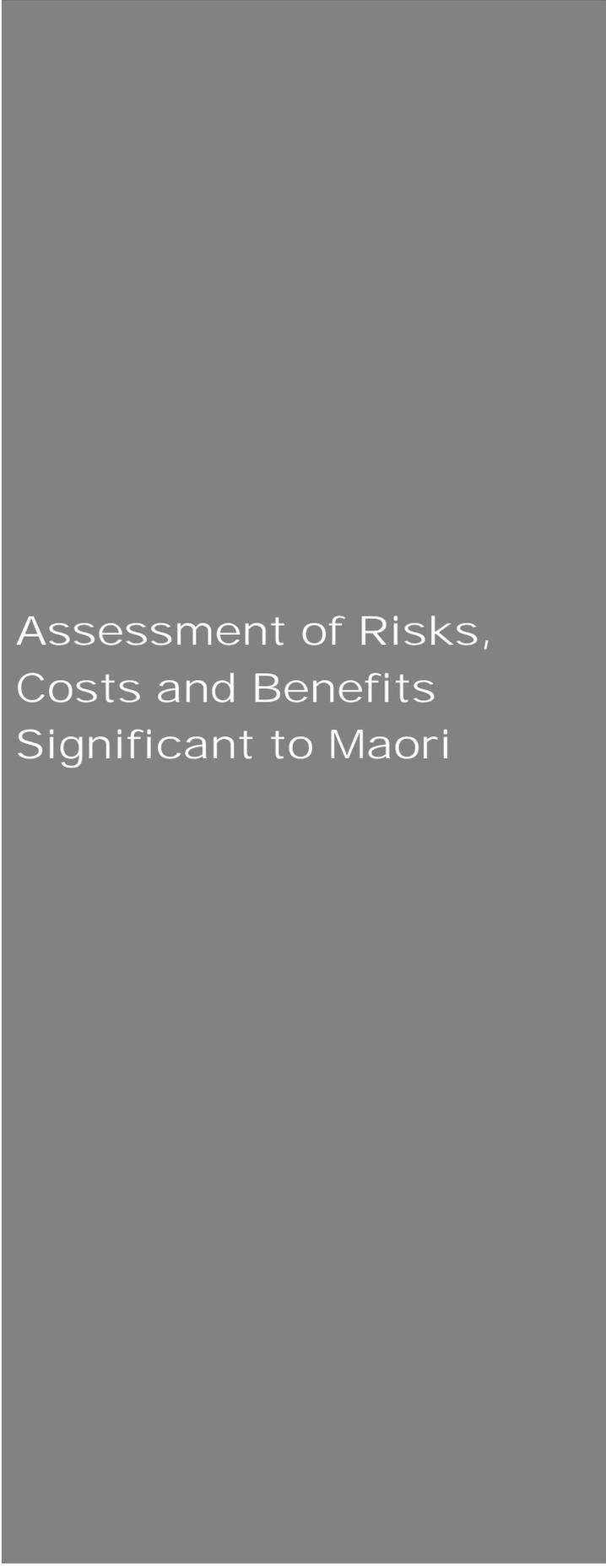


Section 4.3 Assessment of Risks,
Costs and Benefits
Significant to Maori



This section describes the risks, costs and benefits of the use of 1080 that are significant to Maori. Section 1 describes the consultation process conducted by the applicants, AHB and DOC, to canvas the views of Maori on the use of 1080. Analysis of the submissions received from Maori by AHB and DOC was contracted to an independent consultant, Tuputupuwhenua Research, who also prepared the assessment of risks, costs and benefits significant to Maori, that is presented here in Sections 2 through 6.

The consultation programme, and the assessment of submissions, has been conducted in accordance with ERMA's guidance document *Working with Maori under the HSNO Act 1996* (December 1999).

1. Consultation Process

As the use of 1080 is of national significance, and impacts on indigenous flora and fauna, the applicants (AHB and DOC) undertook a national consultation programme to canvas the views of Maori on the use of 1080. DOC's network of Kaupapa Atawhai Managers facilitated the programme. The approach to consultation varied across the country, from individual or local meetings to regional hui. Through the Kaupapa Atawhai Manager network, Maori were supplied with copies of the July 2004 Discussion Document "The use of 1080 for Pest Control" (see Appendix A of the Application) and invited to make submissions.

Regional hui were the most common forum that was chosen to solicit the views of Maori. A list of the locations where hui were held is contained in Table 1. In total, 20 hui were held.

Table 1 | **Locations of hui and meetings held during consultation process**

Kaeo (Northland)	Rotorua
Mangamuka (Northland)	Omaio
Whirinaki (Northland)	Ruatahuna
Maungatoroto (Northland)	Napier
Thames	Waitetoko
Te Kuiti	Ohakune
Ngaruawahia	Canvastown, Blenheim
Tauranga	Kaikoura
Te Teko	Te Runanga O Ngai Tahu, Christchurch
Murupara	Dunedin

All hui were attended by DOC and AHB personnel. A representative from DOC gave a presentation describing the HSNO and reassessment process, and outlined the information that ERMA sought on the effects of using 1080 on Maori, their culture, traditions and taonga, including issues of significance in relation to the Treaty of Waitangi. A copy of the presentation is included in Appendix E of this application. Provision was made available by the applicants for a note-taker to record the discussion, which could then form the basis of the submission to the applicants. All the information from the hui was provided to an independent consultant for analysis.

2. Methodology of Risk Cost Benefit Assessment

Tuputupuwhenua Research (Dr T.C. Lomax and H Crengle) were contracted to consider written materials received from Maori during a process of national consultation as required under the HSNO Act. Consultation with Maori on the risks, costs and benefits of using 1080 poison to control possums was carried out by the applicants for reassessment over the period July through to November 2004. For the most part, this process involved the distribution of a discussion document, and the holding of hui with a variety of iwi and hapu representatives at various places around the country.

