

Title: Attributes

Purpose: To provide the committee with an understanding of attributes and how attributes are used in the whaitua process.

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Attributes

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1. What is an attribute?

An attribute describes a characteristic of a value. Attributes provide a way of assessing each value identified by the community, and comparing the state of the value to what the community wants to achieve. Attributes will provide a summary of how the values are or are not changing over time.

The term indicator is often used instead of attribute. They are essentially the same and can be used interchangeably. To be consistent we will use the term attribute throughout the process.

The National Policy Statement for Freshwater Management (NPS-FM) provides the following definition of an attribute. An attribute “is a measurable characteristic of freshwater, including physical, chemical and biological properties, which support particular values.”

The NPS-FM also contains a list of attributes that must be used to set freshwater objectives in relation to the compulsory values in the NPS-FM (Appendix 1).

2. Choosing attributes

There are many existing attributes to choose from to assess the chosen values. Attributes may be quantitative or qualitative. Quantitative attributes are numerical and easily amenable to statistical analysis. Qualitative attributes are more descriptive, but can provide a more realistic measure of outcomes that relate to social and cultural issues (Allen et al, 2012). Environmental attributes are often easier to define than social, cultural or even economic attributes (Fraser et al, 2014). The use of both narrative and quantitative measures together can paint a picture of what is happening to the value.

There are likely to be trade-offs when selecting attributes, for example, the most precise attribute may not be the most cost effective. The process of selecting attributes may be iterative and you will probably find that you will revisit the attributes you choose as you move through the process.

Attributes may or may not be a direct measure of the value. Many attributes in fact are not direct measures, but proxy measures which can be used to provide information on the performance of a system. An example of a frequently used proxy indicator in the fresh water space is E. coli, which is used to indicate a risk to human health from pathogenic organisms.

3. Creating new attributes

If an attribute doesn't exist to adequately assess a value, you may need to design a suitable attribute. There is a process for defining criteria that can be used to create an attribute and a scale or metric for measuring them.

4. Characteristics of good attributes

Useful attributes have a number of characteristics. (Allen et al, 2012)

They should:

- Be directly relevant to the issue or problem in question.
- Have a direct or proxy relationship to the value being assessed.
- Complement other attributes so that together they represent the system being assessed.
- Be able to be feasibly collected, analysed and reported on in a cost-effective and timely way.
- Be accepted and understood by a range of audiences.
- Have a direct use for decision making.

Example

Value: Māori use and mahinga kai: Assessing the suitability of water for Māori customary uses often include both physical and metaphysical characteristics. The attributes selected would need to reflect these characteristics. The selected attributes may provide for the interest of mana whenua only, or may link to other values through association of place, use and measures in common.

Attribute: An example of a narrative attribute to assess Māori use is *the ability of mana whenua to be able to conduct tōhi rites at/within xxxxxx*. Tōhi (ritual baptism in rivers) is an important practice underpinning Māori customary use of water. It is often associated with a particular site or reach of river linking the infant with their turangawaewae or home place.

The physical and metaphysical (wairua) elements of the waterbody to provide for tōhi rites are integrated and may require a range of assessments that are considered together. The physical qualities of the water could be assessed using common measurements of water quality and quantity for human contact. The metaphysical element could be assessed by mana whenua determinants of river health often referred to as huanga (positive elements) or tōhu (matters of significance) that relate to the place.

Attribute: An example of an attribute to assess mahinga kai is *the health of tuna (eels) at/within xxxx*.

The health of tuna could be assessed through quantitative and narrative means. The quantitative measure might be through recording size and weight relative to age. The narrative measure might be whether tuna are of a size and weight suitable for presentation at a hakari (traditional feast) on marae.

5. References

National Policy Statement for Freshwater Management 2014: Draft Implementation Guide

Will Allen, Andrew Fenimore, David Wood 2012. Effective Indicators for Freshwater Management: attributes, frameworks and development.

Fraser C, Fenimore A, Turner J, Allen W, 2014. The Wheel of Water Research Programme. Designing collaborative catchment decision-making processes using a WaterWheel-reflections of two case studies.

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Appendix 1: Excerpt of appendix 2: attribute tables from the NPS-FM 2014.



Appendix 2 of the
NPS-FM 2014.pdf