

# OTAGO/SOUTHLAND LOGGING WORKFORCE SURVEY

(Accidents, Safety, Occupational Injuries and Job Satisfaction.)

Peter Wilson (F.R.I.)

John Gaskin

Barry Smith (F.R.I.)

## ABSTRACT

*This Report presents the findings of the Otago/Southland Logging Workforce Survey on accidents, safety, occupational injuries and job satisfaction. Comparisons with logging workers from the Bay of Plenty and Northland reveal a high degree of similarity with respect to the jobs most prone to accident, the nature and occurrence of occupational injuries suffered and the use of safety equipment. Otago/Southland loggers, however, were found to have considerably lower lost time accident frequency and accident severity rates than their counterparts in the other two regions. A particularly disturbing finding in all three regions was the lack of follow-up to accident victims and that, in no case, was any appropriate recommendation made to avoid the accident happening again.*

*Like loggers in the Bay of Plenty and Northland, Otago/Southland loggers were generally satisfied with their jobs, though it was clear that some aspects of the job provided considerably less satisfaction than others. Promotional opportunities and pay were two areas in which logging workers were particularly dissatisfied when compared with the remainder of the New Zealand male workforce. The study also confirms an earlier finding that loggers who intend to leave the industry over the next five years are significantly more dissatisfied with their job than loggers who intend to remain.*

## INTRODUCTION

Earlier this year, LIRA published Reports on accidents, safety and occupational injuries (Gaskin et al, 1988a) and job satisfaction (Wilson et al, 1988) within the logging industry. These Reports were based on data obtained from logging workforce surveys carried out in the Bay of Plenty and Northland during 1986/87. To provide comparative data on a region which is geographically isolated from the mainstream of exotic logging, the Logging Workforce Survey was extended to Otago/Southland. This region was surveyed between January and April of this year.

It was established in recent reports that Otago/Southland loggers are remarkably similar to their Bay of Plenty and Northland counterparts with respect to their demographic characteristics (Gaskin et al, 1988b) and their training (Smith et al, 1988). It was the aim of the present study to determine whether these similarities also extend to the areas of accidents, safety, occupational injuries and job satisfaction.

It should be noted that the information collected on accidents and occupational injuries relied heavily on the respondent's recall and subjective assessment of their health status. Accordingly, some degree of caution is required in the interpretation of this material.

### ACCIDENTS

Of the 91 loggers interviewed, 21% had suffered at least one accident during the preceding five years. This was a considerably lower rate than either the Bay of Plenty or Northland where the equivalent figures were 28% and 33% respectively. Seven (37%) of the Otago/Southland accident victims had sustained more than one accident, resulting in a total of 27 accidents for the five year period. Multiple accident victims were also common in the Bay of Plenty and Northland where 28% of accident victims has suffered as many as four accidents.

The jobs most prone to injury were felling where 57% of the accidents occurred, followed by skid work (19%) and trimming (15%). These findings are largely in agreement with those obtained from the Bay of Plenty and Northland where felling (37%), trimming (30%) and skid work (14%) were also the three most accident prone jobs.

Like the Bay of Plenty and Northland, there was little evidence of follow-up to accidents with only 25% claiming that someone had discussed the incident with them - usually the gang boss. Even where such a discussion did occur, the only recommendation made to reduce the chances of the accident happening again was to "take more care". As stated in an earlier study, this can in no way be considered a suitable recommendation.

Of the 27 accidents reported by Otago/Southland loggers, nine (33%) involved the logger being off work for five days or less, and therefore would not have come to the attention of the Accident Compensation Corporation.

Table 1 shows the number of accidents and the resulting days lost that have occurred over the last five years.

Based on this data, the lost time accident frequency rate is 28.3 per one million hours worked which is considerably lower than the 41.6 and 42.4 found for the Bay of Plenty and Northland respectively. The accident severity rate is 3675 hours lost per one million hours worked, and this also compares favorably with the Bay of Plenty (6429) and Northland (5729).

