

Mokihinui Hydro Proposal

Decision Summary

Overview

1. This is a summary of the decision made by three hearing commissioners appointed by West Coast Regional Council (WCRC) and Buller District Council (BDC) to hear and decide 32 resource consent applications lodged by Meridian Energy Limited (the applicant) to construct, operate and maintain a hydroelectric power station (the proposal) on the Mokihinui River, approximately 40 km north of Westport.
2. This report provides a summary of the background to the application and our decision based on our findings on each of the matters put before us. In order to fully understand the reasons for our decision it is necessary to read the complete decision, copies of which are available from WCRC, or can be downloaded at www.wcrc.govt.nz.
3. Having carefully considered all the relevant reports and documentation supplied with the application, submissions, and the evidence presented to us during the course of the hearing, we, by a majority, have determined that the scheme is consistent with the sustainable management of natural and physical resources and should be allowed to proceed, as proposed, subject to the imposition of conditions.
4. This is a majority decision with two of us finding in favour of granting the consents. The third commissioner considered that the effects of the proposal on the ecology of the Mokihinui catchment were not only adverse but could not be satisfactorily mitigated and, thus, the application should be declined.

Background

5. The proposal includes construction of an 85 m high dam, approximately 3 km upstream from the township of Seddonville, at the downstream entrance to the Mokihinui Gorge together with a powerhouse, a substation and associated facilities. It also includes a new 28 km transmission line that crosses the Ngakawau Gorge and the Stockton and Denniston Plateaux, and a substation located at Cedar Creek. A 337 ha lake would form behind the dam and would extend around 14 km upstream through the gorge.

6. The application stated that the installed generation capacity at the power station would be 65 to 85 Megawatts (MW) and would produce 310 to 360 Gigawatt hours (GWh) per annum of renewable electricity. At the hearing the installed capacity was increased from 80 to 100 MW.
7. The applications were lodged with WCRC on 19 December 2007 and with BDC on 21 December 2007. A total of 269 separate submitters lodged submissions, with 153 making submissions to both councils. 15 submitters submitted only to BDC and 101 submitted only to WCRC. Of the submissions received, 298 opposed the proposal, 109 were in support, 1 was neutral and 14 did not state the submitter's preference.
8. The commissioners appointed to hear the applications were: Mr John Lumsden (chair), Dr Greg Ryder and Mr Terry Archer. The hearing, which was held in Westport, commenced on 25 August 2008 and was adjourned on 23 October 2008. The hearing was reconvened on 15-16 April 2009.
9. All parties accepted that the proposal included some activities, principally the height of the dam, that are non-complying in terms of the Buller District Plan and that the application as a whole could, therefore, be treated as such. This meant that, before we could consider the application under s.104 and Part 2 of the RMA, we had to determine whether or not the application could pass the so called 'threshold test' in s.104D(1). In essence this required us to be satisfied that either the adverse effects of the proposal on the environment would be no more than minor (s.104D(1)(a)) or, the activities would not be contrary to the objectives and policies of the relevant plan (s.104D(1)(b)). We determined that the 'relevant plan' in this case was the Buller District Plan since it was against this plan that some activities were considered to be non-complying.
10. Legal submissions supporting the applicant's case were presented by Mr Stephen Christensen (Anderson Lloyd) assisted by Ms Philippa Jones (also Anderson Lloyd). Mr Dean van Mierlo (Department of Conservation) appeared as counsel for the Director General of Conservation.

Consents sought

11. The following summary of activities outlines the general nature of the consents sought in the application:

West Coast Regional Council Consents

- Land use consent to disturb the bed of the Mokihinui River and tributaries; to excavate, prepare and construct dam foundations; to erect, use, repair and maintain a roller compacted concrete dam, diversion channel, spillway and plunge pool, tailrace, penstock, haul roads and temporary bridges, 2 coffer dams; and associated infrastructure, including log handling facilities.
- Water permit to take and use water from the Mokihinui River via penstock pipelines for hydro-generation purposes.
- Water permit to take and use water from the Mokihinui River; to supply potable water and water for construction and ongoing operation of the dam and associated facilities.
- Discharge permit to discharge water used for hydro generation and contaminants to the Mokihinui River, via a tail race or via minimum flow bypass pipes.
- Discharge permit to discharge water from the lake into the Mokihinui River via a spillway; and water and ground water from the dam contraction joint drains and under-drains into the Mokihinui River.
- Discharge permit to discharge site drainage water and contaminants into the Mokihinui River; via a treatment system following completion of construction activities.
- Land use consent to disturb the bed of the Mokihinui River and tributaries; to establish, use, repair and maintain the lake, including creation of waterborne access.
- Water permit to dam the Mokihinui River; to create a lake.
- Water permit to take, use, dam and divert water from the Mokihinui River and groundwater; to construct and operate a roller compacted concrete dam (including under-drains), coffer dams, diversion channel and staging area and associated infrastructure.
- Water permit to take, use, and divert tributaries of the Mokihinui River; to provide for construction site drainage, road and track construction, use and maintenance.
- Land use consent to disturb the beds of ephemeral, named or unnamed tributaries of rivers listed in Schedule B (documented in Resource Consent Application and AEE, pages 38-39): to erect, use, repair and maintain culverts, fords and bridges to construct and maintain transmission poles, lines and substation access tracks; and to construct the substation.
- Water permit to divert an unnamed stream; to provide for construction and operation of the Cedar Creek Substation.
- Discharge permit to discharge treated sewage (blackwater and greywater) to land from facilities located at the staging area and substation.

- Land use consent to undertake earthworks and vegetation clearance to construct and maintain a roller compacted concrete dam (including foundations), diversion channel, penstocks, powerhouse, substation, tailrace, staging area (including aggregate extraction pit, stockpiling area, production plant, buildings, settling ponds, diesel generators, water tanks), rock quarries, haul roads, permanent access roads, parking areas, log handling facilities, tracks, substation and transformers, communication system; and associated infrastructure on land adjacent to the bed of the Mokihinui River.
- Land use consent to undertake earthworks and vegetation clearance to construct and maintain an access track on the true left bank of the Mokihinui River
- Land use consent to undertake earthworks and vegetation clearance to upgrade the existing Mokihinui-Seddonville road and bridges from the intersection with State Highway 67 to the construction site; and to construct, use and maintain 33kV power poles and lines.
- Land use consent to undertake earthworks and vegetation clearance to construct, use and maintain transmission poles, lines, substation and access tracks.
- Land use consent to undertake earthworks and vegetation clearance to construct boat launching ramp and jetty facility, adjacent to the lake.
- Land use consent to undertake earthworks and vegetation clearance to establish, repair and maintain the lake, including but not limited to slope stabilisation structures.
- Discharge permit to discharge stormwater; and coffer dam sealing material (silt or bentonite (clay) slurry) to water associated with all construction activities.
- Discharge permit to discharge stormwater and coffer dam sealing material (silt or bentonite (clay) slurry) to land (in circumstances which may result in the stormwater entering water) associated with all construction activities.
- Discharge permit to discharge plant process water, site drainage water and contaminants into the Mokihinui River via a treatment system.
- Discharge permit to discharge contaminants into air during construction and maintenance activities (includes dust and emissions from plant).
- Land use consent to disturb the bed of the lake; to erect, use, and maintain a boat launching ramp and jetty facilities, and a log boom.
- Land use consent to disturb the beds of ephemeral, named or unnamed tributaries of the Mokihinui River; to erect, use, repair and maintain culverts, fords and bridges to construct and maintain an access track on the true left bank of the Mokihinui River.
- Land use consent to disturb the beds of Waterfall Creek, Page Stream, Coal Creek, Burke and other ephemeral or unnamed tributaries of the Mokihinui River; to erect, use, repair

and maintain culverts, fords, and bridges to upgrade the existing Mokihinui-Seddonville Road from the intersection with State Highway 67 to the construction site.

