

7.0 Air

7.1 Introduction

There is very little data on air quality in the Marlborough Sounds area. The general perception is that the Sounds have few air pollution problems typified by the high visual clarity of the air. The low level of concern can be attributed to the sparse distribution of people and the climatic conditions of the Sounds. There are few sources of air contaminants and the relatively strong winds and high rainfall combine to either disperse or wash out most air contaminants.

Air quality concerns can be divided into three categories: global, local and nuisance.

Discharge of certain contaminants can have global impacts. The most important of these to New Zealand are the discharge of ozone depleting substances and greenhouse gases.

Both global warming and a depleted ozone layer have the potential to adversely affect the health and wellbeing of the people of the district. Ozone depletion can give rise to increased skin cancers in animals and humans and affect plant growth. Global warming may make existing ecosystems unsustainable and cause sea level rise.

Local contamination of the air occurs through discharge of dust, smoke, odour and agrichemicals.

The Act divides the control of discharges to air into two types. First discharges from industrial or trade premises are not allowed unless the discharge is expressly allowed by a rule in the Plan, resource consent, or regulations. Second, discharges from all other sources are allowed unless the discharge contravenes a rule in the Plan. The Act allows some existing discharges to continue.

The rules in the Plan are directed at allowing a range of activities to continue, while ensuring that any adverse effects on air quality are avoided, remedied or mitigated. However, discharges from vessels, motor vehicles and trains are not managed by the content of the Plan. Like global air quality issues, these discharges need to be addressed as national issues.

7.2 Issue

Managing air quality in the Plan area in the absence of ambient air quality information.

Ambient air quality refers to the overall quality of the air and is a measure of its variation from a pristine state. As such, it is a measure of the cumulative effects of human and natural activities on air quality. Knowledge of ambient air quality is essential for an effects-based air quality management program.

Without knowledge of the ambient air quality there is an inherent danger in setting standards which may in effect grant license to pollute. This would certainly be the case if air quality standards developed for major New Zealand cities were to be adopted for the Sounds area.

The Plan therefore sets minimum standards for industrial and commercial zones as a precautionary means of dealing with the immediate effects of discharge to air while maintaining a primary focus on monitoring of ambient air quality.

7.2.1 Objectives and Policies

Objective 1	The establishment of air quality indicators and the monitoring of the air resource, to indicate the cumulative effects of activities on ambient air quality.		
Policy 1.1	Adopt the following provisional indicator standards for ambient air quality:		
	Guideline	Averaging Time	Method of Measurement
Particulates (PM₁₀)	50mg/m ³	24 hours	AS 3580.9.6-1990
	40 mg/m ³	Annual	AS 3580.9.7-1990
Sulphur Dioxide	350 mg/m ³	1 hour	AS 3580.4.1-1990
	120 mg/m ³	24 hours	
Carbon Monoxide	30 mg/m ³	1 hour	AS 2695-1984
	10 mg/m ³	8 hours	
Ozone	150 mg/m ³	1 hour	AS 3580.6.1-1990
	100 mg/m ³	8 hours	
Nitrogen Dioxide	200 mg/m ³	1 hour	AS 3580.5.1-1993
	100 mg/m ³	24 hours	
Lead	0.5-1 mg/m ³	3 month	AS 2800-1985
Fluoride	<i>Special Land Use</i>		
	1.8 mg/m ³	12 hours	AS 3580.13.1-1993
	1.5 mg/m ³	24 hours	AS 3580.13.2-1991
	0.8 mg/m ³	7 day	
	0.4 mg/m ³	30 day	
	0.25 mg/m ³	90 day	
	<i>General Land Use</i>		
	3.7 mg/m ³	12 hours	AS 3580.13.1-1993
	2.9 mg/m ³	24 hours	AS 3580.13.2-1991
	1.7 mg/m ³	7 day	
	0.84 mg/m ³	30 day	
	0.5 mg/m ³	90 day	
	<i>Conservation Areas</i>		
	0.1 mg/m ³	90 day	
	Hydrogen Sulphide	7 mg/m ³	30 minutes

Policy 1.2	Monitor and review ambient air quality indicators and standards during the life of the Plan.
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Ambient air quality is dependent on the distribution and scale of contaminant discharges, and regional climate. The above indicators are selected as appropriate for monitoring ambient air quality in the Plan area. Use of these provisional indicators is the implementation of a precautionary approach to management of discharges to air. Monitoring ambient air quality entails measurement of long-term trends rather than short-term events.