### OCCUPATIONAL INJURIES

As Figure 1 shows, the incidence of occupational injuries reported by Otago/Southland loggers follows a similar pattern to those reported in the Bay of Plenty and Northland. The only major divergence was a lower percentage of Bay of Plenty loggers reporting a hearing impairment.

Nearly two-thirds of Otago/Southland loggers had had their hearing tested since they commenced work in logging, a figure greater than the 51% reported in the Bay of Plenty and Northland. The data would suggest, however, that loggers in Otago/Southland have not had their hearing tested as recently as loggers in the other two areas.

Table 1 - Number of Accidents and Days Lost over Last Five Years

Region	No. of Accidents	Total Days Lost	Est. Work Days Lost	Mean Work Days Lost/Accident
Otago/Southland	27	550	393	14.5
Bay of Plenty	80	2136	1526	19.1
Northland	43	915	653	15.2
Total	150	3601	2572	17.1

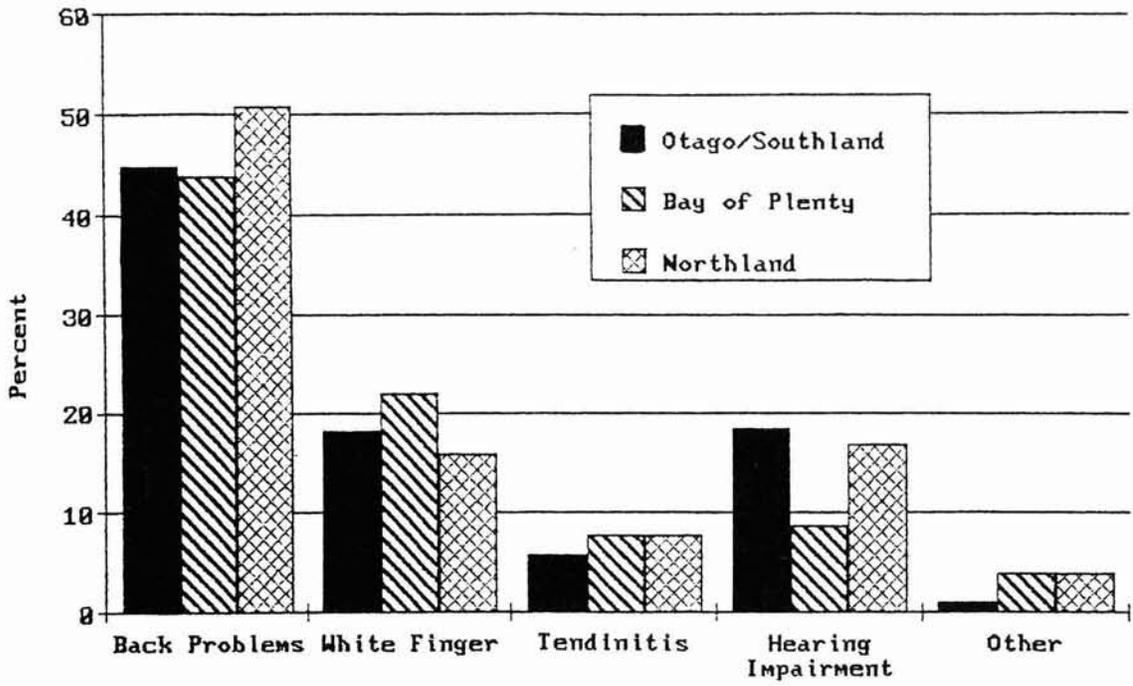


Figure 1 : Occupation Induced Injuries

### SAFETY EQUIPMENT

While the loggers interviewed may be geographically distant from the supposed mainstream of logging, it does not appear to have had an effect on the number using various items of safety equipment (Figure 2). It is particularly encouraging to note the use of eye and leg protection.

Southland loggers had their safety equipment supplied by their employer. The remainder either supplied their own (34%) or used a combination of both employer and personally provided gear (9%). These figures are very similar to those reported in the Bay of Plenty, although in Northland over half the loggers surveyed were required to supply their own safety equipment.