Submissions materials from Maori were provided at the end of the consultation phase, either as formal written submissions by Maori organisations or individuals, or as comments recorded in minutes of consultation hui conducted for the purpose of obtaining information on Maori views about the reassessment of 1080.

Tuputupuwhenua Research has used qualitative research methods to group and correlate the themes and matters raised in these materials. This report presents the summation of Maori views raised in those submissions and consultation hui records that provide information on risks, costs and benefits of the reassessment of 1080, significant to Maori submitters.

In addition, Tuputupuwhenua Research were asked to comment on the adequacy of consultation materials used in the process of consulting Maori. Information is assessed as suitable to ensure that ERMA has information available of sufficient quality to satisfy its requirements to consult on risks, costs and benefits to Maori in the reassessment of 1080.

This summary of Maori views expressed in submissions draws on materials provided to Tuputupuwhenua Research by the applicants for reassessment, including the following written materials supplied to Tuputupuwhenua Research:

- Minutes of consultation hui carried out in the following DOC Conservancy areas:
 - Bay of Plenty (4 of 4 hui scheduled)
 - Tongariro (1 of 2 hui scheduled, Maniapoto)
 - Nelson/Marlborough (1 of 2 hui scheduled, Kaikoura)
 - Waikato (1 of 3 hui scheduled, Hopuhopu)
 - East Coast/Hawkes Bay (2 of 3 hui scheduled, Ruatahuna, Napier)
- 9 submissions from Maori organisations; and
- 10 submissions from individuals identifying themselves as New Zealand Maori.

The summary of the risks, costs and benefits to Maori from the reassessment of 1080 is based solely on written materials that were provided in the general context of national consultation carried out by the applicants. Tuputupuwhenua Research did not attend any of the scheduled hui in person.

3. Review of Consultation with Maori

3.1 Adequacy of Consultation Process

The HSNO Act requires national consultation to be carried out, by the applicants, in order to assess any particular risks, costs or benefits that arise from the relationship of Maori and their culture and traditions with their taonga. The purpose of this consultation is to enable ERMA to discharge its duty to make informed decisions on applications in relation to Maori interests. To be adequate for the intended statutory purpose, the national consultation process needs to yield information from Maori on which ERMA may rely.

This report does not evaluate the adequacy of the consultation process in terms of compliance with Treaty of Waitangi standards or principles of consultation. To do so would require independent confirmation of views from a range of parties to the process. Rather, we have considered if the coverage of issues, regional distribution of feedback from Maori, national breadth of responses, and quality of information provided in responses suggests that the process by which these responses were obtained was adequate.

It is our conclusion that the process used to obtain information from Maori on risks, costs and benefits arising from the reassessment of 1080 reflected strong existing relationships (particularly between local DOC Kaupapa Atawhai Managers and local Maori groups) and an awareness of locally appropriate communication process. There are indications of satisfaction with the quality of information provided and the role of DOC staff in providing additional explanations was commended by participants.

Comment was made concerning preferences for face to face communication and the dependence of the ERMA process on written material.

- Why doesn't ERMA have the hearing process on the Marae? Maori effectively communicate kanohi ki kanohi.
- Are written submissions and the process of hearings an effective way for Maori to communicate? No! They are only one part of the communication process.
- Written submissions are not necessarily an effective way of receiving Maori submissions.

Minutes of hui, Kaikoura

3.2 Regional Iwi Coverage

Of some concern is whether sufficient Maori had the opportunity to be given information and comment. Hui were held in several regional and iwi areas for which no records or minutes were able to be obtained. Records of hui provided omit regions where either population centers, regional natural character, or historical levels of Maori interest in 1080 matters seem to suggest that Maori could be expected to wish to have input into the reassessment process.

We have also not noted significant inputs from Maori owners of lands to which 1080 is applied, as land owners.

In at least one regional case where interest in 1080 could be expected to be high (Wanganui), an alternative consultation method (direct communication between KAM and iwi) was used. No details or records of these communications have been provided for this report and the opinions of local iwi are not represented. In another region where interest in 1080 has been historically high (Northland), records of hui were stated to have been the responsibility of the attending iwi to provide. None were available for this report.

A representative of the iwi authority for Nga Puhi provided copies of correspondence with the Department of Conservation that suggested unhappiness with consultation via Te Runanga o Nga Puhi and expressed opposition to 1080, which view is not represented in the formal submissions. Similarly, no records of any opinions of Maori were able to be obtained for the Auckland region, the largest urban Maori population centre. Indications are that iwi were invited to comment in writing, interest appears to have been superceded by other priorities, and no formal hui were held. Notwithstanding the traditions of mana whenua, recent Environment Court decisions have suggested that consultation processes on resource management matters should be inclusive of urban Maori, rather than exclusive.

Firstly I am particularly concerned to learn that the consultation process held in Napier was effectively by invitation to Maori Land Trusts only ... From my point of view the purpose of consultation was meant for all classes of public and not just hand picked Maori Trustee authorities.

Nigel Baker, Napier-Taupo Road

3.3 Role of the Applicants to Consult

We noted a small number of comments in hui records stating that some DOC personnel were not entirely comfortable with why they, as applicants, were carrying out the consultation process, rather than ERMA on its own behalf. Responsibilities for producing written records of consultation hui also appear to have been inconsistently understood.

We note that the statutory nature of the ERMA process dictates requirements for overall fairness of procedure, that consultation is a two-way process, and there is a purpose in placing ultimate responsibility for providing written submission (including records of hui) on Maori participating in the consultation process. On the other hand, when Maori are consulted in order for their information to be a relevant consideration in the assessment process, it is desirable that the consulting applicant is committed to capturing and providing these Maori views to ERMA. In certain regional areas, confusion appears to have arisen over these responsibilities that may have undermined the confidence of participants or resulted in less attention to recording views than is wholly desirable.

