

# Identifying Freshwater Management Units

*Freshwater management units must be at the right scale to manage resource use!*

## Our NPS-FM position in a nutshell

Freshwater Management Units (FMUs) are a management tool, not a monitoring tool. They are the scale at which you manage resources for freshwater outcomes. This needs to involve tangata whenua and communities that have an interest, are engaged, or are involved in freshwater management such as community groups or locals in that area.

Determining FMUs requires assessment of multiple factors such as hydrological, geographical, and social context before making decisions on their scale. Fundamentally, it must be clearly identified what is being managed and what is the best scale at which to manage it. It is not about what is most convenient to monitor, or an assumption that fewer FMUs is better.

Sensitive or highly valued water bodies must not be grouped into large FMUs. These water bodies will require specific management measures and corresponding levels of monitoring to track progress toward protecting their values.

## The NPS-FM directive

An FMU is defined under the NPS-FM as all or any part of a water body or water bodies, and their related catchments, that councils determine is an appropriate unit for freshwater management and accounting purposes<sup>1</sup>. All waterbodies must be within at least one FMU<sup>2</sup>, and councils must identify representative monitoring sites within each FMU<sup>3</sup>. Many provisions of the NPS-FM also refer to 'part FMUs' (or sub-FMU<sup>4</sup>), which can be a specific site, reach or waterbody. The NPS-FM does not require identification of part FMUs but provides for them as an option.

FMUs or part FMUs are the scale at which the National Objectives Framework (NOF) is applied (Figure 1). They are the default spatial unit at which long-term visions are set<sup>5</sup>, values are identified<sup>6</sup>, attributes are identified<sup>7</sup>, action plans are prepared<sup>8</sup> and progress towards goals is monitored<sup>9</sup>, assessed<sup>10</sup> and reported. The NPS-FM requires councils to maintain freshwater accounting and monitoring systems at a level of detail that reflects the significance of the water quality and / or quantity issues applicable to each FMU or part of an FMU, and how these are to be managed.

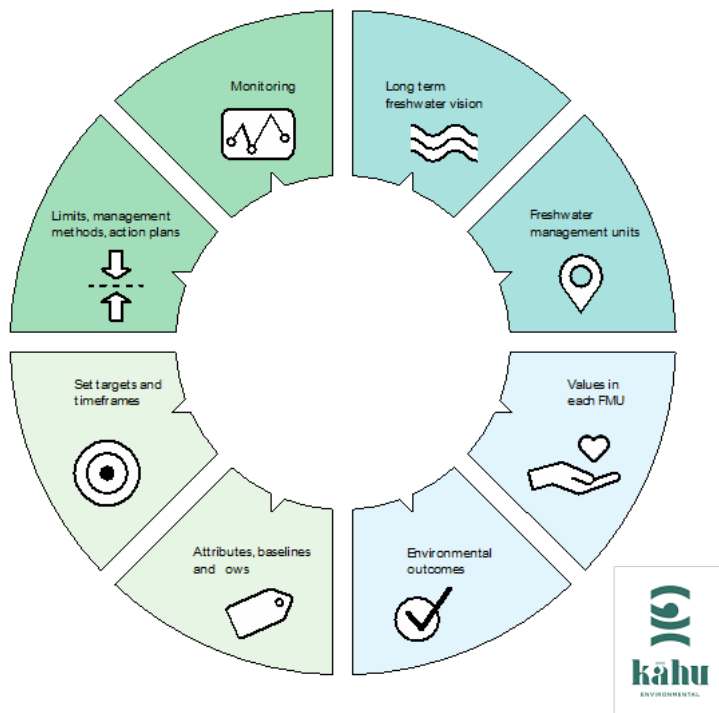


Figure 1 Process for implementing

the NPS-FM NOF

## What do we want to see?

The FMU is the fundamental spatial building block of freshwater management. Guidance on the National Objective Framework<sup>11</sup> advises there is no correct or preferred method for determining how the boundaries of FMUs will be defined in your region. We want to see FMUs set at a scale commensurate with the scale of resource use, resource pressure, or to allow particular values or pressures to be managed spatially. Best practice would see you working with your tangata whenua partners and the community to consider not only hydrological, geographical, social, political, and cultural characteristics of the region, but how these vary across the region.

This emphasises:

- that FMUs are about managing resources,
- that management needs to include communities, and
- that monitoring is undertaken to support this management function.

The FMUs you define should form a framework of spatial units that assist you to manage and monitor freshwater. You will need to undertake a multi-factorial analysis before making decisions on FMU boundaries. These factors are provided in Table 1 (Refer to Implementation Toolbox below) and will vary greatly across the region and in relation to different waterbodies. Don't just rely on your existing monitoring network to define FMUs. You may need to establish more monitoring sites to reflect and support the freshwater management function of your FMUs.

You may need to define different sized FMUs if there are multiple water-related values and a difference in the water quality and quantity characteristics between areas. Groundwater / aquifers might also be classified within separate FMUs or as part of connected surface water FMUs. The interconnectedness of surface water bodies, and surface water with groundwater (which is significant in some areas) has implications for management across connected FMUs. You will need to protect existing higher quality freshwater areas where there are links to lower quality areas. The policies and limits that you include in your regional plan for degraded areas must be designed to protect other (connected) FMUs.