Buller District Council Consents

- Land use consent to undertake earthworks and vegetation clearance to construct, use and maintain a roller compacted concrete dam, diversion channel, penstocks, powerhouse, substation, tailrace, staging area (including aggregate extraction pit, stockpiling area, production plant, buildings exceeding bulk and height, settling ponds, diesel generators, water tanks, store and use hazardous substances), rock quarries, haul roads, permanent access roads, parking areas, tracks, substation and transformers, communication system and associated infrastructure on land adjacent to the bed of the Mokihinui River. Noise and vibration emissions from construction, and lighting.
- Land use consent to undertake earthworks and vegetation clearance to establish, repair and maintain the lake and associated infrastructure including but not limited to slope stabilisation structures.
- Land use consent to undertake earthworks and vegetation clearance to construct, use and maintain an access track on the true left bank of the Mokihinui River and associated infrastructure. To erect information signs about the dam and heritage sites
- Land use consent to undertake earthworks and vegetation clearance to upgrade, use and maintain the existing Mokihinui-Seddonville Road and bridges from the intersection with State Highway 67 to the construction site, erect new bridge at Burkes Ck; and to construct, use and maintain 33kV power poles and lines and associated infrastructure.
- Land use consent to undertake earthworks and vegetation clearance to construct, use and maintain 110kV transmission poles, lines, substation, storage and use of hazardous substances, and lighting and access tracks.
- Land use consent to undertake earthworks and vegetation clearance to construct, use and maintain the boat launching ramp and jetty facility, and associated infrastructure adjacent to the lake.
- Land use consent to erect, use and maintain a log boom on the surface of the lake and associated infrastructure, including log handling facilities.
- Land use consent to use and store hazardous substances during the construction and the operation of the scheme.

Evidence and submissions

12. During the course of the hearing we heard a great deal of expert evidence concerning the effects of the proposal. 34 witnesses presented evidence on behalf of the applicant. We also heard substantive expert testimony from 16 witnesses on behalf of the Director General of Conservation (DoC), who opposed the application, and from another 4 witnesses on behalf of Royal NZ Forest and Bird Protection Society, which also opposed the application. In addition to this, a further 15 experts provided reports for the s.42A Planning Report. A total of 54 submitters appeared before us. The assistance of all parties throughout the hearing is gratefully acknowledged.
13. In Chapter 3 of our decision we have provided a brief summary of the evidence and submissions from those who appeared before us during the hearing. We do not propose to repeat that information here except to note that we referred to it in greater detail in our discussion of the principal issues and effects of the proposal in Chapter 5 of our decision.

S.42A Planning Report

14. This was a joint report prepared by consultants Ms Sylvia Allan and Mr Hamish Peacock on behalf of WCRC, and by Ms Jane Bayley on behalf of BDC. This report provided evaluations of the conclusions from a series of technical audits of the more critical aspects of the proposal. The report also provided information on notification of the application, submissions, AEE, statutory framework, possible conditions of consent, management plans and adaptive management planning proposed, and an assessment against the provisions of the RMA.
15. The analysis of the key statutory considerations set out in the s.42A report was consistent with our obligations under s.104(1) and was particularly helpful. The core matters under the statutory framework that were analysed in detail in the report included the weight given to the key environmental considerations and adverse effects on the environment.
16. The planning consultants, in their conclusions in the s.42A report, had difficulty in reaching an overall broad judgement as to whether or not the proposal meets the purpose of the RMA. Essentially, they considered there was inadequate information as to the effects of the proposal to be able to make a robust recommendation to us on whether to grant or decline the application.
17. At the conclusion of the original hearing on 23 October 2008, the staff planning consultants each provided an addendum to their initial s.42A report. Ms Allan, with Mr Peacock, provided

a separate report on behalf of WCRC and Ms Bayley reported on behalf of BDC. For the most part the staff addenda addressed additional matters that had been raised during the hearing. Generally, the original s.42A assessments remained unchanged except that Ms Bayley concluded that the proposal failed to comply with either of the threshold tests in s.104D(1)(a) and (b) as she considered the effects of the application are more than minor and the application is contrary to the objectives and policies of the Buller District Plan.

Principal issues and effects

18. In Chapter 5 of our decision we considered, in some detail, the submissions and evidence concerning each of the principal issues and the effects on the environment that were brought to our attention. Because of the effects-based nature of the Resource Management Act 1991 (RMA), we reviewed these effects on a range of relevant matters, largely as identified in the Fourth Schedule of the RMA. A brief summary of each issue and our findings follows.

Tangata whenua

19. In its original submission, Te Rūnanga o Ngāti Waewae, as *tangata whenua*, opposed the granting of consents on the grounds that there remained a number of cultural issues identified in a draft Cultural Impact Assessment (CIA) that were the subject of on-going discussions between Ngāti Waewae and the applicant. We heard evidence and submissions on a range of issues of concern to Maori. The genealogical (*whakapapa*) associations, *kaitiaki* obligations, potential loss of *mahinga kai* and the loss of *mauri* were among the cultural concerns presented to us.
20. Following adjournment of the hearing on 23 October 2008, we were advised by Mr Francois Tumahai, who is the chairman of Te Rūnanga o Ngāti Waewae, that as a result of on-going consultation with the applicant, Ngāti Waewae was now satisfied that any outstanding issues of concern could be resolved through a process of continuing collaboration. We, thus, concluded that the culture and traditions of Maori would not be adversely affected by the proposal by more than a minor extent.

Natural character, landscape and visual amenity

21. On these matters, we heard a substantial amount of evidence from several expert witnesses, as well as the views of many submitters. For us, these were key matters of concern. Each of the landscape experts generally agreed that the present landscape comprising the river and the gorge has very high natural character. While the Buller District Plan provides no protection,

since it has not determined that the gorge warrants recognition as an outstanding natural feature or landscape (ONFL), there was a great deal of discussion about this point. Views varied about whether or not the gorge qualified as an ONFL, although the experts generally agreed that such a determination would require a district-wide assessment and it could well achieve such a status in the future.

22. The extent to which the introduction of a narrow lake in the bottom of the gorge would compromise the present natural character, and would prevent it becoming an ONFL at some time in the future, became a mute point. We note that there are hydro lakes in areas that have outstanding status and this gave some weight to the applicant's argument that the presence of a lake in the gorge would not necessarily prevent it being accorded ONFL status at some time in the future.
23. As far as the requirements of s.6(b) of the RMA are concerned, we preferred to adopt a precautionary approach and examine the proposal in terms of whether or not it constitutes an appropriate activity at this location. This was a matter that we examined in our consideration of the objectives and policies in the Buller District Plan (in Chapter 7) since the matter of appropriateness doesn't rest solely on natural character. Here, we found that the proposal was not inappropriate, when all relevant matters were taken into account.
24. With respect to visual amenity in terms of s.7(c), although different to the visual amenity provided by the river, we agreed with those that considered a hydro lake would have high visual amenity once away from the environs of the dam and powerhouse. In this sense, the proposal was found to be not inconsistent with s.7(c).

Amenity values

25. In this section we considered how activities, mostly associated with the construction period, would adversely impact on the lives of residents in the village of Seddonville and others living nearby. These were mainly matters related to noise, dust and glare. Other amenity values related to recreation, visual aspects and traffic were dealt with elsewhere. Generally, having heard the evidence and submissions, we were satisfied that conditions can be imposed to ensure that amenity values, insofar as they are likely to be impacted by noise, dust and glare, would not be adversely affected to any significant extent.

Recreation

26. It is self-evident that the loss of a wild and scenic river and its replacement with a lake would have significant impacts on the types of recreational pursuits that are presently available.