3.4 Conclusion on Process Issues

The effect of these process decisions on the quality of information obtained may not be very significant. Viewed as a whole, the content of the existing submissions plus the notes and minutes of the meetings express informed and responsive comment that closely matches the matters for consultation that might be predicted to be raised by Maori in such a case (as set out in the ERMA protocols on Incorporating Maori Perspectives and Working with Maori). These submissions are probably sufficient to point to the major Maori concerns regarding the use of 1080, and represent a reasonable range of opinion.

The Kaupapa Atawhai managed relationship approach probably ensured that iwi in most national areas had at least some opportunity to participate and provide their views in ways appropriate to tikanga Maori. However, omissions of information may have resulted from the absence of a written record of hui, from failure to consult iwi authorities, from alternative methodologies being used to obtain local Maori or iwi comment, or from decisions made not to hold formal hui due to perceived lack of regional 1080 priority (including Auckland).

3.5 Adequacy of Consultation Materials Used

The review of consultation materials considered whether they were likely to encourage the kinds of submission responses (i.e. information on risks, costs and benefits significant to Maori) that are required from the consultation process.

We consider the coverage of material in the discussion document "The use and control of 1080 for pest control" to have been adequate and informative in terms of presenting the major non-Maori ecological and scientific information. However, the density of the information and terseness of the reporting style may have rendered the discussion document difficult for many non-scientists to assimilate. This would include some Maori for whom this document formed the primary information source.

Many comments were made about informative discussions by DOC and AHB staff at hui, however, and it appears from hui comments that the face-to-face process was important for Maori understanding of the issues. The general comment regarding information disseminated at hui was that it was sufficient to understand the topic. The content of the discussion document covered well the various issues that Maori brought up in hui, although some reservations were expressed about lack of information available before hui were held. One respondent (hui, Thames DOC Office) noted that information received prior to the hui was minimal, such that iwi may not have had substantial time to read and assimilate the information prior to being asked to respond to it.

Most submissions expressed satisfaction at the amount of information delivered about 1080, and, on the whole, a reasonable balance was struck in presenting the benefits and costs of 1080. Some submitters mentioned the potential for conflict of interest, both in the presentation of information and in advocacy for the use of 1080.

Q: Did you feel that the applicants (AHB & DoC) presentation gave a balanced view of 1080 and its use?

Ans: Tending towards bias which is not negative just reflects their goals as an applicant.

Hauraki iwi representative. Response to questionnaire on process satisfaction filled in at hui in Thames DoC Office

In other cases, answers to questions at hui appear to have avoided dealing with significant issues.

Q. What is the effect on snails and birds?

Ans. Can't say that 1080 is totally benign. After all, it is a natural insecticide. However there is definite and proven benefit from using 1080 for pest control in New Zealand.

Minutes of hui, Kaikoura

We have one substantive criticism of the discussion document. We are aware that Maori have provided input about 1080 over many years, in iwi consultations and in numerous local case studies, comments, submissions, and participation in discussion forums. These partnership activities have clearly established the nature of values, views, concerns, and issues that Maori communities have regarding the application of 1080 to forests. Although adequate in its biological discussions, the discussion document fails to mention any of these concerns directly. Maori as Maori are not visible within the text, apart from re-recitation of matters that could be expected from consultation, drawn from the ERMA protocol.

4. Issues of Significance in relation to Treaty of Waitangi Outcomes

4.1 A Treaty Issue?

Few submissions directly mentioned the Treaty of Waitangi, instead giving opinion and views on the biological, ecological, cultural, spiritual and practical aspects that relate directly to the use of 1080 within the New Zealand environment. Satisfaction with process was also reasonably high in those whose views were recorded, and this issue is more normally associated directly to the Treaty. Other submissions mentioned protection of resources as a Treaty matter.

At least one submission tied opposition to 1080 to the Treaty guarantee.

The Treaty talks about protecting our environment and wildlife; not bombarding the country with poison. The poison is too dangerous for secondary or non-target species – what message are we sending to the world about our clean green image?

Strictly no aerial drops in water supply. Ground Base in bait stations only.

Anonymous

In contrast, one submission did not perceive the Treaty as relevant to the issue of 1080 application.

I don't think 1080 has anything to do with the Treaty.

Submission W88, internet submission

4.2 Partnership Relationships: Consultation Process

The adequacy of information provided for the purposes of consultation and the conduct of the consultation process are discussed in Section 3.

4.3 Partnership Relationships: Participation

Many submissions expressed the wish for there to be quality communication between the local Maori communities and those responsible for the programs and management of the use of 1080, with local communities involved in decisions about the nature and timing of control operations. Almost all submissions mentioned a wish to share the management of the use of 1080 in their rohe. In several cases, a local approach suitable to reflect local conditions was advocated. It was suggested that this participation should be supported by the development and implementation of participatory research and by the design and

carrying out of monitoring in consultation with local mana whenua with respect to the local forest area to which 1080 is to be applied.

[Treaty response should include]

A partnership and relationship with the affected hapu (tangata whenua of the ngahere) would need to be developed as each hapu have areas within the ngahere that are sacred and tapu to them.

These places would need to be identified by Tangata Whenua.

Ngati He kaitiaki o Te Taiao, Tauranga

If the risk is: By applying 1080 in a particular area it's going to have an impact on Waahi Tapu or whatever, then we ask that the manager asks his/herself "how do we mitigate this risk?" Obviously there is a need to go to talk to Tangata Whenua.

Minutes of hui, Apa Hapai Taketake

One submission mentioned several ways to formalise the partnership relationship between iwi and managers of 1080 application, including the development of protocols and coordination of management with existing iwi planning documents.

Iwi were concerned about:

MOU between iwi and DOC (to formalise relationship and identify expectations and to complement the iwi management plan)

MOU with iwi and AHB (to formalise relationship and identify expectations and to complement the iwi management plan)...

More input into the process, and establishing priorities

Building trust between parties

Relationships need to be at all levels and with all parties: councils, contractors, AHB, DOC, Ecan, and ERMA etc...

