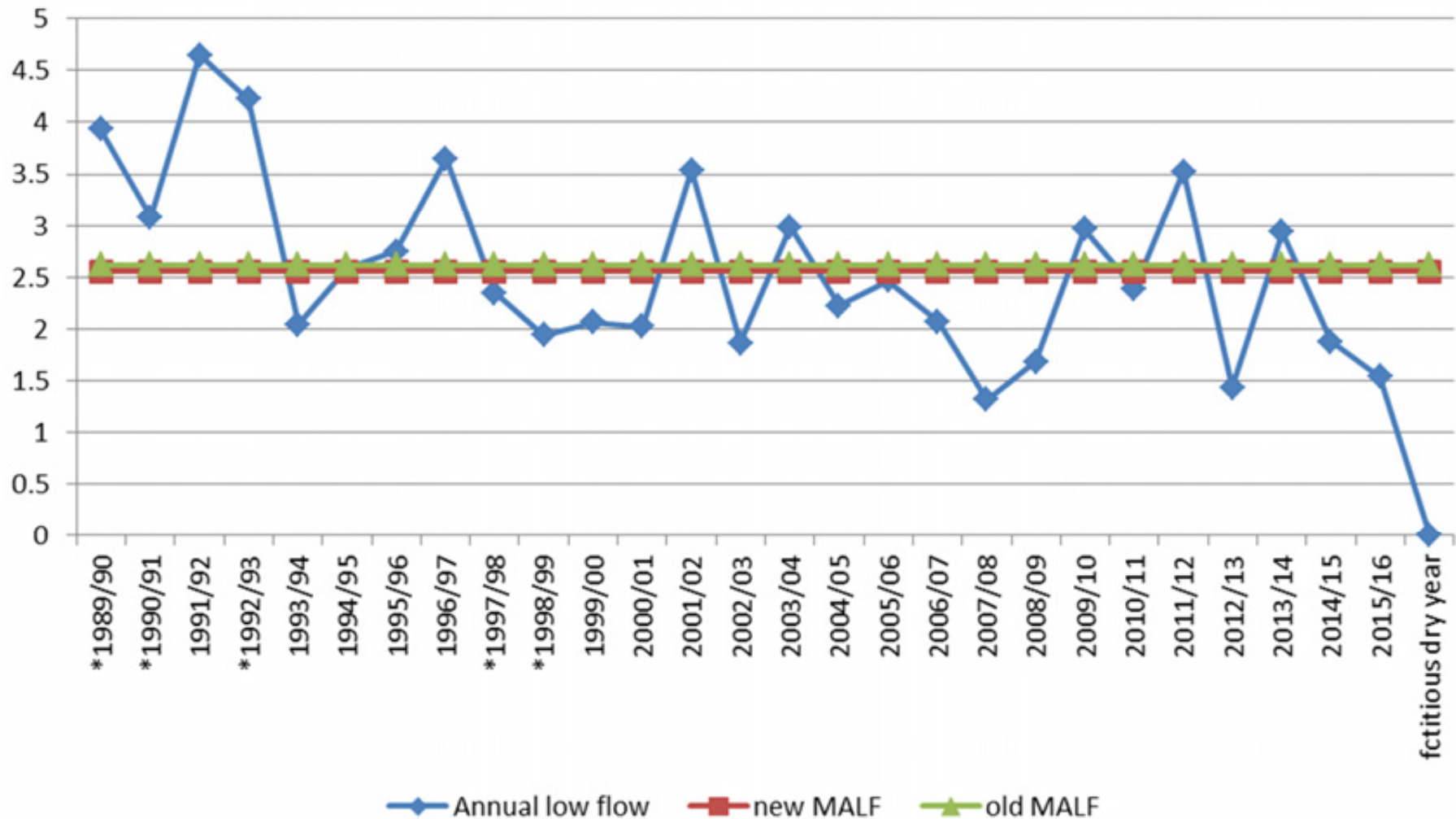
Allocation limits are not modified relative to environmental effects