Activities such as kayaking, rafting and, to some extent, fishing that are dependent on the existing riverine environment would be replaced by something quite different that would be more likely to appeal to people with rather different recreational interests. There were many submissions concerning these matters.

27. Among those who made submissions, we also heard from those who use the present track through the gorge to gain access to the upper catchment of the North and South Branches of the Mokihinui River. Sections of this track, some of which are in poor state, would be inundated by the hydro lake and these would be replaced by a new track. While track access would be improved, for some people this was perceived as a change from a wilderness experience to a less challenging environment that would lower the value of the experience.
28. In canvassing the effects of the proposal on recreation we found it convenient to break the Mokihinui River and its environs into three parts since each has rather different geographical attributes and also offers different types of recreational opportunities.
29. We were somewhat surprised to hear that only about 300 people visit the gorge and the upper catchment of the Mokihinui River each year. Some of these will be kayaking and rafting groups and the actual number of people who venture into the upper catchment beyond The Forks is probably small, and quite possibly no more than 4 or 5 a week. Given the large size of the catchment and the types of activities available, there seems to be some scope for an increase in visitor numbers before the wilderness experience, presently enjoyed by relatively few people, would be placed at risk. Furthermore the Department of Conservation's (DoC) preference to continue to manage the area as backcountry-remote and not provide any special facilities for visitors seems likely to ensure that the upper catchment would continue to appeal mostly only to those willing and able to take advantage of the wilderness setting that is offered.
30. We accept that the loss of the ability to extend the kayaking trip in the upper catchment down the river through the gorge would devalue the overall experience for some people. Off-setting this, of course, is the fact that the North Branch is effectively a Class 4 river for which relatively few kayakers are qualified and this, plus the fact that helicopter access is necessary in order to access the North Branch means that, again, the numbers affected are small.
31. The use of the gorge section of the Mokihinui River for fishing and hunting is low. Trout fishing in the highly-rated upper catchment would not be affected by the proposal. It is accepted, however, that the loss of white water kayaking and rafting opportunities would be significant and cannot be mitigated. Nevertheless, we are mindful of the fact that the white water opportunities offered by the river through the Mokihinui Gorge are not unique in the Buller District and there are at least 10 more rivers on the West Coast offering Class 3 and

Class 4 opportunities although not all are as highly rated. Despite its obvious attributes, the use of the Mokihinui River for these activities has not, historically, been high.

32. In the event of a lake, there seems little doubt that this would open up a different range of recreational activities that would be able to be enjoyed by considerably more people than are able to do so at present. Furthermore, we think upgrading the historic 'pack track' would transform it from one that is difficult in parts to one that would be within the walking capability of most fit and healthy people. We think the benefits of this outweigh the concerns of the few people who presently use the track and who prefer to limit its use by maintaining the challenge that negotiating it presently offers.
33. Downstream of the dam, the effects of the proposal with respect to recreation are mainly concerned with the changes in river flows (ramping) resulting from generation requirements. Given that the applicant proposes to operate the power station as run-of-river during the whitebait season, we accept that there would be no significant effects on whitebaiting. This section of the river is also used, mainly by local residents. We consider that appropriate signage can be installed to warn river users of the prospect of sudden changes in river flows and that people would become accustomed to this.
34. Overall, we considered the proposal would have a net positive effect on recreation.

Public access

35. Present land access to the Mokihinui River through the gorge and beyond is limited by the state of the existing track. The fact that the track is generally remote from the river also means that foot access to the river from the track is mostly very difficult. Activities in the upper catchment more often rely on helicopter access for those unwilling or unable to negotiate the walking track. As we have already observed, visitor numbers are very low.
36. In light of this, we consider that any adverse effects on public access would be less than minor and would be largely confined to the construction period. Overall, we consider that public access, insofar as a lake and an upgraded track would be provided, would be enhanced by the proposal.

Ecology

37. The potential effects of the proposal on the ecology of the Mokihinui River and its catchment presented us with the most difficulty. It was in relation to some of the issues concerning ecology that we, as commissioners, were unable to reach a common view. These were matters

about which we heard a great deal of expert evidence, not only on behalf of the applicant but also from DoC staff and their consultants.

38. Because of the complexity of the issues surrounding ecology, we elected to divide the subject into a number of sub-headings and we discuss each in turn below.

Terrestrial ecology within the Mokihinui catchment

39. There is no doubt that the reservoir creation, in particular, would destroy a significant area of mature intact indigenous forest habitat and, in doing so, would result in the death or displacement of all the plant and animal species that currently reside within it. Many of the species are uncommon and a number have various threat classifications. The community assemblage is diverse and largely unmodified although some aspects are probably subject to predation pressure. Construction work associated with the dam and the transmission corridor would result in the permanent loss of some terrestrial ecological values, but not on the scale created by inundation to form the reservoir, and there would be an increased risk of invasive weed species establishing in sensitive areas.
40. The applicant proposed to address the above effects via a set of conditions that provide for mitigation and/or compensation, principally by establishing predator control areas elsewhere in the Mokihinui catchment and instigating measures that seek to minimize effects of weed infestation. DoC does not accept that the predator control compensation proposal is sufficient in terms of size, appropriateness of location, and ability to exert an adequate degree of predator control.
41. By majority decision, we determined that the applicant's proposed mitigation and compensation, as packaged within its proposed consent conditions, was sufficient to allow the scheme to proceed, when other factors were taken into account.

Loss of river

42. The loss of riverine habitat through inundation will change the existing community that currently resides in this section of the river. These communities are adapted primarily to live in a fast flowing river environment, while a reservoir environment provides quite different habitat features, most notably a lack of current, but also deeper water and a bed environment that would quite quickly change from one dominated by hard substrates to one dominated by soft sediments. The key issue associated with river inundation is the effects on biodiversity and natural character, which we addressed separately.

Native fish passage

43. The effects of the proposed dam on upstream native fish passage was the subject of considerable debate between experts for the applicant and DoC. Many issues were highly scrutinised and the opinions of most witnesses were challenged. It was generally agreed that a large number of upstream migrating individuals, representing several species, would reach the dam location and all witnesses agreed that some form of fish transfer would be necessary to mitigate the effects of a dam on native fish abundance and distribution. We are satisfied that there is sufficient experience with existing elvers trap and transfer operations at New Zealand dams to expect that an elver trap and transfer system can be successfully operated at the proposed Mokihinui dam site. What we are less certain about is the proportion of elvers reaching the dam that might be enticed into a trap system and what is an appropriate proportion of migrants arriving at the dam to be transferred upstream.
44. We are not satisfied there exists the technology to attract and safely transfer large volumes of juvenile whitebait to waters upstream of a high dam and then to ensure there is safe downstream passage for the larval stage. The applicant suggested that further research on populations of this fish in the Mokihinui River is required, and this could be undertaken as part of the monitoring of freshwater fish suggested in a proposed Aquatic Management Plan. We found the monitoring and mitigation contained in the proposed Aquatic Management Plan had merit, but emphasized the uncertainty regarding the potential success of fish passage initiatives on the scale that might be necessary to avoid potential adverse effects. We concluded that the applicant must be able to demonstrate that whitebait transfers can be successfully undertaken on a sufficient scale prior to the dam being constructed.

Trout

45. A highly regarded trophy, backwater fishery is located in the headwaters of the Mokihinui catchment. The applicant's position was that uncertainty surrounding the effects of the proposal on trout could be addressed via an extensive monitoring programme and, if effects were identified via this programme, mitigation in the form of a fish transfer system would be required. We have some reservations regarding the potential effects of the proposal on the Mokihinui headwater trophy trout fishery, however, given the relative lack of opposing arguments, we accept that Fish & Game's interest would be met provided the relevant conditions offered by the applicant, and accepted by Fish & Game, were to be incorporated into any issued consent.