AHB, DOC, ECAN, ERMA, Ministry of Agriculture need to contribute financially to iwi management plans

Minutes of hui, Kaikoura

4.4 Active Protection: Environmental and Cultural Resource Interests

Most submissions regarded the health (wairua and mauri) of the flora and fauna of New Zealand, and the availability of food, medical and other resources to support the the well-being of Maori communities as significant issues. The potential for adverse effects on non-target native species, particularly birds and kai (food) sources, was frequently mentioned.

The potential deaths of non-target native species, (invertebrate, avian, reptilian and aquatic) are of great concern to us, though we are reassured that the deaths of non-target forest birds are generally at low levels and the recovery of native bird populations greatly compensates for any initial losses.

Kati Huirapa Runaka ki Puketeraki

Others questioned the amount and veracity of research claims with respect to taonga Maori resources and species. In addition, there are consistently expressed issues of significance about the potential for adverse effects such as contamination of wahi tapu, waterways, and other significant sites.

4.5 Active Protection: Sustainable Communities

We have noted that land owner inputs are less than might have been anticipated in a national consideration of 1080 for Maori. Maori also participate in the wider economy in contemporary economic and social activities, including hunting, deer stalking, and farming. Protection of these values tended to be reflected in stronger support for 1080 use.

I have been a hunter for many years and I dont like 1080 because it is a poison. But, when I've stood on the ridges of our lands as I have hunted, I am saddened by the sight of the dead canopies of our forests eaten and destroyed by the possum.

Minutes of hui, Te Umuroa Marae, Ruatahuna

I am the chairperson on our blocks, we run a business and cannot afford to lose stock through tb. We have used 1080 on both aerial drops and in bait stations to keep tb out of our stock and to safeguard our forests as a legacy for our children and grandchildren.

Minutes of hui, Napier

4.6 Active Protection: Inadequate Cost Benefit Analysis

Some submissions suggest that any cost/benefit analysis on the suitability of alternative control methods to 1080 should more fully consider social and intergenerational factors on local communities (e.g. long term effects and their associated whanau impacts). One questioned whether costs had been adequately considered.

Publications state how 'cheap' 1080 poison is compared to other alternatives. Are the natural resources, our native animals, and our whanau, hapu, iwi not worth paying decent money to protect in a safe manner. If its about 1080 being the 'cheap' alternative, then do we know if this poison will effect the well being or our tamariki and rangatahi in years to come, through it's long term use and exposure. Is it not cheap enough to ascertain this information.

Te Rohe Potae o Rereahu Maniapoto Trust

Others highlighted the intergenerational Kaitiakitanga responsibility to future generations.

If my moko's grow up and have to kill possums, that will mean that I have not done my job.

Minutes of hui, Mapou Marae

5. Issues Of Significance In Relation To Environmental, Cultural, and Health and Wellbeing Outcomes

For Maori, issues of significance in relation to environmental outcomes are interwoven and interrelated to cultural outcomes and human health and wellbeing. To separate these into component parts might generate an artificial view of issues of significance to Maori and possibly detract from a correct view of the holistic and interdependent nature of Maori values. To maintain the integrity of the holistic nature of issues of significance to Maori, environmental, cultural, and health and wellbeing issues are reported here in the interlinked context in which they were presented by Maori submitters.

5.1 Protection of taha wairua: spirituality, balance with nature, protection of mauri

The integrity of the forest as a holistic entity with spiritual health aspects as well as biophysical integrity is a significant issue expressed in most Maori submissions on the use of 1080. In view of this concept of spiritual well-being, submitters expressed concerns about the adverse effects of 1080 on wairua (spirit) and mauri (integrated wellbeing). Adverse spiritual effects arise from the use of a known poison in the ngahere, an action that violates the tenets of protecting natural character from pollution. With respect to this spiritual aspect, the use of 1080 is opposed *in principle*.

To drop poison willingly is like an act of degrading Tane Mahuta.

Submission, anonymous, Tuhoe

One of the most toxic chemicals on the planet. How dare anyone poison ko Papatuanuku the mother who is the source of life. Those who use this deadly chemical are criminals.

George Te Otinga Sullivan Whanau. Ngati Hineuru Concerned Group

Included in objections to the use of aerial drops of 1080 are concerns about adverse effects on wahi tapu, and on wairua and mauri should these sites be contaminated. It was suggested that a cultural impact report should be prepared on the protection and preservation of culturally significant sites for each intended 1080 drop, and that the effects of 1080 on these particular sites should be recorded. The issue of protection of wahi tapu is reiterated in a number of submissions.

A partnership and relationship with the affected hapu (tangata whenua of the ngahere would need to be developed as each hapu have areas within the ngahere that are sacred and tapu to them.

These places would need to be identified by Tangata Whenua. There are areas in the ngahere in which are used for sacred ceremonies, ie tangi, burial of the pito, birthing wastes etc. No bait should be placed in these areas

There are also places within the ngahere whereby tangata whenua gather their medicines and kai. No bait should be placed in these areas.

Ngati He kaitiaki o Te Taiao, Tauranga

For other submitters, adverse effects on mauri within the forest from the poisoning are or may be balanced or offset by enhanced mauri in the recovery of native ecosystems and species.

For us the mauri of the forest system is its functioning whole, and as long as ecosystem functioning recovers beyond pre-application levels then we accept management regimes that include limited use of 1080.

Kati Huirapa Runaka ki Puketeraki, Otago

Our forests were silent before the 1080 drop. The forests are alive with birds now. We will continue to use 1080 if and when necessary.

Minutes of hui, Napier

Joe stated that prior to 1080 being used in forests, its mauri is low (due to the damage caused by possums). However once the possum population decreases and the native birds, again, begin to thrive, the mauri will begin to increase. This lead to further discussions on the effect of 1080 on a forests mauri. Other opinions included that the mauri neither increased or decreased with the use of 1080, rather than the mauri was transferred from one situation to another.