Smaller units will provide a useful tool for managing significant values, pressures, connectivity between reaches of a river system, between rivers and receiving environments (such as lakes and estuaries), and between surface and ground water. For example, if the significant values of a water body or wetland are at risk of the being lost if they were to remain in a large FMU (e.g. based on a

large catchment with varying characteristics), and protection is urgently required, then these conditions would warrant a separate FMU (or part-FMU). The Ashburton Lakes / Ōtūwharekai is an example of where a separate FMU might be necessary to manage a localised pollution issue in a sensitive and degrading environment<sup>12</sup>.

Your aim should be to achieve a reasonable (and practical) alignment of FMUs with respect to several characteristics for the water body or bodies they contain, in particular:

- values;
- capacity for use; and
- management requirements resulting from their biophysical functioning.

We also expect the scale of FMUs to be set to allow freshwater objectives to be defined (through effective engagement) and to allow effective tracking of progress towards those objectives. Your FMUs need to allow an appropriate balance between administrative simplicity and custom solutions to be reached, which will allow you to develop and apply a set of justifiable plan provisions.

Sensitive waterbodies should constitute an individual FMU and not be included in wider catchments. We want to see catchments used as a basis for FMUs or part FMUs, not geographically disparate waterbodies being grouped based on, for instance, geology. This is because communities of interest and mana whenua are key to effective management of FMUs. Thus, FMUs should also reflect where a different management approach is required.

For each FMU, the relevant sources of contaminants discharged into the FMU, and all water takes must be quantified and accounted for. This may mean where there are only minor water contamination or water supply issues, and current and expected future demand for water use is minimal, a larger FMU is appropriate. Where significant reductions in contaminants are needed to meet the freshwater objective, and current and expected future demand for water use is likely to be significant, a smaller FMU is warranted.

## **How should the NPS-FM be implemented?**

### **Engage widely to understand cultural and social characteristics**

Tangata whenua and communities make up the social and cultural fabric of your FMUs so they should help decide how an FMU is defined and how freshwater water is managed.

You should actively involve tangata whenua and engage with communities when defining FMUs and developing the corresponding values, long-term visions and Target Attribute States (TAS). Similarly, freshwater objectives and limits should be identified through detailed analysis and open discussions with mana whenua, the community, and water users. This process will likely require you to review and refine FMU boundaries as it progresses and you learn more about the intricacies of each place and the people around it.

You will need to have a clear understanding and consideration of the cultural, social, and political boundaries when determining FMU boundaries because these are likely to influence how well water users, mana whenua, and the community identify and connect with freshwater management issues.

You should implement transparent processes that allow:

- mana whenua to determine what the characteristics of FMUs would look like for them, which may include shaping by whakapapa and relationships with overlapping hapū, by their own mātauranga, and / or by mahinga kai; and
- communities of interest to identify their values and aspirations for freshwater.

Therefore, when you define your FMU, this should take account of:

- hapū or iwi rohe boundaries, which reflect relationships between mana whenua and place;
- settlements under Te Tiriti o Waitangi and co-governance/self-governance agreements relating to water bodies (e.g. lakes and rivers);
- communities that are interested, engaged or involved in freshwater management;
- intensive pastoral, horticultural, and / or plantation forestry development; and
- urban development where there are issues affecting water quality (for example, stormwater management).

### **Understand hydrological and physical characteristics and connections**

FMUs should demonstrate an understanding and consideration of:

- key similarities and differences in the physical characteristics of water bodies.

- prominent geophysical features of the water bodies and characteristics of the catchment (e.g., being prone to erosion), and land uses within the catchment.
- pressures on resource use (e.g., over allocation of water quantity and quality).
- any need to establish smaller FMUs (upstream or downstream of other FMUs) to ensure effective management and monitoring of sensitive water bodies or wetlands with outstanding values.
- the appropriateness of grouping catchments or sub-catchments with common characteristic and/or common management objectives, once all factors relevant to the catchments have been considered.
- the connections between water bodies, surface water (including puna / springs), and groundwater, and freshwater and receiving environments (e.g., lakes, estuaries, coastal environment).
- characteristics and connections / separations between groundwater systems / aquifers, such as aquitards and aquicludes.
- any potential advantage in grouping freshwater systems that are not hydrologically connected.
- the biological/ecological connections.

You should not assume that water management units or zones that were set up for another purpose are appropriate as FMUs. For example, a water management zone established on a water quality basis would require review to determine appropriateness of scale for managing water quantity (among other factors). They may be a good starting point, but you need to review them thoroughly to make sure they're appropriate for achieving NPS-FM purposes and objectives.

## **How we know the NPS-FM is being achieved.**

You will establish a framework of FMUs that reflects tangata whenua and communities of interest values and aspirations, and how these vary across a region.

FMUs are developed at the appropriate scale to provide for management of resource use and resource pressure in each FMU, considering similarities and differences in water bodies, connections to other FMUs, and the need to ensure sensitive water bodies are not grouped into larger FMUs.

Where an FMU is connected to a more sensitive water body or FMU, more stringent targets are set in the FMU to protect and/or restore the more sensitive water bodies (e.g., outstanding water bodies or highly valued water bodies that are degraded).

Monitoring networks, including parameters and methodologies, are maintained, and expanded to support the management function of the FMU framework. Monitoring networks will provide the necessary data to determine whether measures being implemented are achieving the desired outcomes for an individual FMU, as well as the framework as a whole.

Robust and comprehensive accounting systems are designed and implemented to quantify and account for the relevant sources of contaminants discharged into an FMU and all water takes from it.