Effects Downstream of the Dam

46. While we note the significant disagreement amongst the experts as to the degree of effects on river biota in the lower Mokihinui River under the proposed flow regime, there was no evidence to indicate that this section of the river has any unique or special ecological attributes, although we note it does support a highly regarded whitebait fishery. The applicant stated the flow regime during the whitebait season would essentially mirror the natural flow regime of the river and this has been incorporated into conditions of consent.
47. Questions were raised over the effects of the proposed flow fluctuations that may occur on a daily basis outside of the whitebait season. We think it is likely there would be some adverse effects on benthic habitat and fish habitat in the river immediately downstream of the dam's tailrace discharge, however this effect would be mitigated as the generation flows attenuate with distance downstream. While the degree of this potential effect is difficult to quantify, as there is no existing dam to assess, we think this can be appropriately addressed through monitoring and adaptive management conditions.

Biodiversity

48. The debate surrounding appropriate methodologies for assessing the significance of Mokihinui conservation values (e.g., freshwater biodiversity and natural character), and the interpretation of the outputs from such assessments, have not been resolved through the hearing process, and the opinions of a number of well-qualified experts were quite divergent in many instances. However, when one steps back from the debate among various parties over methodology and interpretation, few experts doubted the high level of significance of the Mokihinui River and its catchment ecosystem.
49. It is apparent from the evidence, and from our own observations of the Mokihinui River catchment and adjacent catchments of the Buller District, that a key and perhaps defining feature of the Mokihinui environment is its intactness and lack of fragmentation on a large scale, coupled with a high level of biodiversity, both aquatic and terrestrial, at the gorge and catchment scales. These values are set within a diverse and relatively unmodified physical environment (with its own high natural character).
50. This issue resulted in us being divided in our view on the significance of this effect. By majority decision, it was concluded that the mitigation and compensation package offered by the applicant, and woven into its draft consent conditions and, subsequently, included in the conditions attached to our decision, were sufficient to allow the scheme to proceed.

Heritage values

51. The hydro lake would inundate parts of the Mokihinui Gorge that are known to include sites of heritage interest. These mainly relate to the historic 'pack track', and various relics around the early mining settlement of Seatonville. The pack track follows the true left bank of the river through the gorge and, although parts of it are now in poor state, it does provide foot access to the upper catchment beyond The Forks. It was also once part of the main route to Karamea.
52. At several points along the track there are historic relics left from early mining days and the track is also considered a heritage item in its own right. Approximately 60% of the track would be inundated by the proposed lake. Mining occurred along the Mokihinui River in the early part of the 19th century and the town of Seatonville was located beside the river, part way through the gorge. Although little apparent evidence of the town remains, several hut sites can be found.
53. It was not until investigations were undertaken for the hydro proposal that historic heritage has been discovered and archaeological sites have been registered with the NZ Historic Places Trust (NZHPT).
54. The hydro proposal includes provision for the relocation and interpretation of items of heritage value and would provide an important opportunity to locate, document and understand historic sites.
55. It was apparent to us that the Mokihinui Gorge has a significant, but largely unknown legacy of historic activity and that many of the relics from early European times would be inundated by the hydro lake. The potential flooding of 60% of the pack track and the loss of artefacts were of considerable concern to some submitters.
56. In evaluating heritage matters we noted that, prior to the applicant investigating heritage values in the area affected by the proposal, little interest had been shown in the history of the gorge and the record of early mining activity that it contained. Knowledge was poor and there were no sites recorded on the NZ Historic Places Trust database.
57. Significantly, the evidence presented to us indicated that the various archaeological sites are mostly in poor condition and they are not unique. There are many other examples in the Buller District and elsewhere.
58. While these factors do not necessarily justify destruction of heritage sites *per se*, we accept that the proposals to locate and document all sites, and then relocate relics to prepared areas close to the upgraded track above the inundation level and provide interpretative panels, would be a positive outcome.

Traffic and roading

59. Traffic generated during the construction phase of large projects has the potential to create adverse environmental effects. In this case, the issues caused by increases in traffic on a small, relatively isolated community situated on a road with little through traffic, are likely to be significant. The two key issues that arise are the physical ability of the roading network to cope with the volume and types of vehicles likely to be used, and the impact this has on the safety and convenience of other road users and the quality of life for nearby residents. Principal matters of concern include the nuisance, noise, dust, vibration, and danger to residents generated by heavy traffic on a relatively narrow roadway.
60. The construction period would last approximately 3 years and during that time there would be potential effects associated with traffic movements along the road through the township of Seddonville. Traffic would be generated by trucks bringing supplies to the staging area, and for transportation of the estimated peak work force of 310. To reduce adverse effects, the applicant is prepared to upgrade the road, including widening and sealing the road surface through Seddonville and improving the intersection with SH67. Improvements would focus on safety, noise and dust reduction, and road widening to allow free flowing two-way traffic.
61. A number of conditions have been proposed and we consider that these are sufficient to ensure that the traffic effects of the proposal would not be more than minor. We also note that, once the construction period is over, the community will be left with a significantly improved roadway and this, ultimately, would be a positive outcome.

Coastal erosion and hydrodynamics

62. The construction of a dam on the Mokihinui River will inevitably affect the supply of sediment to the coast adjacent to the river mouth as any reduction in that supply is likely to exacerbate erosion of the shoreline. Coastal erosion is an existing hazard in the vicinity of the mouth of the Mokihinui River and during the past several decades the shoreline has been eroding at an average rate of around 1 metre per year.
63. This erosion exposes the nearby Mokihinui settlement to some hazard risk and the area is partially protected by two bunds constructed along the shoreline. There is little confidence that these bunds would be effective in the long term and the erosion risk can be expected to increase as time goes by.
64. The operation of the power station would lead to changes in river flows downstream of the dam. These changes in the hydrodynamic behaviour of the river, together with the loss of

sediment from upstream, have the potential to affect habitat, recreation, the stability of the bed of the river and its banks, as well as the tidal hydraulics of the mouth of the river.

65. Erosion processes at the mouth of the Mokihinui River were described in some detail. We were told that the Mokihinui shoreline would retreat 45 to 75 metres over the next 100 years as a result of the loss of sediment from the river, which contributes to the 'soft groyne' provided by the river delta, and it should be assumed that this would be in addition to a continuation of the historical trends.
66. Key issues relate to the reduced delivery of sediment from upstream. Within 20 years following dam construction most of the sand patches along the riverbank, and sand and gravel from the riverbed, would be flushed away. Over 100 years, general degradation of the river's mean bed level would be approximately 0.3 m but would locally increase to 1 to 1.5 m including through the tidal reach.
67. Dr Hicks, who spoke about these matters on behalf of the applicant, did not expect the daily changes in river flow to greatly affect the degradation process. However, riverbed degradation may increase the risk of bank erosion, particularly at bends already experiencing erosion, and this may partly sustain the supply of sand and gravel to the coast. Similarly, the estuary is expected to deepen approximately 1 metre with the river delta retreating landward, which may make the shoreline and estuary more vulnerable to storm waves and surge.
68. The applicant (evidence of Mr Reinen-Hamill) has considered the erosion issues concerning the shoreline and explored a number of options including managed retreat, beach nourishment, groynes, seawalls and combinations of these. In consultation with the local Mokihinui community an engineering solution has been proposed that would combine a component of managed retreat together with an armoured flood protection bund that would address the quantified effects of the proposed dam.
69. After considering all matters put before us concerning the effects of the proposal on sediment processes in the river, and along the Mokihinui coastline including any exacerbation of coastal erosion, we were satisfied that conditions can be imposed so that any adverse effects can be avoided, remedied or mitigated. A significant factor in coming to this decision is the proposed Erosion Monitoring Management Plan, together with the willingness of the applicant to monitor changes and work with the community to develop appropriate mitigation measures.