Minutes of Waikato hui, Hopuhopu

George stated that every time 1080 had been applied aerially, it destroys part of the mauri of the forest. However he also acknowledged that since 1080 was applied aerially to the northern part of the Hakarimata Ranges there had been an improvement in the structure of the forest.

Minutes of Waikato Hui – Hopuhopu

That is, it is the practical outworking of the various choices for control of possum that may lead some Maori to reluctantly accept the use of 1080, but the use of an intrinsic and deadly poison to control a problem in the forest is a far less preferred option to other control options that do not risk the wairua and mauri of the forest, as a basic and first principle.

5.2 Continued and improved availability and quality of traditional and contemporary food and related customary resources (particularly water sources, mahinga kai areas and species, and rongoa)

Submitters expressed concern about adverse effects from the use of 1080 on cultural amenity values, including actual and potential effects on rongoa (traditional medicines) and customary kai (food resources). Submissions consistently sought to protect against adverse effects from the use of 1080 on the availability of traditional food resources.

Avoidance of particular areas highly regarded by local iwi or hapu for their contribution to mahinga kai, rongoa, and related customary relationship values was seen as important to protect customary resources. This issue of significance to Maori extends to access for food purposes of significant introduced species, and reflects the role that hunting of deer and pig plays in the economics of small Maori communities, particularly in rural areas.

1080 poison kills wild pigs and deer in our forests. These animals are natural resources for kai.

Te Rohe Potae o Rereahu Maniapoto Trust

Adverse effects limiting access to food and medical resources were particularly significant for communities supplementing or replacing family incomes from these resources. Submitters also questioned the potential for more adverse effects from aerial drops versus more controlled use of 1080. Submitters feared that contamination of these resources would result from poor compliance with operational placement conditions.

Must not put our traditional medicinal plants at risk. All waterways and plants to be monitored for contamination. Could bait caught up in trees attract and affect birds? Where possible more use of ground bait stations be used.

Okataina Scenic Reserve Board, Te Arawa Maori Trust Board

Maori use a considerable number of plants for "Rongoa". 1080 taken in by the plant will result in the contamination of the Rongoa and will also alter (contaminate the mauri of) the Rongoa and the plant.

Anonymous

5.3 Restoration and retention of natural habitats

The positive potential of 1080 to help restore and retain natural habitat is also an issue of significance for some Maori submitters. Strong support for the continued use of 1080 was expressed as a means to promote the restoration of degraded ecologies that support native species and cultural uses such as mahinga kai.

The perilous state of our remaining indigenous species necessitates that we implement management strategies that are able to reverse the tide of their tragic depletion.

Kati Huirapa Runaka ki Puketeraki, Otago

We have used 1080 on our native land since 1980 for control of possums. The possums are greatly reduced and had not had any adverse effect on native birds – there has been an increase of native birds so they must be able to feed on their natural food sources eg insects and nectar and flowers and berries.

Anonymous.

5.4 Protection of human health and well-being (food supplies)

There is widespread concern amongst Maori about adverse effects on the health and safety of people, domestic dogs, and livestock. Secondary kill and/or contamination of pigs, deer, and dogs from the use of 1080 is a significant issue for many submitters.

Through the distribution of 1080 poison we feel that these resources [natural resources used for kai] will be affected and will also have a detrimental effect on the holistic well being of our whanua, hapu, iwi.

Te Rohe Potae o Rereahu Maniapoto Trust

Included in these health concerns was a comment about possible effects of 1080 as an endocrine disruptor - we note that, according to available information, 1080 is not an endocrine disruptor.

5.5 Protection of the mauri of waterways and the need to retain and extend their productive and life-sustaining capacity

A substantial number of submissions focused on threats of adverse effects on water quality, particularly contamination of water courses via indiscriminate or inaccurate aerial drops. The highly valued nature of waterways to Maori cultural values was reiterated throughout submissions and adverse effects on these values was stated to be an issue of major significance.

All streams and rivers are considered sacred, to not keep it in its clean and pristine state is to break tapu, same with the native bush.

Anonymous, Tuhoe

We the Takahua Marae committee unanimously disagree with the Department of Conservation using 1080 poison in the Far North, especially around Ratea Forest where all our food and water sources come from.

Takahue Marae Committee, Kaitaia.

The regulation of conditions on operators (avoidance of water catchments and water courses, in particular) was mentioned as a concern. Avoidance of waterway contamination was regarded as a key operational issue.

I understand that the helicopter pilots were required to restrict the pellet drops to within approximately 50m of the major rivers and streams, and that this was plotted with GPS accuracy. My concern is that this only isolated about 5% of the catchment water courses and that lesser streams and water courses were regarded as being OK to spread 1080 over.

Submission W88, anonymous, Wanganui

Some submissions suggested that there needs to be more emphasis on the timing of monitoring actions, particularly in waterways, and better determination of the post-elapsed time for breakdown of 1080 in the soils and water.

There needs to be greater emphasis on monitoring of waterways and streams following 1080 operations.

Ngati Kurapoto, Ngati Hikatoa, Hastings

Another submission suggests that pollution of waterways may be intrinsic to the behavioural responses of animals exposed to the poisoning effects of 1080.

I have used 1080 and have seen animals suffering from the burning effects of 1080 which causes the animal to head for the streams and subsequently they die in the streams, risking pollution by contamination from both animal carcasses rotting and the 1080 residue present in the carcass.

Ngati Kurapoto, Ngati Hikatoa, Hastings

5.6 Efficacy of the use of 1080

A majority of Maori whose views were recorded and provided for this report accord with the continued use of 1080 to fight possum damage to forests, but there are indications that this support may be waning as the success of the method is called into question as repeated operations are required. Many submitters expressed frustration that repeated applications were being financed and arranged, while formal research into the effects of 1080 on icon taonga species was still yet to be undertaken at the level they desired.

How long have you been using it?

If that's the case, how come you keep coming back to us (Tangata Whenua) for the use of it? Are you failing in the programme? If you are, those are the concerns, evidence, issues we need to know... We need to know where you are failing. You give us (Tangata Whenua) the information, we (Tangata Whenua) will walk with you. If you don't, then we become suspicious, simple as that isn't it!