Effects



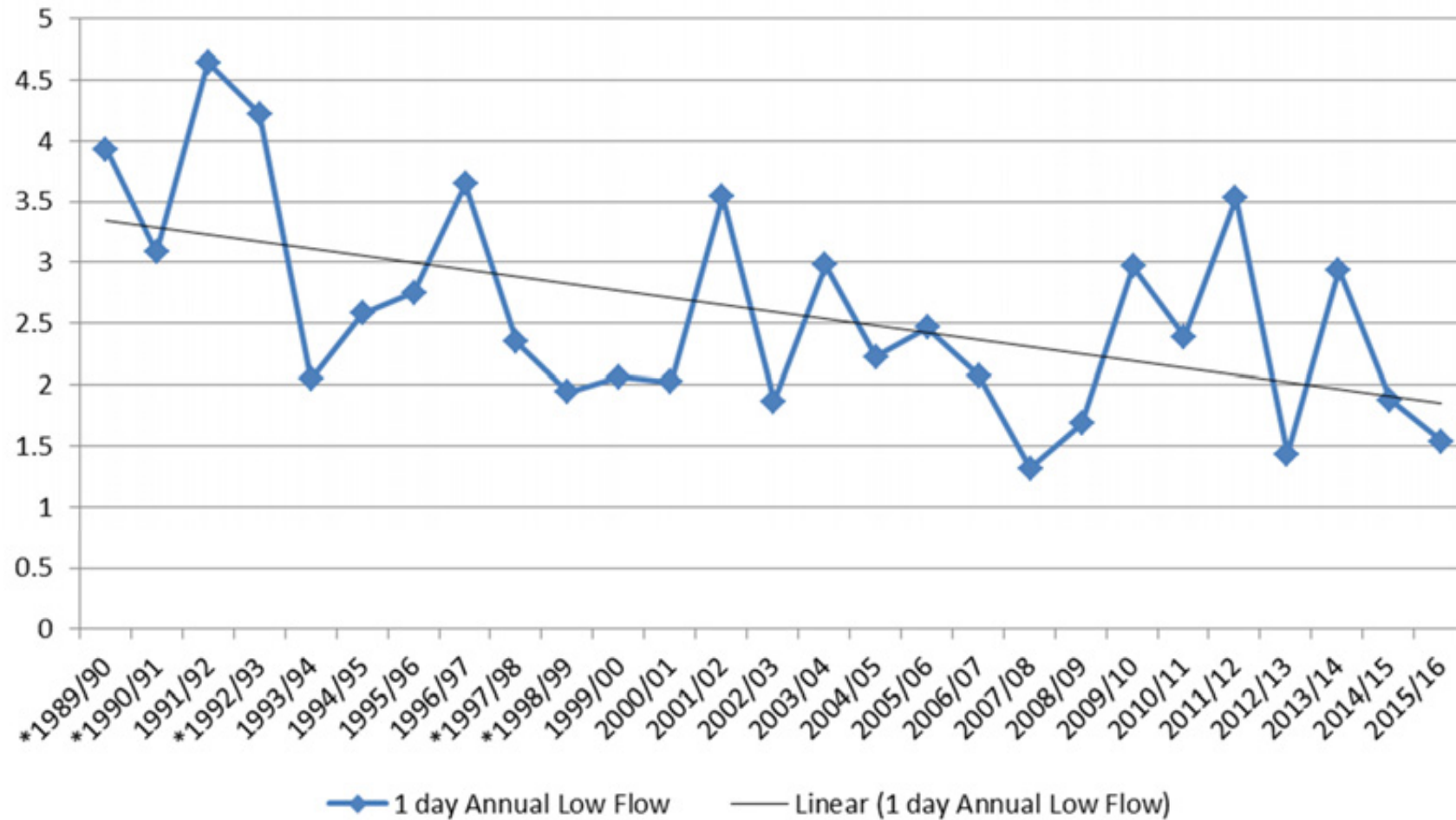
Zero flow Vs MALF

1-Day low flow Wardells Bridge



What happens next?

1-Day low flow Wardells Bridge



What does this tell us?

That the current system is not working..

What do we have to do?

Change the system.....