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A POTTED History of Freshwater Management IN NEW ZEALAND

Abstract

This article traces the history of freshwater management in New Zealand from the earliest laws to protect newly introduced trout and salmon from pollution in the 1860s through to what an increasing number of New Zealanders today consider as a ‘freshwater crisis’ – a consequence of the failure of government to respond adequately to the unprecedented speed and scale of land use intensification and its impacts over the last few decades. Two themes are highlighted by this history: the tension between the protection and use of our water (and land) resources; and the tendency of government to intervene only when serious environmental damage has become evident.

Keywords waterways, freshwater management, environmental administration, environmental history

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This article traces the history of freshwater management in New Zealand from the earliest laws to protect newly introduced trout and salmon from pollution in the 1860s through to what an increasing number of New Zealanders consider today as a ‘freshwater crisis’ – a consequence of the failure of government to respond adequately to the unprecedented speed and scale of land use intensification and its impacts over the last few decades.

The history of the management of fresh water in New Zealand is characterised by two themes. The first is the ever-present tension between the need for environmental protection on the one hand, and the desire to protect the interests of industry on the other. When freshwater pollution issues first came to the fore in the late 19th century, the industry that government sought to protect was alluvial goldmining;

in the mid-20th century, it was the so-called 'wet industries' – meatworks, dairy factories, wool scours and piggeries; in recent decades, it has been agriculture.

A second feature of this history – related to the first – is the tendency for government to intervene only when serious damage has been done. No matter how well evidenced the likelihood of damage may be, there are few instances of government taking proactive or strategic action to prevent it from happening. This is because, politically, there is generally less risk in dealing with damage after it has occurred – because the need for action is self-evident and only limited political leadership is required to convince the public that intervention is necessary.

Early legislation and early pressures on rivers, streams and lakes

The first legislation to afford any protection to rivers, streams and lakes – though only indirectly – was the Salmon and Trout Act introduced in 1867. As the name of the law suggests, the central concern was introduced species of trout and salmon, not indigenous species, which were largely ignored.¹ The law provided for the 'preservation and propagation' of salmon and trout, and enabled the governor (the equivalent of today's governor-general) to restrict angling for these fish. It also allowed for the making of regulations to prevent lime 'or any other matter or liquid deleterious to fish' being discharged into rivers or streams in which salmon or trout were present. It is not clear whether any such regulations were ever made, but the provision is evidence that the link between a range of pollutants and the well-being of fish was well accepted as early as the 1860s.

While the motivation of acclimatisation and angling groups was to protect introduced species, which competed with their more diminutive indigenous cousins for food and habitat, these groups were for a long time the only voice raised against the unmitigated pollution of the country's rivers, streams and lakes, and continue to be an influential lobby today, in the form of the national body Fish and Game New Zealand. Indeed, the first complaints made about pollution of rivers and streams were made by acclimatisation societies, in relation to the impacts of goldmining

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activity, which was clogging up rivers and streams with tailings, a problem particularly evident in Otago.²

The Fisheries Conservation Act 1884 and its subsequent amendments allowed for regulations to be made prohibiting the discharge of refuse from some industries into waterways; the initial act excluded goldmining waste, however, because the government considered the industry too pivotal to the fragile economy to risk antagonising. In its subsequent amendments to the act, too, the government was anxious not to impede industry and was careful to keep its powers to regulate reigned in.

Meanwhile, from the late 1800s, a cocktail of other substances was beginning to foul rivers, streams and lakes. Early sewerage systems disposed of human effluent without any treatment, either into the sea or, in the case of inland towns such as Palmerston North, Taupo and Hamilton, into rivers or lakes. This was mandated under the Public Works Act 1876, under which rivers were not simply *seen* as drains, they *were* drains. 'Drain' was defined to include both artificial channels and 'every natural watercourse, stream, and river not navigable' (Public Works Act 1876, s165). It was not until the worldwide bubonic plague scare of 1900 that towns began to introduce some rudimentary treatment of sewage. Industries too, including meatworks, dairy factories and sawmills, simply disgorged their effluent into the nearest stream or river. In fact, such industries were generally sited next to waterways quite deliberately for this purpose.

