



**Report**                    **06.580**  
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**Committee**            **Landcare**  
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## Otaki River Gravel Analysis

### 1. Purpose

The purpose of this report is to:

- Inform the Landcare Committee of the results of the 2006 cross-section survey and gravel analysis on the Otaki River.
- Seek the Committee's endorsement of the proposed extraction volume over the next five year period.

### 2. Significance of the decision

The matters for decision in this report do not trigger the significance policy of the Council or otherwise trigger section 76(3) (b) of the Local Government Act 2002.

### 3. Background

The Council has prepared a floodplain management plan for the Otaki River. One outcome of the plan is that a survey of cross-sections on the Otaki River should be carried out every five years and following a major (5 percent probability or greater) flood event. The results of these surveys are then to be used for the monitoring of the gravel movement and determination of future river management strategies including gravel extraction volumes and location.

The last five yearly survey of the cross-sections was completed between November 2005 and March 2006 from the mouth to midway through the Otaki Gorge. This report summarises the 2006 survey data and presents where aggradation and degradation is occurring following a comparison of bed level data from the 1991, 1996, 2001 and 2006 surveys. Recommendations are also made on extraction for future river and floodplain management planning purposes. **Attachment 1** shows the location of the cross sections surveyed as part of this monitoring.

## 4. Summary of Survey Results

The full results of the survey and analysis are reported in GW Publication No. GW/FP-G-06/222. This report is available to Committee members if they wish to study the information in more detail.

The results show an overall decrease of 72,000 m<sup>3</sup> of gravel volume in the five year period between 2001 and 2006. From 1991 to 2006 period, the total volume of gravel loss is approximately 280,000 m<sup>3</sup> over the whole river. The volume of gravel build up downstream of Chrystalls Bend (from mouth to section 501) is in the order of 17,000 m<sup>3</sup> despite the extraction of 195,000 m<sup>3</sup> (40,000 m<sup>3</sup>/year) of gravel in the 2001-2006 period. Though there was no extraction from Chrystalls Bend to the Lower Gorge reach, a large amount (about 89,000 m<sup>3</sup>) of degradation has occurred in this period. This is likely to be as a result of the intensive work to establish the new design channel alignment in this reach (Upper Rahui project), as well as a natural process in the steeper section of the river. **Attachment 2** shows a long section plot of the changes in gravel aggradation and degradation.

The build up of 17,000 m<sup>3</sup> of gravel in the mouth to downstream of the Chrystalls bend reach over the last five years indicates that the current extraction rate of 40,000 m<sup>3</sup>/year is sufficient to maintain bed level status quo. The loss of material above Chrystalls bend confirms the current policy of not extracting any material from upstream of Chrystalls Bend.

Only minimal extraction was undertaken between SH1 and Chrystalls Bend between 2001 and 2006 so that the realignment undertaken in 1994 was able to establish. The latest survey has shown that material is building up in this reach and approximately 10,000 m<sup>3</sup>/year could be extracted as well as a one off extraction of 25,000m<sup>3</sup> to compensate for the lower levels of extraction in the last 10 years.

## 5. Gravel extraction policies

The current extraction policy allows an average of 40,000 m<sup>3</sup> of gravel to be extracted per year between the mouth and Chrystalls Bend.

The latest survey has shown that the current extraction policy should be modified to:

- Allow the extraction of 40,000 m<sup>3</sup> of gravel per year from the mouth to Chrystalls Bend made up of 30,000 m<sup>3</sup> from mouth to SH1 and 10,000 m<sup>3</sup> from SH1 to Chrystalls bend).
- Allow a one off extraction of 25,000 m<sup>3</sup> in the SH1 to Chrystalls Bend reach over and above the 10,000 m<sup>3</sup> annual extraction recommended above.
- No significant quantities of gravel should be taken from the river channel in the reach from Chrystalls Bend up to the Otaki Gorge.

- The Manager, Consents management be advised of the cross section survey results and the proposed extraction rates for the next five years.

## 6. Communication

The results of the gravel survey will be communicated to the Friends of the Otaki River, and the wider Otaki community.

## 7. Recommendations

*That the Committee:*

1. **Receives** the report.
2. **Notes** the content of the report.
3. **Endorse** the proposed new extraction policy set out in 'Section 5' of this report for the five year period from July 2006 to June 2011.

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**Attachment 1:** Otaki River Cross-section Location

**Attachment 2:** Otaki River Gravel Volume Changes