Pages 165-169 in Collier, K.J. (Ed), 1994. Restoration of Aquatic Habitats. Selected papers from the second day of the Limnological Society 1993 Annual Conference. Department of Conservation.

RESOURCE CONSENT APPLICATION PROCESS FOR MANGATANGI DAM

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ABSTRACT

Resource consents are required for the operation of the Mangatangi Dam for water supply to the Auckland Metropolitan Area. The process for the renewal of these resource consents is described. Particular emphasis was placed on public participation, and a consultative group was formed to facilitate this. Early in the process, issues of significance were identified and investigations commissioned. The results of these were reported to the consultative group by way of pre-circulated discussion papers that were discussed at meetings. Particular interest was shown in the concept of a variable release flow from the dam. This does not reduce the security of supply from the dam, but transfers the winter spill of water to a summer time release of water.

INTRODUCTION

Watercare Services Limited (Watercare) is a Local Authority Trading Enterprise previously owned by the Auckland Regional Council (ARC) and from July 1993 by the Auckland Regional Services Trust (ARST). Watercare was formed to separate the service delivery and regulatory functions of the ARC. The ARST and its powers are defined by the Local Government Amendment Act No 1 and 2, 1992. It is of interest to note that Watercare is different from the other service delivery functions, as it cannot be sold off and cannot pay a dividend to its owner.

Watercare undertakes the collection and treatment of wastewater and the bulk supply and reticulation of water in the Auckland metropolitan area. Water is reticulated from Papakura in the south to Orewa in the north. About 70% of the water supply is from dams in the Hunua Ranges, to the south of Auckland City.

Figure 1 Location of Mangatangi Dam and effected areas.

Mangatangi is the largest and the most recent of the four dams built in the Hunuas; its location is shown in Figure 1. The dam was built over a period from 1972 to 1977. Mangatangi Dam is the largest of Watercare's dams and is the largest water supply dam in New Zealand. It supplies close to 30% of the water supplied to Auckland. The water right was obtained in 1972 and reviewed in 1980. The major conditions of the current water permits are:

- allows a water supply to Auckland,

- requirement for flood mitigation,

- defines the residual flows in the river.

Flows were established using the Modified Montana Method described by Fraser (1978). The flow currently released is 30% of the average summer low flow.

Watercare has the objective of delaying the need for a future water source. This can be done in two ways:

- increase the **supply** of water,

- reduce the **demand** for water.

To reduce the amount of water that is released would effectively increase the amount of water that is available to supply water. To do this, however, requires major justification. A major water conservation campaign is in place to reduce demand for water in Auckland. Demand for water dropped by 2% in the last year, although whether this resulted from the conservation campaign or the declining economy is open for debate. However, the conservation campaign does help in the renewal of water permits in that the people of Auckland are being educated about the wise use of water.

The catchment of the Mangatangi Stream has a regional council boundary through the middle of it. This is shown in Figure 1. The boundary has created an interesting situation whereby the operation of the dam is being carried out in the Auckland Region while the effects are being felt in the Waikato Region. Agreement has been reached that the ARC will hear the application for renewals and that Environment Waikato will come in as an objector. Also of interest is that the marae of the Ngati Tamaoho is situated by the Mangatangi Stream.

PROCESS

The Mangatangi Dam water permits expired in October 1992. A process was established to renew the resource consents which involved considerable public participation. The first part of the process was to identify the "stakeholders" or interested parties and to invite them to take part in the consultation. From these stakeholders a consultative group was formed to identify issues and to reach agreement for their resolution. The process that was set up aimed to sort out most of the issues by constructive dialogue and only those issues that

remain unresolved would be carried through to a hearing. At a well attended public meeting, members of the local farming community volunteered to take part in the consultative group. Meetings have also been held with the Mangatangi Marae and with the Huakina Development Trust. Statutory authorities and environmental groups have also sent representatives. Composition of the consultative group is shown in Figure 2.

Figure 2 Consultation Process and Composition of Consultative Group.

Gaining public participation in the process is essential. A useful definition of consultation has been given by Judge McGechan *".....to achieve consultation sufficient information must be supplied by the consulting to the consulted party to enable it to tender helpful advice. Sufficient time must be given ..... must keep its mind open and be ready to change and start afresh"* (Air New Zealand v Wellington International Airport, CP403/91, 6 January 1992). The importance of sharing information is highlighted. To this end a process of monthly meetings was established. All meetings were held either at the Mangatangi Dam or at the local hall so as to encourage the participation of the local community. Watercare proposed that the resource consent hearings be convened at Mangatangi rather than in Auckland.