Over half (57%) of the Otago/

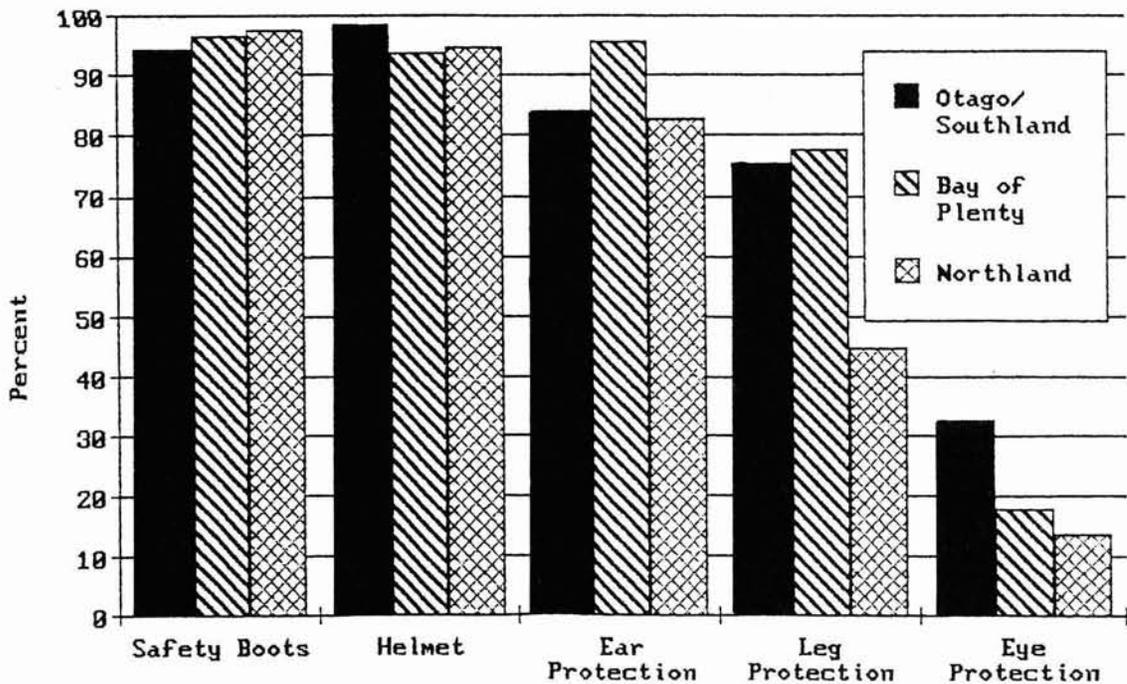


Figure 2 : Safety Equipment used by Loggers

Table 2 - Means, Ranges and Intercorrelations of JDI Scales

FACET	MEAN	RANGE	INTERCORRELATIONS						
			1	2	3	4	5	6	
1. Work	30.4	10-48	-						
2. Pay	23.7	0-48	.18	-					
3. Promotions	18.6	0-54	.19	.18	-				
4. On-site Supervision	39.5	11-54	.38	.22	.25	-			
5. Off-site Supervision	30.6	7-54	.15	.08	.08	.21	-		
6. Co-workers	42.3	14-54	.52	.21	.28	.67	.32	-	

### JOB SATISFACTION

Job satisfaction in Otago/Southland was again measured using Smith, Kendall and Hulin's (1969) Job Descriptive Index (JDI). The JDI measures a worker's satisfaction with five aspects of their job - the work itself, supervision, pay, promotional opportunities and co-workers. Each aspect is measured on a scale consisting of short descriptive phrases about their job. The subjects respond to each item with a "yes", "no", or "unsure", depending on how well the item describes their job. Responses denoting satisfaction are given a score of three, responses denoting dissatisfaction are given a score of zero, while unsure responses receive a score of one. By summing the item scores for each scale, a single satisfaction score is obtained for each aspect of the job. A subject who is completely satisfied with a particular aspect receives a score of 54, while a subject who is completely dissatisfied receives a score of 0. Indifference is implied by a score of 18.