The Waters Pollution Act 1953 and the Pollution Advisory Council

There were a number of failed attempts to introduce legislation dealing with the pollution of waterways in the first half of the 20th century, including the ill-fated Pollution of Water Bill of 1912. Each time, the government pulled back in the face of the vigorous industry lobby.³ Finally, in 1953, the Waters Pollution Act was enacted. This established a Pollution Advisory Council within the Marine Department.⁴

While the enactment of this legislation and the establishment of the Pollution Advisory Council undoubtedly represented progress, the council was rendered practically toothless for some years. Strong lobbying by the meat and dairy industries was successful in limiting the council to an advisory role, merely able to receive complaints and undertake investigations, with no powers to enforce change. Instead, it relied on the cooperation of industry to take measures to reduce water pollution.

It took another decade before the government gave the council some teeth, by making regulations allowing its officials to enter land, request information or issue permits for discharges to waterways (Roche, 1994, pp.119–20). The 1963 regulations also provided for the council to classify water bodies according to their current and potential uses. The classifications ranged from A to D – 'A' indicating the highest standard for water quality, suitable for town water supply, through to 'D' for rivers suitable for agriculture, industrial water supplies and 'general recreation' (ibid.; McLintock, 1966).

Once rivers and other water bodies were classified, all discharges into them were registered by a permit, which set out the conditions under which the discharge could be made in order to maintain the prescribed standard in the 'receiving waters' (McLintock, 1966). However, there was strong opposition from industry to significant constraints being placed on them through the permit system. In reality, many of the permits issued were 'temporary' ones, merely reflecting the current practices at the time. Over time, the conditions of permits were made more stringent (Russell Howie, personal communication, 13 February 2016).

The establishment of the Pollution Advisory Council was a positive step – albeit a modest one – towards better managing water pollution. However, at the same time, the government demonstrated that economic development was paramount, even at the cost of a river or two. One river that fell victim to this ‘pragmatism’, only a year after the Waters Pollution Act was introduced, was the Tarawera River, on the banks of which the Tasman Pulp and Paper Mill operated. The Tasman Pulp and Paper Enabling Act 1954 allowed the Tasman Pulp and Paper Company, in which the government had an interest, to take water from, and discharge industrial waste into, the Tarawera River. The legislation also gave the company immunity from prosecution for pollution or nuisance under any other acts (Roche, 1994).⁵ Infamously, the river became known as the ‘black drain’ – discoloured by the chemical effluent spewed out by the paper mill.

The Water and Soil Conservation Act 1967 and wild and scenic rivers legislation

In 1967 the Water and Soil Conservation Act put in place a single consenting system to regulate water use, including discharges, the culmination of a number of years of work to consolidate the myriad laws relating to water use. This act carried across the 1953 Waters Pollution Act’s classification system for receiving waters, and established a process to obtain water rights to dam, divert, take, use and discharge to water. It became an offence to discharge any waste into water bodies unless it was expressly consented (by way of a permit). The act also declared that all rights to water belonged to the Crown.⁶ While the 1953 act dealt only with water discharges, the 1967 act recognised that water quality was affected not only by discharges, but also by extraction and other uses such as diversion, because these uses reduced flows and made rivers more susceptible to water quality degradation. By expanding the mandate of regulatory authorities to control extractive uses, the act served to strengthen their capacity to manage waterways and their water quality.

In 1972 the responsibility for water quality was transferred from the Marine Department to the regional catchment

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...

boards established under the Soil Conservation and Rivers Control Act 1941.⁷ Catchment boards continued to focus their attention on discharges from factories and other ‘point source’ discharges such as sewage treatment plants.

By the 1980s water clarity was visibly improving in many of New Zealand’s rivers. Industrial and sewage discharges were subjected not only to primary treatment, but also to the more sophisticated ‘secondary treatment’, which removed suspended solids and sediment and oxygen-depleting substances. Catchment boards were monitoring discharge sources more closely than any regulatory authority in the past, and the threat of penalties motivated most dischargers to improve the treatment of effluent.

In 1981 another piece of legislation was added to the freshwater management arsenal. The wild and scenic rivers legislation, modelled on the United States legislation of that name, was enacted as an amendment to the Water and Soil

Conservation Act 1967, after sustained lobbying from the canoeing and rafting fraternity, concerned about the loss of New Zealand’s ‘wild rivers’, especially to hydroelectricity schemes.⁸ This legislation enabled the creation of water conservation orders, and in 1982 the Mōtū River, in the Bay of Plenty, became the first river to have a water conservation order sought over it – a reaction to a government proposal to build a hydroelectric scheme on the river. Since then 12 more water conservation orders have been made over rivers and lakes.