The Council will undertake air quality monitoring to enable development of an ambient air quality management strategy. Information on ambient air quality allows the Council to:

- *Identify and prioritise air quality issues;*
- *Justify control over discharges to air;*
- *Assess policies for management of air quality;*
- *Assess effectiveness of discharge control measures; and*
- *Monitor long-term trends in air quality.*

It is necessary to set appropriate air quality indicators and standards for assessment purposes. These will give an indication of the affect that discharges to air have on the receiving environment.

7.2.2 Methods of Implementation

Monitoring	<ul style="list-style-type: none"> • Establish objectives and monitoring criteria, based on a region-wide assessment of monitoring needs, that meet the requirements of local and national interests; • Develop an air quality monitoring strategy and establish a monitoring network; • Set regular review periods to assess the effectiveness of the monitoring program and define other monitoring requirements; and • Develop and maintain an emission inventory within the life time of the Plan.
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The only method of quantifying air quality is to monitor it. Monitoring air quality is both expensive and requires specialised skills and equipment. The most effective way of meeting monitoring needs is through a collaborative approach with other councils, both in establishing and running the monitoring program and sharing skills, equipment and available data.

7.3 Issue

Enabling the community to provide for its health and wellbeing.

Rules within the Plan manage air quality by allowing discharges from industrial or trade premises (subject to various conditions) and regulating all other discharges from premises. Many of the rules in the Plan are therefore directed at allowing a range of activities to continue, while ensuring that any adverse effects on air quality are avoided, remedied or mitigated.

7.3.1 Objectives and Policies

Objective 1	The adverse effects of discharging contaminants into air be avoided, remedied or mitigated, including adverse effects on local ambient air quality, community wellbeing, amenity values, resources or values of significance to tangata whenua, ecosystems, and water and soil.
Policy 1.1	Ensure that all persons discharging contaminants into air, avoid, remedy or mitigate any adverse effect arising from that discharge. This includes all effects likely to be noxious, dangerous, offensive, or objectionable to such an extent that there is an adverse effect on the environment.
Policy 1.2	Promote measures which avoid or reduce the discharge of contaminants to air at their source.
Policy 1.3	Ensure that any measures adopted to avoid, remedy or mitigate the effects of discharge of contaminants to air, take account of the alternative receiving environments.
Policy 1.4	Promote the use of industry guidelines as a means of reducing the effects of discharges from industrial premises.
Policy 1.5	Promote an appropriate roading hierarchy as a practical means to reduce the adverse effects of vehicle emissions.

Most discharges to air are waste disposal in that they contain unwanted by-products of processing. It is now standard practice to minimise waste at source. These policies apply this principle to the discharge of contaminants to air. Measures to control discharges can themselves have an impact on the environment. For example, scrubbers using water can contaminate water with heavy metals, and hence the need to mitigate the effects of mitigation measures.

7.3.2 Methods of Implementation

Rules	<p>Rules enable the discharge of contaminants to air from industrial trade premises and other potentially significant point sources by:</p> <ul style="list-style-type: none"> • Permitting with conditions, discharges which have no, or only minor, adverse effects on human health, amenity values, or natural and physical resources.
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	<ul style="list-style-type: none"> • Requiring a discharge permit for all discharges which if uncontrolled, may have adverse effects on human health, amenity values or natural and physical resources; and • Rules, standards and conditions have been developed for activities that: generate dust; produce odour; require the application of agrichemicals; and, produce smoke.
Education	Provide information to the community on the adverse effects of burning treated timber to the community.

Ensure that adequate educational material is available for users of agrichemicals on the prevention and minimisation of adverse effects on non-target plants and animals.