Natural hazards and engineering risk

70. The proposed hydroelectric scheme is sited in an area with known natural hazards associated with earthquake activity and flooding. Seismic activity and landslides, whether the result of an earthquake or other factors relating to slope instability, have the potential to impact on the safety of a dam structure. The consequences of dam failure, or perhaps flooding from overtopping in the case of a landslide or an earthquake, can be catastrophic.
71. Seismic risk, we were told (evidence of Mr Gillon on behalf of the applicant), arises from three sources. The first two result from fault displacement either at the dam site, which may damage the dam structure, or within the reservoir, which may generate a wave that overtops the dam and/or damages the structure. The third is simply the ground shaking effects of earthquakes on the dam and reservoir. This has the potential to overstress and damage a dam. It may also cause slope rupture in the reservoir leading to the possibility that a sudden failure could generate waves that may overtop the dam, or a large volume slope failure that could block the valley causing a landslide dam. Subsequent failure of such a dam could, in turn, generate flows that overtop and possibly damage the hydro dam.
72. A dam such as is proposed is, thus, considered as having high potential impact and the design requirements are governed by the New Zealand Society on Large Dams (NZSOLD) Dam Safety Guidelines. We understand that these guidelines describe industry standards of acceptable practice for the design, construction, commissioning and operation of dams in New Zealand. These guidelines require that the maximum design earthquake (MDE) is either derived from earthquakes on nearby faults or, if probabilistically derived, is based on a 1 in 10,000 year return period event.
73. Site investigations at the dam site have been carefully planned to locate and characterize shears and faults that may be present in the dam foundation. Two minor faults have been identified but these are considered to be 'old' features that do not exhibit any of the characteristics associated with either currently active faults or faults with a long history of repeated movement. The lack of any active faults means that a fault displacement hazard is not anticipated and mitigation works are not proposed.
74. Predicted horizontal peak ground acceleration (pga) at the dam site for fault rupture scenarios specific to the nearby Inangahua, Lyell, White Creek and Glasgow Faults, and the more distant Alpine Fault, range from 0.16g (Alpine Fault) to 0.91g (Glasgow Fault if found to be active). Assessments of the seismic ground shaking hazard for the proposal confirmed that the dam design would need to take account of strong ground motions.

75. The stability of the slopes in the immediate vicinity of the dam have been assessed. No features were identified that could potentially damage the dam or its associated structures. The slopes on either side of the proposed dam site appear to have been stable for several hundred thousand years.
76. Shallow rockfalls and vegetation slides are present in several places on the potential reservoir-flanking slopes of the Mokihinui Gorge and its tributary valleys. These rockfalls form the basis of the reservoir shoreline hazard assessment. Two major mass movement features were investigated in the Mokihinui Gorge, upstream of the proposed reservoir. These are referred to as the Perrine and the Forks Slides. While probably pre-existing slides, they were thought to have been reactivated during the 1929 Murchison earthquake and created blockages that temporarily dammed the Mokihinui River. The Perrine Slide created a lake that extended well into the upper catchment beyond The Forks. The breaching of this dam resulted in the documented flooding of Seddonville, two and a half weeks after the earthquake.
77. Using a conservative analysis, wave heights of up to approximately 8 m at the dam site were estimated for the worst case, instantaneous triggering, rockslide event that was modelled. According to Mr Gillon, such a wave would spill through the spillway with the resulting flood downstream being less than the mean annual flood and of considerably shorter duration.
78. In light of the various hazard risks, the applicant proposes to construct the dam using roller compacted concrete, which essentially provides a mass concrete dam that is well-suited to the Mokihinui site and has a record of good performance in earthquakes and large floods. It is a concrete gravity structure that relies on its own mass to stay in place under the weight of water that it is holding back.
79. We were satisfied with the applicant's evidence concerning natural hazards and engineering risk. Furthermore, insofar as the final design of the dam structure would be in accordance with best international practice and conform to NZSOLD Dam Safety Guidelines, would be subjected to peer review, would require consent under the Building Act 2004, and would be subject to regular monitoring, we consider the potential risk of failure to be acceptably very small.

Climate change

80. The need to have particular regard to *the effects of climate change* was introduced (s.7(i)) into the RMA in the March 2004 energy and climate change amendments. This requires us to consider whether or not any potential changes in weather patterns or other possible effects of

climate change would affect the proposal, either in a positive or a negative sense. We discuss the prospect of the proposal having a beneficial effect on climate change later.

81. While we were left in no doubt from the various submissions and evidence that the future outlook for the planet was poor if nothing is done to slow anthropogenic climate change, details concerning the effects on a hydro dam on the Mokihinui River were uncertain. The prospect of increased rainfall on the West Coast seemed the most likely scenario. No negative impacts were brought to our attention.
82. Although we might speculate that increased rainfall would enable hydropower stations on the West Coast to generate more electricity, it is clear that there are too many uncertainties at this stage to draw any firm conclusions. We consider that these matters can be addressed at the design stage where appropriate allowances for the potential effects of climate change can be made, based on the state of knowledge at that time.

Renewable energy

83. The requirement for us to have particular regard to *the benefits to be derived from the use and development of renewable energy* was also introduced into the RMA (s.7(j)) in March 2004. While some submitters argued that hydroelectricity does not represent renewable energy because of the loss of part of a river, we were not persuaded to that view. The energy that would be produced from this proposal depends, quite simply, on a supply of water that is, to all intents and purposes, renewable.
84. The hydro scheme would be nominally rated at 80 MW but would be able to generate up to 100 MW at times. This can be expected to produce 360 to 410 GWh per annum of renewable energy, which is sufficient to meet the power needs of 45,000 to 51,000 average residential households.
85. We were told by the applicant (evidence of Mr Fraser) that increasing New Zealand's supply of renewable energy from projects such as this will assist with mitigating the problem of increasing emissions in the electricity sector, and also improve West Coast and South Island security of supply. New renewable power stations will reduce dry year demand, which is currently met by generation from existing thermal plant.
86. The proposal was supported by the Energy Efficiency and Conservation Authority (EECA). Ms Feary, who presented EECA's submission, said this is a renewable energy development that would make a very valuable contribution to New Zealand's renewable electricity target. In order to be able to meet future electricity demand without increasing electricity related

emissions, Ms Feary said it is imperative that renewable electricity generation capacity, such as this proposal, is developed along with energy efficiency and conservation measures. She also considered that the proposal is of national significance and is consistent with the two underlying principles of the New Zealand Energy Strategy.

87. We were left in little doubt about the importance of renewable electricity generation to New Zealand and the range of benefits the proposed scheme would provide, including contributing to a reduction in greenhouse gases. While, as a matter of principle, we did not disagree with Mr Heaps (evidence on behalf of DoC) who said that investment in energy efficiency should be considered ahead of new electricity generation projects where it is less expensive to do so, there was no evidence to suggest that this was a reasonable prospect in this case. In any event, as Mr Heaps agreed, energy efficiency initiatives are unlikely to be able to produce the equivalent of 100 MW of energy savings in the West Coast region.