A weakness in the water conservation order system is that it is ad hoc, requiring an applicant who is sufficiently motivated and resourced to undertake the potentially lengthy, expensive and resource-intensive process.⁹ There is no mechanism for systematically identifying and protecting rivers deemed worthy of protection.¹⁰ Instead, the impetus for protection comes from groups or organisations making applications on a river by river basis. But few non-governmental organisations have the funds or resources necessary to make the commitment of time and money required for a successful application. Of the 13 water conservation orders made since 1982, most have been initiated by Fish and Game (or its predecessors, the acclimatisation societies), an organisation that is comparatively well funded through licence fees collected from its members. Therefore, there has been a strong emphasis on protecting rivers for their recreational fishing values. Rivers that are valued for other reasons, such as for their unique ecology, scenery or other recreational opportunities, tend to be less well represented (Parliamentary Commissioner for the Environment, 2012).

The Resource Management Act 1991 and the growing menace of diffuse discharges

With the enactment of the Resource Management Act in 1991, the scope of regulators to manage water quality was again extended, to encompass the ability to control the use of land. The management of water quality had by this time been transferred from the catchment boards to regional councils, which subsumed and replaced catchment boards under the Local Government Amendment Act of 1989. As

was the case under the 1967 act, under the new act, all discharges of pollutants to water were, by default, prohibited, unless consent for the discharge was granted. Even when granted, the legislation allowed for conditions to be imposed on the consents, which the applicant was bound by. Failure to comply with conditions meant a breach of the law that could lead to financial and other penalties.

The Resource Management Act also empowered councils to develop statutory plans for the management of land and water, intended to reflect community expectations for acceptable water-quality standards and create more transparency around how these standards were set and managed. The new legislation was designed to give the new regime a more proactive, forward-planning focus, as opposed to the more reactive management of pollution characteristic of both the Waters Pollution Act and the Water and Soil Conservation Act.

The Resource Management Act has proved effective in bringing point source discharges – that is, discharges from specific sources such as factories or sewage treatment plants – under better control. However, the growing magnitude of diffuse discharges – run-off from land – was unforeseen when the Resource Management Act was introduced (though perhaps should not have been, because catchment managers were observing the effects of nutrient leaching by this time, and the OECD was warning about the impacts of agricultural intensification as early as 1981 (Knight, 2016; OECD, 1981)).¹¹ As the primary regulator under the act, regional councils were hampered too by the legislation's permissive approach to land use: as long as there is no specific rule prohibiting certain land uses in a district or region, all forms of land use are permitted.

One rare instance in which government has taken highly interventionist (and expensive) measures to restore a water body is Lake Taupō. In the late 1990s, regional council monitoring found that water quality in the lake was declining, resulting in increased algal growth and decreased water clarity, primarily due to increased concentrations of nitrogen flowing off farmland in the surrounding catchment. After years of discussion and

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negotiation, in 2007 central government, Waikato Regional Council and Taupō District Council committed \$80 million to create a scheme to reduce nitrogen flowing into the lake by 20%. This would be achieved by purchasing nitrogen from landowners through a nitrogen-discharge trading system; placing 999-year covenants on properties to ensure nitrogen reductions into the future; the implementing of land use controls to secure the gains made when landowners opt to change from pastoral to lower-intensity land uses such as forestry; and free advice and assistance to farmers and other landowners to help reduce nitrogen levels (Ministry for the Environment, 2017).

While the measures taken to try to halt or minimise further degradation of Lake Taupō are laudable, it is hard to avoid the conclusion that the catalyst for such bold, expensive and innovative intervention is the value of the lake as an asset for tourism. Lake Taupō is New Zealand's largest lake, and is the 'jewel in the crown' in terms of its value for the tourism industry, principally as a destination for fishing and

boating. Other lakes, such as Lake Horowhenua near Levin, are similarly or more severely degraded, and despite their being highly valued by hapū, iwi or local communities, no such interventions are offered. This is likely to be in part due to their limited value to tourism.