Rules are based on environmental effects of discharges of contaminants to air. Education will be used for these matters where environmental effects are minor or the adverse effects are temporary and occur infrequently. For effects on the environment arising from global trends, regulatory approaches applied within the Plan area are unlikely to bring about resolution of the issue, but should prevent further contribution to the related adverse effects.

7.4 Issue

The depletion of atmospheric ozone and increase in greenhouse gases caused by discharges to air.

Reduction of the global protective ozone layer allows more ultraviolet radiation to reach the earth's surface. This can have adverse effects on both human health and sensitive ecosystems. In humans this can mean skin cancers and eye damage. It will also affect plant growth, animal health and marine ecosystems. Substances which reduce the ozone layer include a group of chemicals used in aerosols, refrigeration and electronics.

The effects of reduced ozone will be highly significant in Marlborough due to the high annual sunshine.

Activities such as increased energy use and industrialization have increased atmospheric methane and nitrous oxide concentrations. Altering the concentrations of these greenhouse gases gives rise to the phenomenon known as global warming. The possible consequences of global warming include:

- Changes in climatic patterns, including greater frequency of extreme weather events;
- Rising sea levels due to thermal expansion of the oceans and melting ice caps;
- Damage to ecosystems and increased soil erosion as a result of climatic changes.

At present, the extent and magnitude of the effect of global warming is unknown. However, even small alterations in climate may affect social and economic wellbeing as well as the natural environment.

7.4.1 Objectives and Policies

Objective 1	Reduction of discharges into air of ozone depleting substances and greenhouse gases to a level which is consistent with central government initiatives and directives.
Policy 1.1	Support and promote, as appropriate, central government initiatives to reduce discharges of ozone depleting substances and greenhouse gases.
Policy 1.2	Provide input to central government on the effects of its policies on the Marlborough Sounds environment.

Depletion of the ozone layer is a global issue. Initiatives and policies need to be co-ordinated on a national level within the framework of international protocols or agreements the government has signed, such as the Montreal Protocol. The Ozone Layer Protection Act 1990 (and its amendments) is Government's main tool for implementation of protocol obligations. The role of the Council is primarily advocacy, promotion of public awareness and, implementing and monitoring national policies.

It is difficult to predict how changes to the climate will impact on Marlborough except to suggest the region may become hotter and drier. Therefore many agricultural and horticultural practices may no longer be sustainable without significant irrigation. Equally significant is the potential impact of rises in sea level on the Sounds area.

Central government has primary responsibility for co-ordinating the reduction of greenhouse gas emissions in New Zealand, and has set a target which will hold net carbon dioxide levels at 1990 levels by the year 2000.

7.4.2 Methods of Implementation

Liaison	Liaise with the appropriate central government agencies to ensure consistency with central government air quality management initiatives.
Education	Promote the recovery, re-use and recycling of ozone depleting substances and encourage the use of alternative technologies where appropriate. Promote more efficient use of fuels and the use of less polluting fuels (eg; electricity rather than open fires for domestic heating), including fuels used in motor vehicles. Promote industrial and waste management practices that reduce greenhouse gas emissions.
Advocacy	Provide local input to central government on the effects of its policies in Marlborough and the development of future government policy.
Monitoring	Monitor the changes in ambient air quality.

The objectives, policies and methods that have been adopted reflect the differing central and local government roles. Many of the methods help meet waste management, energy efficiency and transportation objectives.

The role of the Council is primarily one of advocacy, promotion of public awareness and implementation and monitoring of national policies on a local basis. Development of a regulatory approach would be difficult and prohibitively expensive. However, the Council will still need to monitor the effects of Government policies on the Marlborough environment. The Council has an obligation to the people of Marlborough to make any adverse effects of national policies known to Government.

7.5 Anticipated Environmental Results

Implementation of the policies and methods relating to air will result in:

- No measurable deterioration in ambient air quality throughout the Plan area;
- Local ambient air quality being enhanced in those areas where it is, or has been, degraded by specific discharges of contaminants to the air.