The economy

88. It was apparent to us that a reliable and competitively-priced supply of electricity is a fundamental facet of the economic well-being of a community. It was also clear that electricity supply on the West Coast at present has significant shortcomings in both these respects.
89. The applicant's view (Mr Christensen, counsel) was that the proposal would allow people at local, regional and national levels to provide for their economic well-being through employment and business opportunities and security of supply, as well as the advantages that would come with increased electricity generation on the West Coast and the top of the South Island.
90. The construction phase of the scheme would generate significant economic activity in terms of employment/contracting opportunities and the provision of services and, once operational, there would be on-going economic benefits that derive from additional employment, incomes and associated expenditure. Furthermore, construction of infrastructure such as communications and roading improvements would be made and these would remain after the scheme is constructed as a benefit for the community.
91. A matter of some interest to a number of submitters was whether or not generating hydropower on the West Coast in the manner proposed would provide an economic benefit to the population in the form of lower retail electricity prices. We were told (evidence of Mr Truesdale) that electricity supply in the West Coast/Buller region is presently dependent on connections through the Canterbury and Nelson/Marlborough regions of the national grid. In each of these regions electricity demand significantly exceeds generation capacity and each is dependent on

electricity supply from large hydro-generating schemes in the lower South Island, or electricity from the North Island via the Cook Strait cables. In drier years, when inflow into the South Island lakes is low, substantial amounts of electricity have to be transferred south across Cook Strait. The proposed scheme would reduce that need.

92. The cost of electricity in places such as Westport and Greymouth incur a premium that includes the additional cost of transmission. Because of this, retail electricity prices on the West Coast are among the highest in the country. Mr Truesdale said the proposal can be expected to exert downward pressure on electricity prices relative to other regions and this should lead to lower retail price differentials. While this may be so, Mr Heaps (DoC) made the point that there is insufficient retail competition on the West Coast to ensure that the benefits of reduced transmission costs would necessarily be passed on to consumers.
93. However, there is clearly an existing demand in terms of cost and reliability for a substantial supply of locally-generated electricity. We were left in little doubt that the role of hydroelectricity in supplying renewable energy to meet both present and future demand has a positive economic benefit at both a national level as well as locally, and that the proposal is consistent with that view. It was also clear to us that the length of the present transmission network required to transport electricity to the West Coast leads to significant energy losses and is not an efficient use of resources.

Positive effects

94. Many positive effects of the proposal were identified by the applicant as well as some of the submitters. Quite a number of these were canvassed in our discussion of the effects of the proposal on recreation, renewable energy and the economy. The more important positive effects that were brought to our attention are summarized below.
 - a) Contribute between 360 GWh and 410 GWh of renewable energy towards meeting New Zealand's future energy demand and the government's renewable energy objectives.
 - b) Reduce the upper South Island's dependence on importing electricity from other parts of the grid, with potential reductions in spot price differentials relative to other regions.
 - c) Reduce grid losses and improve security of supply in the Buller/West Coast area and the wider upper South Island region.
 - d) Defer grid investments otherwise required to increase transmission capacity into the upper South Island.
 - e) Provide short-term flexibility to respond to electricity market conditions, which will become more valuable as the level of intermittent wind generation grows.

- f) Increase medium term (seasonal) diversity of energy supply, enhancing security of energy supply.
 - g) Contribute to meeting emissions targets, New Zealand's international obligations, and combatting climate change.
 - h) Provide a predator control programme in the South Branch of the Mokihinui River, in an area identified by the Department of Conservation in its draft CMS as a priority site for biodiversity management.
 - i) The reservoir will provide a refuge for trout from floods.
 - j) Provide for heritage asset development through the relocation and interpretation of currently almost inaccessible and poorly-known mining artefacts.
 - k) Provide enhanced pedestrian and mountain biking access along the Mokihinui River Track.
 - l) Make available a potentially popular flat water kayaking and canoeing opportunity on the proposed lake.
 - m) Provide lake angling opportunities with ready pedestrian and potential boat access (subject to obtaining the necessary approvals).
 - n) Provide upgrades to the existing road network that will be utilised by other parties both during construction and following completion of the construction phase of the scheme.
95. It is fair to say that not everyone agreed that all the benefits brought to our attention were necessarily positive. We are satisfied, however, that there are a considerable number of significant positive effects that would result from this proposal.

Statutory provisions

96. We note that helpful guidance as to the statutory criteria that we were required to apply, and the various parts of the particular plans and policy statements that are relevant to the application, were provided by the applicant, DoC, and in the s.42A Planning Report prepared for WCRC and BDC.
97. The statutory provisions relevant to this application under Part 6 of the RMA are:
- s.104D, which sets out the requirements for granting consent for non-complying activities;
 - s.104, which provides the relevant matters to be considered;

- s.105, which sets out the requirements for discharge permits; and
 - s.107, which places restrictions on the grant of certain discharge permits.
98. All parties agreed that the application included at least one activity (dam construction) that is non-complying under the Buller District Plan (BDP) and that the application as a whole should be treated as such. In reaching our decision this required us to first consider the so called ‘gateway test’ in s.104D(1) before we could move on to the other statutory matters. Essentially, this allows us to grant consent only if we are satisfied that either:
- a) the adverse effects of the proposal on the environment will be no more than minor (s.104D(1)(a)); or
 - b) the activities will not be contrary to the objectives and policies of the relevant plan, which we determined was the Buller District Plan (s.104D(1)(b)).
99. There was little disagreement among the parties that some of the potential adverse effects are more than minor and, thus, the proposal failed to meet the first arm of s.104D(1). We, thus, moved on to the second test in s.104D(1)(b), which required us to consider the proposal in some detail against the policies and objectives of the BDP. On this topic we heard a great deal of evidence from planning consultants on behalf of the applicant (Mr Kyle), DoC (Mr Delamore) and BDC (Ms Bayley).
100. We do not propose to cover our s.104D(1)(b) analysis in detail. We shall, however, refer to one policy in the BDP that caused us some difficulty. Policy 4.8.7.7, which states:

To protect areas of significant indigenous vegetation and significant habitats of indigenous fauna from inappropriate use, subdivision and development.

is analogous to s.6(c) of the RMA with the added rider, *from inappropriate use, subdivision and development*. It was accepted that significant indigenous vegetation would be lost, as would habitats for a variety of indigenous fauna, and it became opportune to examine whether or not we considered the proposal constitutes an appropriate use or development.

101. In examining the matter of appropriateness we weighed three factors:
- Does the proposal require a riverine environment?
 - Is the proposal needed and are there national values and benefits to be derived from it?
 - Are there environmental values of national importance that must be recognized and provided for?

While the answer to the first two points is yes, there are environmental values that would be affected by this proposal including: loss of indigenous vegetation and habitat, effects on native fish, effects on natural character, effects on recreation, and the loss of an intact largely

unmodified river system. Some of these, in terms of s.6(c) of the RMA, are matters of national importance that must be recognized and provided for.

102. Having considered these matters in some detail, two of us (Commissioners Archer and Lumsden) concluded that the proposal is not an inappropriate development and is, thus, not contrary to Policy 4.8.7.7. Commissioner Ryder did not share this view and considered that the proposed scheme is contrary to this policy.
103. Of the 14 objectives and 67 policies in the BDP, two of us concluded that the proposal is contrary to one objective (4.8.6.1) and three policies (4.8.7.2, 4.8.7.8, 4.9.4.1) while Dr Ryder considered the proposal is also contrary to Policy 4.8.7.7. The contrary objective and policies relate to the loss of indigenous fauna, which cannot be mitigated let alone remedied or avoided; the loss of habitat, which can be potentially mitigated or, at least, compensated; the loss of the riparian margin, which would be replaced by a lacustrine margin; and the change in the character of the gorge landscape. Each of these policies (except 4.8.7.7, which uses the word 'protect') includes the words 'encourage, or 'discourage' and are, thus, not absolute.
104. After closely examining the evidence in conjunction with the relevant objectives and policies in the BDP, and in light of our various findings throughout Chapter 5 of the decision, we did not consider the proposal is contrary to the BDP, as a whole. We considered that the second test in s.104D(1)(b) was passed and we were thus able to consider the proposal in terms of the broader requirements of Part 2 and s.104 of the RMA.
105. Throughout the balance of Chapter 7 we presented our analysis of the ways in which the various statutory provisions in Part 2 of the RMA, as well as in s.104, s.105 and s.107 were applied in reaching our decision. We found that the proposal is generally consistent with all provisions except for those that are relevant to matters concerning the loss of indigenous vegetation and habitat for indigenous fauna, and the effect on ecosystems.