Table 2 presents the mean, range and correlations between the six scales and shows that Otago/Southland loggers were most satisfied with their co-workers and their on-site supervisor, where mean scores of 42.3 and 39.5 respectively were obtained. These were followed by satisfaction with

their off-site supervisor (30.6), the work itself (30.4) and pay (23.7). Least satisfaction was expressed with regard to promotional opportunities (18.6).

### Regional Differences

Figure 3 presents the means of the six JDI scales for the loggers surveyed in all three regions. In a previous study (Wilson et al, 1988), it was found that Bay of Plenty loggers were significantly more dissatisfied than Northland loggers with the work and their promotional opportunities. Analysis of the Otago/Southland data reveals that loggers in this region are much more dissatisfied with their pay and promotional opportunities than their counterparts in both the Bay of Plenty and Northland. In fact, nearly half (49%) of the Otago/Southland loggers can be categorised as "dissatisfied" (a JDI score of 17 or less) with their promotional opportunities, and 35% dissatisfied with their pay. This compares with a quarter of the Bay of Plenty and Northland loggers who were discontented with each of these aspects.

That all the intercorrelations shown in Table 2 were positive suggests that Otago/Southland loggers who were satisfied with one aspect of their job, tended to be satisfied with other aspects as well. While this was also a finding with loggers in the Bay of

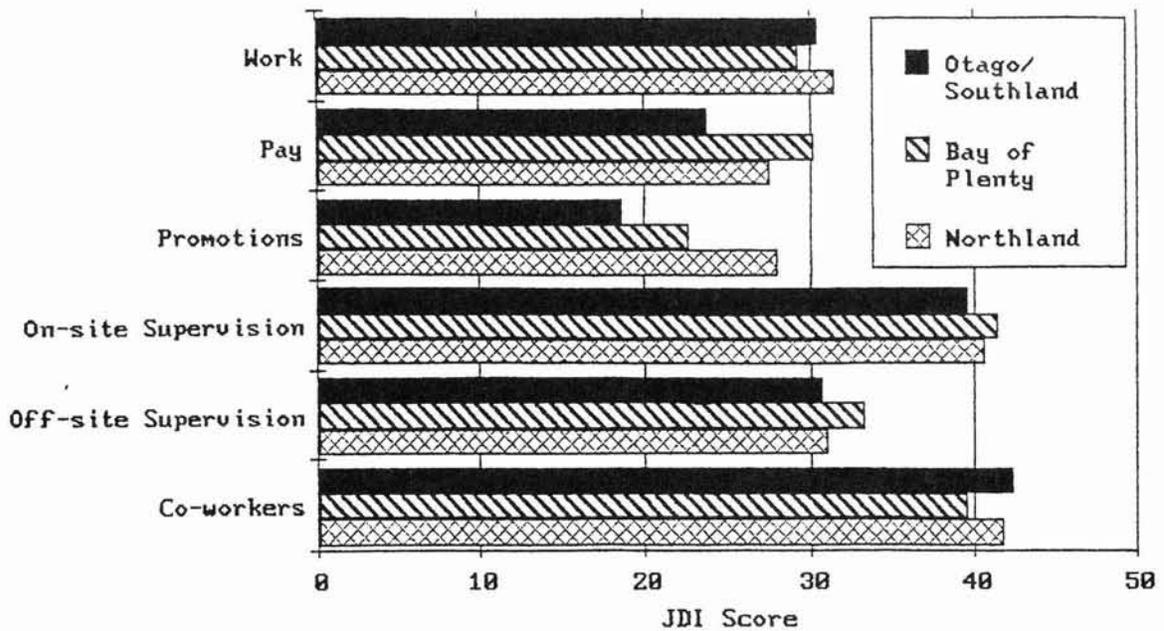


Figure 3 : Regional Job Satisfaction Scores

Plenty and Northland, the correlations between the co-workers, on-site supervision and work scales in Otago/Southland were considerably larger. This implies that loggers in this region tend to regard their gang boss as just another co-worker who, along with the rest of the crew, influences the satisfaction they derive from their work.

**Employee Differences**

Consistent with the earlier study (Wilson et al, 1988) very few differences were found in the relationships between job satis-

faction and the individual differences of the loggers surveyed. In neither study was job satisfaction found to be significantly related to a logger's marital status, number of dependent children, age, nor the time they had worked in the logging industry.