Minutes of hui, Apa Hapai Taketake

Where submissions support the use of 1080, this support generally arises from personal experience of the regeneration of forest and bird life after 1080 usage, and an admission of its efficacy for protecting the forest. In this case, submitters appear to weigh the negatives of the use of 1080 against the positives gained for the forest, and conclude that the positives outweigh the negatives. Personal experiences with damage caused by possum, its scale

and severity, and the number of interests threatened by the pest were significant reasons for submitters supporting the continued application of 1080.

5.7 Aerial Drops and Alternative Methods of Control

If there is a consistent objection from Maori to the use of 1080, it becomes most apparent when aerial drops are considered. The control of location of aerial drops and overspill are major issues of significance. For example, issues regarding secondary poisoning, including adverse effects on native and introduced species (e.g. pigs and dogs), and the ecology, particularly waterways, were frequently linked to concern about control of the spread of baits when aerial drops are used.

Submissions opposed to aerial methods suggested that there would be greater benefit to Maori and the environment if larger areas were treated at a single time when aerial drops are considered, followed by maintenance activities using local ground control by iwi to extend the control period for possum levels for as long as possible before another drop became necessary. It was suggested that over time such an approach would minimise the number of aerial drops of 1080, reduce the negative effect on the mauri of the forest, and in addition have a positive socio-economic benefit to local communities.

We support it only if it is used for specific targets in specific areas using specific means. We by no means support Aerial drops. This causes too wide-spread damage to animal and in some cases floral life.

Te Rawhitiroa Community Revival Society, Herekino

Submissions suggest that ground control methods, either in the form of bait stations or hunting, are preferable to aerial drops, because of the increased perception of safety to humans, waterways, rongoa, native species and imported species used as kai, and as these methods may support greater social benefits, local community employment, and more efficient use of the possum as resource.

We recognise the important role that 1080 is able to play in the implementation of pest management regimes and that it has application where other methods are not feasible. Our understanding is that 1080 aerial drops are used sparingly to selectively target areas difficult to access. We support aerial drops on the basis that their use is restricted, that GIS plotting is tightly controlled and the amount applied and boundaries to which it is applied minimises overspill and the level of application required. We expect that hand delivered baits, within approved bait stations will be used where total eradication is sought and where aerial application is not feasible for either social or environmental reasons.

Kati Huirapa Runaka ki Puketeraki, Otago

5.8 Socio-economic benefits of alternative methods

Many Maori submitters expressed the opinion that the cost/benefit analysis of the use of 1080 does not adequately take into account potential long-term adverse effects from 1080 application as a cost to be measured when deciding between 1080 and alternative control methods. It was also asserted that the impact on local communities arising from alternative control activities should be part of the assessment of the risks, costs and benefits of the use of 1080.

We could create employment in this region if there were a bounty on possums.

Takahue Marae Committee, Kaitaia

There are other ways that should be given more support to, such as ground control methods/trapping, shooting, hunting, educating landowners.

Ngati Kurapoto, Ngati Hikatoa, Hastings

Submissions suggested that evaluation of any particular application site for use of 1080 should take into account any potential economic benefits that arise from employment from trapping. There should be adequate consultation with communities regarding these alternatives before 1080 is used.

Livelihood. Earning a living money on the side. For others this is a career, around the country the issues about 1080 will have a huge impact. I wonder what effect socially as well as economically will have on these people, I sent my children away to university on possum skins. There are people currently trapping possum for a living – are these people given an opportunity to be funded?

Minutes, hui, Te Umuroa Marae, Ruatahuna

Here at Ruatahuna we depend on the ngahere to supplement our income. Deer and Pig to feed the hapu, iwi. Possum to feed the dogs. Pocket money for our children. If we could look at the possum as being a resource and not a pest we may find a more sustainable solution to this problem.

Submission, anonymous, Tuhoe

5.9 Perception of Risk and Precaution

Submitters asserted that a significant issue is a lack of certainty regarding reported kill levels and the actual safety of 1080. Because of the cultural, social, and economic value of natural resources, some Maori wish to avoid all adverse effects or potentially adverse effects on their taonga. They seek absolute assurances, and would like to apply strongly precautionary standards to protection of native species (eg zero kill rates).

Protection of waterways should be paramount – zero risk means no contaminants in or near streams etc.

Ngati Kurapoto, Ngati Hikatoa, Hastings

We want 100% assurance that mahinga kai is safe.

Kati Huirapa Runaka ki Puketeraki, Otago

This significant issue may arise in part from the language and communication style (particularly the absence of definite assurances) expressed in the discussion document.

Scientific reporting focuses on probability and there is a tendency to prevaricate on the certainty of an observed outcome.

Through all of the documentation read, there is no firm statement that 1080 poison will not effect (*sic*) in the long term use, our rivers, streams, native animals, our kai supplies and above all else ourselves. Publications utilise words like:

For hunted or controlled populations, potential rates of population recovery can be **expected** in 3-5 years;

Long term population effects on non-target birds and invertebrates are **unlikely**.

Water monitoring surveys conducted have confirmed that significant contamination of waterways following aerial application of 1080 bait is **unlikely**.

Current evidence suggest that populations of common birds species and invertebrates are **not adversely effected** (*sic*).

As you can see words like unlikely, expected and not adversely effected do not give the confirmation of 1080 poison being safe.

Te Rohe Potae o Rereahu Maniapoto Trust

Where Maori support the use of 1080, they note that there are still issues about reporting and the adequacy/completeness of information collected about the benefits of the use of 1080. A perceived absence of feedback from monitoring of positive results from applications of 1080 over the currently approved period was noted, and the lack of presentation of results in ways that can be easily understood was also mentioned as a significant issue.