Reasons

106. In terms of s.113(1)(a) of the RMA we are required to give reasons for our decision. Throughout Chapter 5 of our decision we went to some trouble to examine the evidence and canvass all the environmental effects that were brought to our attention. We have drawn our own conclusions as to how each of these issues impacts our decision. Our reasons are discussed in Chapter 8 and are mostly repeated below. The reasons for Dr Ryder's contrary decision are also provided.

107. In making our overall judgement we gave particular attention to the effects relating to ecology, recreation, and natural character and landscape, which we considered to be more than minor and which cannot or may not be avoided or otherwise satisfactorily mitigated or remedied.

These, not in any particular order, are:

- i) the loss through inundation of 280 ha of lowland indigenous forest;
- ii) the loss of habitat for threatened indigenous species including blue duck and *Powelliphanta* (snails);
- iii) the uncertainties attached to the passage of native fish and the effectiveness of the proposed trap and transfer system;
- iv) the fragmentation of an otherwise intact ecosystem with significant biodiversity;
- v) the loss of white water recreational opportunities through the Mokihinui Gorge; and
- vi) the impact on natural character and landscape brought about by replacing a wild river with a lake.

These matters were all of considerable concern to us. There was no disagreement among us that these were the significant environmental effects of the proposal.

108. In Chapter 5 of our decision we found that all other environmental effects of the proposal were either less than minor or that conditions could be attached to our decision to ensure that this would be the case. It, thus, largely became a matter for us to weigh up the above impacts of the proposal against the significant national and regional benefits of generating renewable energy in the manner proposed at this site. In deciding the weighting to be given to some of these matters we were unable to reach a unanimous decision. As we have noted, Dr Ryder's contrary views, which are mainly concerned with the first four matters in the above list of environmental effects, are provided below.

109. Whereas Dr Ryder considered that the loss of indigenous forest and habitat, the lack of certainty concerning fish passage, and the effects on the biodiversity of an intact ecosystem were sufficiently adverse as to be fatal to the application, we (Messrs Archer and Lumsden) did not see these matters in quite the same light. Based on the evidence we heard, we considered the following factors were relevant to our decision:

- i) The loss of 280 ha of lowland indigenous forest through flooding of the gorge is an environmental cost that cannot be mitigated. While we were given to understand that this forest contains distinctive riparian vegetation and significant stands of rimu, and northern rata and matai, we were mindful of the fact that the gorge has not been singled out for special attention through inclusion in any ecological reserve or national park, despite the proximity of such areas. Furthermore, the land is zoned Rural in the Buller District Plan rather than being identified as part of a Natural Environments Character Area where it

would have been accorded higher conservation values. We were, thus, not persuaded that this forest is so special or unique in the Buller District that it must be preserved.

- ii) The concern about the loss of habitat for several native species, and particularly for blue duck and snails, is accepted. This, also, is a cost to the environment that cannot be mitigated. The applicant, however, has offered to compensate for this loss through the creation of up to 6000 ha of 'predator-controlled' land in the South Branch of the Mokihinui River. Our view is that the survival of these species, which are presently under threat of predation in their gorge habitat, is already at risk and that their future prospects are likely to improve significantly in a large properly set-up and managed predator-controlled zone.
- iii) The passage of native fish up and down the Mokihinui River is a necessary part of their life cycle and a dam would interrupt this passage. Without mitigation, we accept that the proposal would have adverse impacts, particularly on whitebait (predominantly koaro), and also on eels. Other fish that would potentially be affected include shortjaw kokopu, bullies and torrentfish but the impact on these species is uncertain. Although both koaro and elvers (juvenile eels) are known to be aggressive climbers, there was no evidence that suggested either species would be capable of making it up and over an 85 m high dam unassisted. Once a dam is built, the effects on these fish can only be mitigated, at a local level, by provision of an artificial transfer system able to move the fish upstream over the dam. The applicant has offered to prove the trap and transfer methodology prior to commencing in-river construction. We think this provides appropriate mitigation. To avoid depleting native species, passage downstream over the dam is also necessary. Key issues relate to the survivability of fish passing over the spillway or through the turbines, and the experts' views on the likely success of this varied. We think the transfer of eels can be managed. There is sufficient experience of trap and transfer systems in New Zealand to show this and if transfer downstream over the spillway is unsuccessful, there is the prospect of developing a downstream trap and transfer system or by-pass. We accept that there remain uncertainties attached to the passage of whitebait and other native fish but we were not convinced that any problems that arise cannot be resolved sufficiently through proper management and adaptation to the extent that these uncertainties should be considered a 'show stopper'. It is also germane that the longfin eels in the Mokihinui River represent just 0.2% of the total population, and that the whitebait fishery in the river would not be significantly altered by fish passage failure as the 'run' is based on numbers entering the river rather than leaving it.
- iv) The matter of preserving ecosystem intactness was more of an issue for Dr Ryder. We took a rather different view in that it seemed to us that in interrupting the continuity

presently provided by the river (by constructing a dam), aside from other issues related to natural character, etc., we should be mainly concerned about the effects this would have on flora and fauna. We have accepted that the loss of indigenous vegetation is an adverse effect but are satisfied that the provision of a predator controlled area will adequately compensate for the disruption of habitat for native species.

110. With respect to the loss of white water recreation opportunities, we acknowledge that the impacts on river rafting and kayaking cannot be mitigated. Nevertheless we have not given this much weighting. This is a s.7(c) matter and, in having regard to it, we found there would be a net positive effect on recreation since the evidence presented to us showed that the proposal would provide a more diverse range of opportunities to a much wider group of people. We also noted that, despite the quality of the white water experience attributed to the river by submitters representing kayaking and rafting enthusiasts, relatively few people actually took advantage of these opportunities. A significant reason for this seemed to be that there is an abundance of choice on the West Coast for those seeking such experiences.
111. This discussion would be incomplete without some reference to the cultural aspects of this proposal. The Mokihinui River was an important transport route for early Maori and, although there remains little evidence of pre-European activity in the area, we accept that the *tangata whenua*, Te Rūnanga o Ngāti Waewae, have a close relationship with the gorge and its surrounding catchment. Nevertheless, it was of some significance to us that, despite Ngāti Waewae (Mr Barber) initially presenting a detailed submission opposing the proposal, the chairman, Mr Francois Tumahai, later wrote to advise us that, through on-going consultation with the applicant, Ngāti Waewae were now satisfied that any outstanding issues of concern could be resolved through a process of continuing collaboration.
112. If the Mokihinui River was to be considered in isolation it would not be difficult to form the view that to build a dam and flood the gorge would be a travesty. Indeed when we walked through several sections of the gorge we could not help but be overwhelmed by its natural beauty. We, of course, are required to make our decision in light of the evidence before us. In weighing the effects of the proposal on the natural character of the Mokihinui Gorge and, thus, the overall landscape, we took account of the fact that the natural features present in the gorge are not especially unique on the West Coast, nor in the Buller District in particular. Furthermore, we have accepted the applicant's view that, while the formation of a lake would inevitably alter the natural character of the gorge, it would still appear natural apart from a short section around the dam. Lakes, we note, are not uncommon natural features in the Buller District and, indeed, have existed in the past for a time on the Mokihinui River.