The Resource Management Act gives the opportunity for significant consultation. Consultation properly run has the real possibility of gaining community acceptance and avoiding lengthy legal confrontations.

IDENTIFICATION OF ISSUES

Some of the effects of the taking and damming that required consideration during the process of renewing the water permits were:

- reduced flows downstream,
- recreational impacts,
- cultural values of the stream,
- access for farmers,
- dependable supply of water to Auckland,
- flood reduction,
- water quality.

Issues were identified in broad terms by Watercare and then grouped together into topics so as to make the process manageable. There was significant overlap between the issues. For example, the issue of water quality overlaps with the cultural issues that were raised. Two weeks prior to the meeting a discussion paper was circulated to all members of the consultative group. This was then presented at the meeting and discussed by the group. The consultation process highlighted any issues that were not identified or not fully covered. These issues were then investigated and reported on.

The major effect of the abstraction of water is the reduction of flow downstream – an obvious effect of taking the water for use in Auckland. This reduction in flow downstream of the dam was thought to cause the majority of water quality problems. Studies were undertaken to gauge the effects of the dam.

INVESTIGATION OF ISSUES

The topics presented at monthly meetings are shown in Table 2. Each of these topics was the subject of an investigation or report that was presented to the consultative group.

Table 1 Topics and investigations presented at monthly meetings.

TOPIC	INVESTIGATION/REPORT
Flooding	Flood mitigation of the dam
Residual Flows	Effects of increased or decreased release flows
Cultural	Understanding of past submissions
Variable Release Flows	Maximise summer release flow of water without comprimising water supply
Water Supply	Need for water and operational considerations
Recreation	Recreational possibilities within the catchment

Initially it was proposed to reduce the amount of water currently released from the dam to the stream so as to maximise the supply of water to Auckland. However, this proposal for the reduction of residual stream flows was shown to be undesirable. Cooke *et al* (1992) demonstrated that a decrease in the residual flow would have a marked effect. Conversely, the effects of increasing the residual flow were shown to have small beneficial effects on the stream environment. The status quo release or residual flow has been maintained.

An item of interest raised by the consultative process is what we have termed "variable release flows". Watercare will attempt to maximise the water released during summer from the dam and thus minimise the instream effects downstream of the dam.

The definition of yield for the Auckland water supply is of importance. A one in 50 year drought standard is used. By inference, a one in 50 drought standard means that during the other 49 years there could be an excess of water in the dams that would then typically spill to the stream during winter. The concept of variable release flows is to identify and then release this excess water during the summer period. The release is termed variable as the release will be additional to the residual flows and will only be released when the water is known to be available.

Storage in the water supply dams must be full at the beginning of summer to ensure maximum security of supply in times of a drought. The dam storage levels are expected to fall during summer and pick up during the winter due to the low summer inflows and the high summer demands. A curve has been established that has a 98% probability of having a dam full at the beginning of summer (Fig. 3).

It is proposed that when the dam storage level is above this curve and in the shaded area, additional water to the residual flow will be released (Fig. 3). This will increase the flow

downstream of the dam during the summer and will not compromise the supply of water to Auckland.

Figure 3 Freeboard storage that has a 98% probability of filling prior to the following summer. Releases additional to the residual flow are made in the shaded area and do not compromise the supply of water.

This transfer of uncontrolled spill of water during the winter to a controlled release of water during the preceding summer has the potential to increase residual flows during summer without compromising water supply reliability.

CONCLUSION

All the supporting information and proposed conditions for the resource consents are currently being finalised. It could be a difficult task getting agreement amongst the consultative group regarding the proposed conditions. However, it is hoped that the legal processes will be used to a minimum. So far it has been successful and the support of the consultative group has been tremendous.

The process of public consultation has been successful and is producing workable solutions to the issues raised.

REFERENCES

Fraser, J.C. 1978. Suggestions for Developing Flow Recommendations for In-stream uses of New Zealand Streams. *Water and Soil Miscellaneous Publication No 6*, Wellington, New Zealand.

Cooke, J.G., Cooper, A.B., McBride, G.B., Smith, C.M., Vickers, M.L. 1992. Residual Flow Issues in the Mangatangi Stream. Prepared for ARC Water Services by Water Quality Centre, NIWA, Hamilton, July 1992.