Several submitters questioned the use of 1080 in practice, and the reported efficacy of 1080. The efficacy of the poison partly determines the acceptability of its use. Submitters were concerned that low reported kill levels do not reflect the real situation. It was also suggested that methods used by DOC (limited coverage, rather than whole forests) are not optimal and result in a need for regular periodic repeat applications (every five years or so). These repeated applications raise questions for some Maori about the effectiveness of 1080.

Some submissions openly questioned whether the assurances about efficacy and kill rates expressed by scientists might reflect scientific wishful thinking rather than actuality.

An absence of full reporting on the positive benefits of 1080 for forest recovery outcomes may have contributed to efficacy concerns. Submitters suggest that the operational agencies could increase Maori understanding of the benefits of the use of 1080 through attention to these aspects of partnership, monitoring, and communication. It was also suggested that the nature of reporting on outcomes from application of 1080 should be changed to provide understanding of ecosystem recovery, rather than reporting on simple reductions of possum numbers.

George Searancke stated that he'd never had either a progress or final report on the outcome of any 1080 aerial operations (in terms of regrowth of forest and increased numbers of birds). Ray commented that forest monitoring was ongoing and because there was no endpoint in actual monitoring it was difficult to provide a progress report.

Minutes of the hui, Maniopoto Trust Board/RMC's

We want to see the results of trapping and poisoning regimes presented in terms of ecosystem health rather than residual trap catch and better public dissemination of such information. ...

We are concerned that the public remains relatively uninformed as to the strategic use of 1080 in pest management regime. It is counter intuitive and repugnant to many that applying large amounts of toxins to the forest is indeed beneficial, campaigns of disinformation continue to feed the myth-making on 1080. It is therefore imperative that both DOC and AHB institute effective education campaigns that are proactive and not reactive and we therefore request that more money is directed towards the public being better informed.

Kati Huirapa Runaka ki Puketeraki, Otago

Others were satisfied with the safety of the method and comfortable with the proof provided.

1080 has proven to be very safe.

Anonymous

5.10 Adequacy of research into the impacts of the use of 1080 on specific taonga

The question of adequacy of research into impacts on specific taonga to Maori is a significant issue. Many submissions from Maori suggest that not enough research is being carried out on iconic species eg tuna (eels) and kiwi, on the uptake of 1080 into non-target organisms, on the relevance of local conditions to outcomes, and on the positive ecosystem benefits of 1080.

[Malibu] said that he has concerns about bioaccumulation within the tissue of tuna and noted that there had been no studies undertaken with regards to the effects on people from eating tuna that had accumulated 1080 within its tissue.

Minutes of Waikato Hui – Hopuhopu

We want research relative to the uptake of 1080 into plants, native animal and aquatic systems to continue, where there is concern that vulnerable species are being affected. It is important that plant species used for rongoa e.g harakeke, and mahinga kai e.g. tuna or waikoura are not able to accumulate levels of the toxin that affect human health.

Kati Huirapa Runaka ki Puketeraki, Otago

1080 poison seeps into rivers and streams. Where is the documented research that states that this will not effect our watercress, tuna and all other kai gathering supplies?

Te Rohe Potae o Rereahu Maniapoto Trust

Other submissions sought further research, based on local conditions. One submission questioned the importance of varying environmental conditions to rates of degradation in their local environment– e.g. changing soil types, changing temperatures.

There is mention in the DOC/AHB publication on 1080 that most soils contain micro-organisms that break down the toxin, which poses the question: are there areas where breakdown in the soil is slower and what are those areas? More information should be provided in this regard.

Kati Huirapa Runaka ki Puketeraki, Otago

Timing of monitoring is important to ensure that impacts of particular relevance to Maori are taken into account.

My major concern is that there appears very (little) research done on the secondary poisoning effects of 1080 on our native birds like the Kiwi...and they in turn are being poisoned. No one picks up on this as the monitoring period (especially in winter drops) has elapsed before the maggots are produced.

W88, internet submission

You're talking about the monitoring process and I don't see anything in there about the monitoring process for Tangata Whenua who actually rely on Te Urewera and the forest as their food source. If you're going to put 1080 everywhere how can they keep their families fed, especially in Murupara, as a lot of them go hunting to get their food.

Minutes of hui, Apa Hapai Taketake

Finally, it was suggested that research needed to be a collaborative activity involving iwi, and that, in certain instances, iwi might seek independent research be carried out.

Iwi need to consider, and be consulted on, what independent research projects they need and how this can be commissioned (Maatauranga Process), eg

Native trees

Bush

Animals

Leachates transferred back into the environment

Once a research project is agreed on and research is completed, iwi require a copy of the data and a presentation of the data in layperson's terms.

Minutes of hui, Kaikoura

6. Assessment Tables

The following tables present the risk assessment in the form described in ERMA's guidance document *Working with Maori under the HSNO Act 1996* (December 1999). Information offered in these tables is not intended to summarise the details set out above, and our conclusions on the relative significance of individual issues are subjective and should be read in light of the substantive discussion of each issue throughout the report.

Framework for assessing risks against key environmental outcomes

Key Environmental outcomes	Significant Adverse Effect?		Comment
	Yes	No	
Continued and improved availability, and quality of traditional food resources (mahinga kai)	✓		Some concern by Maori that the impact of 1080 (or uptake of 1080) on rongoa and traditional plant foods has not been adequately investigated.
Continued and improved availability, and quality of traditional Maori natural resources	✓		If one considered that introduced food species are a "traditional food resource" (e.g. such as deer for hunting), then there are significant effect due to secondary poisoning impacts, and closure of hunting areas for those who are depending on these resources for quality of life and socio-economic reasons.
Retention of New Zealand's diverse range of indigenous flora and fauna		✓	Generally seen as a significant benefit from the use of 1080
Protection of indigenous flora and fauna valued by Maori		✓	Generally seen as a significant benefit from the use of 1080
Purity of water (inland and coastal) and the need to retain and extend its productivity and life-sustaining capacity	✓		Contamination of waterways is an issue of significance for planning and, especially, operational monitoring
Purity of air and the need to retain and extend its productive and life-sustaining capacity		✓	
Purity of human health and well-being	✓		Concern at long-term effects, including intergenerational effects Some concern by Maori that the impact of 1080 (or uptake of 1080) on rongoa and traditional plant foods has not been adequately investigated.
Restoration and retention of natural habitats		✓	Generally agreed by Maori that removal of the possum is desirable for the restoration of natural habitats.