113. It is also of some significance that the natural character of the Mokihinui River has not received any protection in the Buller District Plan. The gorge has not been declared outstanding and is zoned Rural, which contemplates some development. The fact that there are examples of hydro lakes in areas that do have outstanding status lends some weight to the applicant's argument that the presence of a lake in the gorge would not necessarily prevent it being accorded such status at some time in the future.
114. In considering the weighting to be applied to the effects on natural character and landscape we have put to one side the question of 'appropriateness' since this is more relevant to the various statutory matters that we have discussed in detail in Chapter 7. It is fair to say we think that any change in natural character should, in principle, be avoided. This case is no exception. Whether or not we consider the proposal is an appropriate development, there is no escaping the fact that the prospect of flooding the Mokihinui Gorge is a cost that has to be weighed against the benefits to be derived. However, for the reasons outlined above, we have found that the present natural character of the gorge is not something that must be protected at all cost.
115. Having carefully considered these adverse effects and given each an appropriate weighting in light of mitigation and compensation offered, we have concluded that they do not outweigh the substantial benefits to be derived from the proposal. In these respects, we largely accept the benefits of the scheme described to us by the applicant and several submitters. There is no doubt in our minds that the provision of a substantial amount of hydroelectricity, in the manner proposed, has the potential to bring significant economic benefits to the West Coast region through greatly improved reliability and transmission efficiency.
116. The West Coast has abundant potential hydroelectric resources and with minor exceptions these remain untapped. The Mokihinui Gorge is among several where viable hydro potential has been identified. We accept that the applicant has considered other alternatives and has determined that the Mokihinui proposal is the best option when all factors, including impacting on land with identified high ecological values such as national parks and ecological reserves, Water Conservation Orders, scheme size, access to transmission, environmental and social issues, engineering feasibility, and regulatory issues are taken into account.
117. We have also considered the potential national benefits of the scheme and it is clear to us that providing up to 100 MW of electricity at this location will not only reduce the load on the national transmission network, and the need to transport power from the North Island via the Cook Strait cable but, particularly during dry years, it will reduce the need to burn fossil fuels in thermal power stations. Since hydroelectricity provides renewable energy, the proposal is clearly consistent with government policies and directives concerning the need to reduce

greenhouse gases and increase the proportion of electricity generated by renewable means. In light of current thinking on climate change, which demands that future energy needs be satisfied by using renewable means in a clean and sustainable way, we have given these matters considerable weight in making our overall decision.

Dissenting decision of Commissioner Ryder

118. Attempting to weigh up the benefits and losses of the proposal is not an easy task when one considers the diversity of factors to account for. For example we heard that longfin eels in the Mokihinui River represent 0.2% of the total population, and that the proposal would supply between 0.9-1% of New Zealand's current annual electricity demand. Environmental attributes such as physical and ecological intactness may seem like abstract concepts to some, and cannot be quantified in the sense that electricity demand can, but nonetheless need to be considered and, consequently, some manner of judgement is required.
119. I find difficulty with assessing the dam proposal in relation to the objectives and policies of the Buller District Plan, and in my view, the Mokihinui catchment and the applicant's proposal do not fit well with the plan's provisions. For example, the proposal is situated on land zoned 'Rural' under the plan, yet the land has few if any rural attributes that I typically associate with, in a New Zealand context. The proposal is situated in a relatively remote, largely undisturbed forested environment, but it is not of rural character.
120. There is insufficient ecological information relating to some aspects of the Mokihinui ecosystem that I consider has resulted in an unacceptable level of uncertainty relating to potential effects, given the scale of modification that would result in an environment that has such obvious high levels of naturalness and biological diversity.
121. These particular matters (plan interpretation and provision of ecological information) are not central to reaching my dissenting decision, but they have not helped me in assessing the level of effect on some aspects of the environment.
122. It is my view that the principle debate surrounding the granting of consents for this development is whether the predicted positive benefits of the proposal, which are primarily associated with economic benefits, are of sufficient force to outweigh the obvious adverse environmental effects once various mitigation and compensation packages are taken into account. I do not agree with the majority that they do.
123. It is apparent to me from the evidence presented at the hearing, and from my own observations of the Mokihinui River catchment and adjacent catchments of the Buller District, that the key and perhaps defining feature of this environment is its intactness and lack of fragmentation on a

large scale, coupled with a high level of biodiversity, both aquatic and terrestrial (characterised by a diverse native fish community, mature indigenous forest, blue ducks and other indigenous bird species that frequent bush habitat, native bats and native terrestrial invertebrates, most notably the *Powelliphanta* snails), at the gorge and catchment scales. These values are set within a diverse and relatively unmodified physical environment with its own high degree of natural character. In this respect, I have concluded that, with respect to the Mokihinui catchment, the whole is much greater than the sum of the parts, and I believe this to be the heart of DoC's case. Environments such as the Mokihinui catchment are finite resources confined to parts of New Zealand and I consider that the change that the proposed dam and its associated reservoir would impart to this unmodified environment cannot be adequately mitigated, nor can it be recreated to the same degree or scale now or in the foreseeable future.

124. Consequently I would have declined the granting of consents sought in relation to the damming of the Mokihinui River.

Conditions

125. In Part 2 of our decision, there are 205 conditions of consent and, for details, readers are directed to that document. However, we highlight below several conditions that were important and which were given considerable weight in coming to our decision.
126. A variable bond of initial quantum \$500,000 has been applied to the consent. This is to ensure proper stabilisation and/or remediation of earthworks and landforms, and rehabilitation of watercourses disturbed by construction activities, including the installation of erosion protection works where necessary. The bond may be adjusted according to whether or not the quantum is sufficient to cover the costs of rehabilitation of construction works.
127. An extensive Environmental Construction Management Plan has been proposed and this includes a subset of management plans covering:
- Public Health and Safety
 - Hazardous Substances (including spill response contingency plan)
 - Stormwater and Wastewater discharges
 - Sediment Control
 - Traffic generation
 - Transmission Line Construction
 - Solid Waste

- Dust emissions
 - Noise emissions
 - Contaminated Sites
 - Archaeological and Heritage Protocols and Plans
 - Site Rehabilitation post-construction
 - Risk
 - Vermin and Weed Control
128. A Community Liaison Group is to be established. The objectives of this group include maintaining an effective working relationships and mutual trust between the local community and the consent holder (including its contractors), especially during construction; and promoting the free flow of information in all directions between the local community, the consent holder, the contractors and the consent authority, in order to try to anticipate and resolve any potential issues before they arise.
129. An independent Expert Panel is to be established to oversee all matters required by the Aquatic Ecology Management Plan including transfer of native fish.
130. In addition to stringent monitoring conditions, pre, during and after construction, concerning native fish, the consent holder is required to investigate and demonstrate the effectiveness of the methods to assist upstream migration of juvenile galaxiids (e.g., larvae) and juvenile and adult eels that can be implemented post-construction of the scheme, prior to commencing any in-river construction.
131. Not less than three months prior to the commencement of construction the consent holder is required to prepare a Habitat Enhancement and Predator Control Programme. The purpose of this programme is to enhance the productivity of threatened and other species by reducing the mortality caused by predators, and to enhance habitat in the South Branch of the Mokihiui River catchment unaffected by the construction and operation of the scheme. A buffer zone (3,480 ha) has been included to provide a less intensive form of predator control to buffer the more intensive 773 ha of predator control. A further 1560 ha of predator control is provided for in the South Branch and 4 of its tributaries. Blue duck and *Powelliphanta* snails are to be moved from the inundation area to the predator controlled areas.
132. Strict cultural and archaeological protocols have been provided. Conditions require the relocation of heritage artefacts and the provision of interpretive material.

133. The consent holder is required pay a sum of \$500,000 into a fund administered by the Buller District Council, to be used for community purposes in the Mokihinui Catchment.
134. Strict conditions have been imposed to ensure dam safety.
135. An extensive programme of monitoring of the coast adjacent to the river mouth, and the river downstream of the dam, is proposed to offset adverse effects of the dam and operation of the power station. Coastal erosion protection measures are required in consultation with the Mokihinui community.