The only finding consistent across both studies was that longer-serving gang members were more satisfied with their off-site supervisor than shorter-serving members, a finding probably related to the greater contact had with the off-site supervisor as service increases.

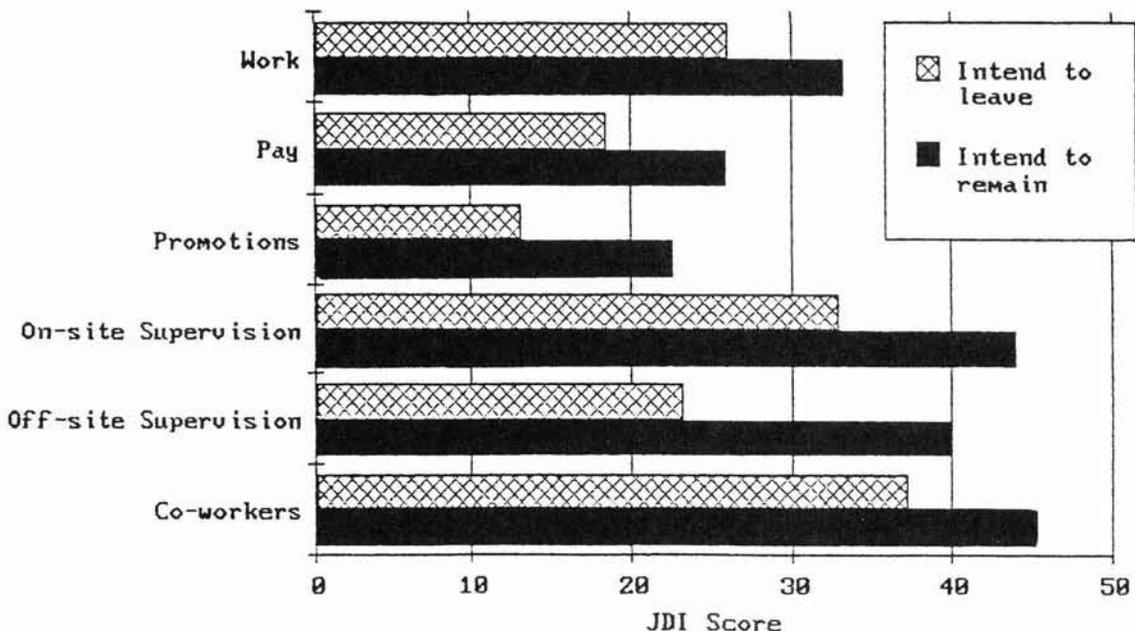


Figure 4 : JDI Scores by Otago/Southland Loggers Intentions about their Future in Logging

## Retention

A particularly important finding from an earlier study was that Bay of Plenty and Northland loggers who intend to leave the industry over the next five years were considerably more dissatisfied with the work, their promotional opportunities and their pay. Furthermore, there was a tendency for those intending to leave the industry to be more dissatisfied with their on-site supervision.

Figure 4 contrasts the mean scores for each of the six job satisfaction scales for Otago/Southland loggers whose intention it was to remain in the industry with those whose intention it was to leave. Not only does this data confirm the earlier finding, but it also extends the relationship to the other three job aspects as well. That is, the Otago/Southland loggers who intend to leave the industry over the next five years were significantly more dissatisfied with all six aspects of their job than those loggers who intended to remain.

## Causes of Job Dissatisfaction

After analysing the responses given by the Bay of Plenty and Northland loggers to the various items contained on the JDI scales, it was revealed that their dissatisfaction was linked to :

- the physically demanding nature of the work
- a discrepancy between the pay they received and the pay they felt they deserved
- the perception that promotional opportunities were limited and irregular
- the feeling that the supervision style did not allow for worker involvement in decision-making
- differences in the mutual interests of co-workers

The responses given by the Otago/Southland loggers shows that their dissatisfaction was also linked to these factors, though, as expected their dissatisfaction was more obvious with respect to items on the pay and promotional opportunities scales.

