Facilitating voluntary action to reduce rural land use impacts in the Motueka River catchment, New Zealand

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Background

In New Zealand, a continuing decline in water quality and increasing competition for water have led to calls for a more collaborative approach to land and water management (Land and Water Forum 2010). Integrated catchment management is a process of working with stakeholders collaboratively to understand and address cumulative effects on the environment of all activities within a catchment. The challenge is to design ICM programmes which motivate landowners, in particular, to reduce land use impacts on water quality. This paper summarises observations from an action research project which worked with farmers in the Sherry catchment within the Motueka catchment ICM research programme.

The Motueka ICM Research programme 2000-2010

This cross-disciplinary research programme applied systems thinking and an adaptive approach to a range of resource management issues identified by stakeholders in the 2170 km^2 Motueka catchment, near Nelson. Our hypothesis was that ecosystem resilience would be improved if community resilience is developed. Thus, the programme brought together research on biophysical processes (water, sediment, nutrient and contaminant fluxes and their impacts) with research on social processes (social learning, community engagement, Māori values, economics, policy relevance), integrated across land and water (including coastal waters).

The research covered 5 themes: (1) water allocation, (2) land use effects on water, (3) land and freshwater impacts on the coast, (4) integrative tools and processes for managing cumulative effects, and (5) building human capital and facilitating community action. Details of the breadth of ICM research carried out can be found at icm.landcareresearch.co.nz and in a special issue of the NZ Journal of Marine & Freshwater Research to be published late 2011. This paper focuses on one project within themes (2) and (5).

Water Quality Impacts of Farming Practices in the Sherry River sub-catchment

During the first two years of ICM research, water quality was monitored intensively throughout the Motueka catchment and its tributaries (Young et al. 2005). The 78km^2 Sherry tributary was found to have E.coli levels exceeding swimming standards, and contributing a disproportionate pathogen load into the lower catchment. These findings were discussed with the programme's Community Reference Group, and then at a 'kitchen meeting' with farmers in the Sherry Valley. They agreed to a water quality experiment at a cow crossing in this sub-catchment. This showed E. coli levels rose to 50,000 cfu/100ml when an average-sized dairy herd (246 cows) crossed the river, effectively quadrupling the daily load of faecal bacteria in the river (Davies-Colley et al 2004). Those results convinced dairy farmers

in the catchment to invest in bridges for their herd crossings and led to more than a 50% cumulative reduction in E. coli levels.

However, from a social research perspective, an even more interesting outcome was the observation that the collective action by catchment dairy farmers had the effect of creating social cohesion ('community resilience') among the landowner community, which comprised sheep, beef, dairy, poultry farmers and foresters. Supported by the NZ Landcare Trust, the local council and ICM research team, the landowners formed the Sherry River Catchment Group. Despite the 50% reduction in bacterial load, the river still did not consistently meet swimming water quality criteria during low flows. With further research support, the catchment group has subsequently completed landowner environmental plans for all major properties in the Sherry. Each plan contains prioritised actions and timeframes for action agreed with the landowner, collectively designed to achieve an overall 80% reduction in E. coli (NZ Landcare Trust 2010). The actions include riparian planting, fencing to exclude stock from watercourses, protection of wetlands and reticulated stock water supplies. Those plans are currently being implemented by landowners.

Motivating Landowner Action

So why would catchment landowners agree voluntarily to these measures? A survey of all Sherry landowners (Fenemor et al 2011) provided these insights:

- Landowners, researchers and facilitators worked to find agreed solutions through a collaborative, non-threatening approach – trust was built among these groups
- Research (e.g. the cow crossing experiment) was framed in a way that addressed landowners questions, so they became more committed to the findings
- Actions were prioritised taking into account impact on water quality, but also affordability and allowing time for the farmer to stage implementation to fit other farming and financial priorities
- Some actions were found to have win-win outcomes – bridges allowed stock to cross the river even when in flood; voluntary action was seen to have public relations benefits for the group and to make regulation by the council less likely
- Having a focus on water quality created a reason for meetings, building both cohesion and peer pressure among the catchment community
- Events were held to celebrate progress and collectively support the actions being taken by individual landowners.

When asked what single factor would most motivate landowners to continue implementing the actions in their Landowner Environmental Plans, the most consistent response was to have someone (e.g. from the NZ Landcare Trust) take an interest in and celebrate their progress. These observations provide guidance for ways to design effective engagement processes for integrated catchment management projects around New Zealand and abroad.

References

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