Framework for assessing risks against key cultural outcomes.

Key cultural outcomes	Significant Adverse Effect?		Comment
	Yes	No	
Recognition of Maori cultural, spiritual, ethical, or socio-economic values	✓		Many Maori were opposed in principle to the use of toxins in the natural habitat.
Protection of the mauri of peoples	✓		Impacted by poisons, and concerns at longterm effects
Preservation and maintenance of traditional Maori knowledge by Maori		✓	
Maintenance, expression and control by Maori of their traditional practices eg kaitiakitanga, tapu, rahui	✓		Maori would prefer greater involvement of local people in the control of possum, for planning, to avoid sensitive areas, for involvement in monitoring, and to participate in socioeconomic ways
Protection of the mauri, (spiritual integrity or life-force) of valued flora and fauna	✓		Different opinions on whether the use of 1080 results in an improvement of the mauri of the forest, but note also much opposition in principle to the use of toxins in the natural habitat because of the negative impact on the mauri of the forest.

Key cultural outcomes	Significant Adverse Effect?		Comment
	Yes	No	
Protection of the mauri of land	✓		Covered in relation to mauri of the forest (above)
Protection of the mauri of waterways (inland and offshore)	✓		Protection of the mauri of rivers and streams is an issue because of the impacts of 1080 baits that fall into minor streams, and because of the impact of carcasses from animals killed as secondary (unintentional) targets.
Protection of the mauri of air and other taonga		✓	

Framework for assessing risks against key health and well-being outcomes.

Key cultural outcomes	Significant Adverse Effect?		Comment
	Yes	No	
Protection of taha wairua: spirituality balance with nature, protection of mauri	✓		Maori are opposed in principle to the use of toxins in the natural habitat.
Protection of taha whanaunga: responsibility to the collective, the capacity to belong, to care, and to share	✓		Long-term sustainable communities is mentioned. The impact of the use of 1080 on deer and pigs is also of some concern to rural communities where such species impact on the socio-economic welfare of small communities and families.
Protection of taha hinengaro: mental health and wellbeing, the capacity to communicate, to think and to feel	✓		Maori want to be involved in decisions involving the use of 1080 in their local environs, and to have cultural risks understood and avoided.
Protection of taha tinana: physical growth and development		✓	

Framework for assessing risks against key Treaty of Waitangi outcomes.

Key cultural outcomes	Significant Adverse Effect?		Comment
	Yes	No	
Relevance of unresolved Treaty claims to the Waitangi Tribunal		✓	Maori want to be involved in decisions (tino rangitiratanga) involving the use of 1080 in their local environs.
Continued ability of Maori to exert their developmental right as implied by the Treaty where these are recognised by the Waitangi Tribunal	✓		Maori would prefer greater involvement of local people in the control of possum, because of the socio-economic benefits that would arise. Active protection should extend to contemporary and economic values, including hunting and protecting significant non-native species.

7. Conclusion: Summary Of Maori Views

Themes Expressed in Submissions

Reluctant Acceptance

Maori views expressed at hui and in submissions regarding the use of 1080 tend to reflect one of two opinions on whether 1080 should be used for possum eradication, whether for ecological or TB control benefits. Those alternative views are either:

- Support due to the benefit of reducing possum damage, but with reservations; or
- Opposition.

Many submitters recognised that possum are a problem that needs to be addressed, but stated that the use of 1080, and particularly the use of aerial drops, presents difficulties for the Maori relationship with taonga in the forest and in waterways. As a result, the ongoing use of 1080 continues to be difficult for many Maori submitters to accept, and there is an overall view that the method is less than ideal as a matter of holistic principle.

Support for 1080 for ecological reasons may be waning as repeated applications are required and its efficacy as a control method is called into question.

Preference for Alternative Methods

Preferences for greater consideration of alternative methods of control are strong, even amongst those submissions that accept there are positive benefits from using 1080 to control possum. These same submitters still express reservations about the use of 1080, and some express a desire for finding alternative methods for possum control.

Lack of Consideration of the Social and Economic Benefits of Alternatives

As the efficacy of 1080 to achieve long-term pest elimination comes under further scrutiny, preference for alternative methods could be expected to increase. In part, this is driven by socio-economic concerns, as well as concern about overspill and secondary poisoning. Maori see the emphasis is being applied to financial cost, rather than balancing this against ecological and long-term cultural outcomes and the benefits of sustainable employment in local communities.

Limited Effectiveness of Drops

Also of particular concern to Maori is the sequential use of aerial drops over small areas of forest to control rather than eliminate possum populations. Some submitters would feel more able to support fewer drops over larger forest areas, with the use of local workforces to maintain low numbers of possum between drops.

Poor Operational Control

Poor enforcement of operational controls (that is, ensuring the operators responsible for making given applications of 1080 comply with drop zones and exclusion controls) has undermined the confidence of some submitters in the management of 1080. Strengthened management participation by iwi is seen as a potential antidote to these concerns.

Lack of Research Focused on Specific Maori Values

Several submitters believe that the quality and quantity of research into the degradation of 1080 in waterways and the uptake of 1080 by iconic native taonga species, in food sources, and into rongoa, is insufficient. Fears of adverse effects persist where submitters cannot be reassured by targeted research with definitive outcomes for those resources of particular significance to them.

Customary relationships with these species and their ecologies are regarded, in some cases, as have been given lower priority in research planning than other non-Maori community demands. The need for more directed research and inclusion of Maori communities in case based research are important issues that submitters would like to have addressed.