It is interesting to note that the very first Waitangi Tribunal case relating primarily to a river was sparked by the proposal to divert the outflow from the Rotorua Waste Water Treatment Plant from its outlet at the time to Lake Rotorua to the Kaituna River. The reason? Lake Rotorua and its adjoining lake, Lake Rotoiti, were renowned worldwide for their trout fishing, and it was widely feared that further degradation of the lake would jeopardise that reputation, affecting the tourism industry (Waitangi Tribunal, 1984). There was no such concern for the Kaituna River among authorities, a river which had historically been used as a drain for the discharge of effluent from freezing works, dairy factories and other sources (Waitangi Tribunal, 1984) – though the Ngāti Pikiao claimants took a very different view, one which eventually prevailed.¹²

Conclusions

As this article is being written, the government is contemplating wholesale changes to the resource management system, beyond the usual tinkering with the Resource Management Act. But the issue of freshwater degradation will not be resolved by legislative change, or even institutional change, alone. Mindsets will need to change. The pioneering mentality still looms large in New Zealanders' interactions with the environment: in particular, the belief that the right to use land as a person wishes is an inviolable property right remains strong (Knight, 2018, p.215). Even today, when the extent of damage from land use intensification is beyond doubt, there is reluctance on the part of regional councils to regulate land use. This deep-seated devotion to private property rights will need to be supplanted by a stronger consciousness of the public good and, with it, a deeper recognition of the social contract. Only then will New Zealand be able to fully resolve freshwater degradation.

- 1 Initially, indigenous freshwater fish were viewed as of value only as food for these exotic species, particularly trout (McDowall, 2011, p.45). For instance, in 1869, the curator of the Christchurch Acclimatisation Gardens observed that 'our streams are already stocked both here and in Tasmania with a little native fish, for which the trout has shown a great partiality, and being of sluggish habits, and devoid of teeth, probably in some respects superior to the minnow' (*Otago Witness*, 3 April 1869).
- 2 For instance, by the end of the 1880s, the Otago Anglers' Association was complaining of the poor fishing in many of the district's rivers and streams, which it attributed to pollution of rivers and streams by tailings. The Shag River, or Waihemo, of northern Otago, was an early casualty – a once popular fishing river reported to be spoilt by mining by 1889 (*Otago Daily Times*, 28 September 1889).
- 3 For more discussion of this see Knight, 2016, p.84.
- 4 The council comprised the secretary of marine, government appointees from the Agriculture, Health and Works departments as well as from the Department of Scientific and Industrial Research, plus four local authority and two industry representatives.
- 5 In 2009 the mill gained a further 25-year consent to discharge effluent into the river (*New Zealand Herald*, 13 August 2013).
- 6 Local water rights were granted by regional water boards (the catchment authorities that existed under the Soil Conservation and Rivers Control Act 1941), whereas Crown water rights were granted by the national authority.
- 7 This devolution occurred as a result of a 1971 amendment to the act (Roche, 1994, p.128).
- 8 For more discussion of this see Knight, 2016, pp.194–201.
- 9 The longest time taken for a water conservation order to be approved was 17 years, for the Mohaka River in the Hawke's Bay. Only two successful applications have been lodged since 1991, partially a consequence of the costly and resource-intensive nature of the water conservation order application process. One of those applications – the Rangitata – cost the applicant (Fish and Game) over half a million dollars, comprised mainly of fees for lawyers, planners and scientists (Parliamentary Commissioner for the Environment, 2012, p.61).
- 10 As the New Zealand Conservation Authority puts it in its 2011 discussion paper *Protecting New Zealand's Rivers*, 'WCOs have primarily been used to protect rivers under threat. They have not been used to protect a representative range of rivers' (New Zealand Conservation Authority, 2011, p.30). The New Zealand Conservation Authority is an independent conservation body set up to advise the minister of conservation and the director-general of conservation.
- 11 In its first review of New Zealand's environmental policies, the OECD cautioned: 'The kind of intensive pastoral farming practised in New Zealand almost inevitably results in a high level of nutrients (mainly nitrogen and phosphorus) in inland waterways and lakes, and in some situations this has already contributed to their eutrophication.' The report went on to warn that moves to introduce greater use of nitrogenous fertiliser in order to support more intensive farming 'would lead to increased leaching of nitrates [and] as greater numbers of livestock compact the soil, lead to accelerated run-off and associated damage to waterways' (OECD, 1981, p.47).
- 12 For more discussion of this, and other related Waitangi Tribunal cases, see Knight, 2016, pp.246–7.

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