## DISCUSSION AND CONCLUSIONS

This study reported the findings of an analysis of data collected in the Otago/Southland and logging workforce survey on accidents, safety, occupational injuries, and job satisfaction. Having previously established that Otago/Southland loggers are remarkably similar to their Bay of Plenty and Northland counterparts with respect to their demographic characteristics and their training, the present study suggests that there is also a high degree of similarity in the jobs most prone to accidents, the nature and occurrence of occupational injuries, the use of safety equipment, and the satisfaction they derive from their job.

One area, though, where Otago/Southland loggers did appear to differ was safety. The study shows that the lost time accident frequency rate for Otago/Southland loggers was some 30% lower than those calculated for the Bay of Plenty and Northland. Furthermore, where accidents had occurred, they tended to be less severe, involving the average victim being off work for about 60% of the time taken by accident victims in the other two regions.

However, like the Bay of Plenty and Northland regions, the results of the survey indicate a poor rate of follow up, with few victims being interviewed after the accident to try and ascertain the cause of the accident. In no case was a recommendation made as to how the accident could be avoided in the future.

The high incidence of back injuries amongst loggers needs urgent attention. The majority of those with back complaints are machine operators. Further research is required to determine how this environment can be improved to reduce this complaint.

It would appear from these surveys that most loggers now appreciate the importance of using safety boots, hard hats and ear muffs in the course of their work.

That the majority of Bay of Plenty and Otago/Southland loggers are also choosing to wear safety chaps or trousers is particularly encouraging given the high incidence of leg injuries in the industry. The lower percentage of Northland loggers who were not wearing the protection is possibly related to the fact that the majority of loggers in this region are required to supply their own safety equipment.

The measurement of job satisfaction suggests that logging workers are generally satisfied with their jobs, though it is clear that some aspects of the job provide considerably more satisfaction than others. Most loggers show a high level of satisfaction with their co-workers and gang boss and, as was commented on in a previous study (Wilson et al, 1988), this must have positive implications for productive effectiveness within the industry. Satisfaction with the work itself and the off-site supervisor, while not providing as much satisfaction as that of their co-workers, does suggest that the majority are reasonably satisfied with these aspects.

Promotional opportunities and pay, however, are two areas in which logging workers expressed considerable dissatisfaction - not only in relation to the other aspects of their job, but also when compared with the remainder of the new Zealand male workforce. This was particularly evident in Otago/Southland, where nearly half of those surveyed were dissatis-

fied with their promotional opportunities, and about one-third were dissatisfied with their pay.

From a retention point of view, the study of job satisfaction is of particular importance. Loggers who intend to leave the industry over the next five years are much less satisfied than loggers who intend to remain. It should be noted that research findings suggest a strong link between an employee's stated intention to leave a job and their subsequent turnover.

## REFERENCES

Gaskin, J.E.; Smith, B.N.P.; Wilson, P.A. (1988a) : "Accidents, Safety and Occupational Injuries within the Logging Industry : (An Analysis of Data Collected in the 1986/7 Logging Workforce Survey)". LIRA Report, Vol 13, No 2.

Gaskin, J.E.; Smith, B.N.P.; Wilson P.A. (1988b) : "Otago/Southland Logging Workforce Survey: (Preliminary Results)". LIRA Report, Vol 13, No 14.

Smith, B.N.P.; Gaskin, J.E.; Wilson P.A. (1988) : "Training and Awareness in the Logging Industry". LIRA Report, Vol 13, No 16.

Smith, P.C.; Kendall, L.M.; Hulin, C.L. (1969) : "The Measurement of Satisfaction in Work and Retirement". Chicago : Rand Nally.

Wilson, P.A.; Gaskin, J.E.; Smith, B.N.P. (1988) : "Job Satisfaction Among New Zealand Logging Workers". LIRA Report, Vol 13, No 3.

For further information, contact:

N.Z. LOGGING INDUSTRY RESEARCH ASSOC. INC.  
P.O. Box 147,  
ROTORUA, NEW ZEALAND.

Telephone: (073) 87-168

