

Table 1: A summary of the process to incorporate the cultural interests of Maori in determining flow regimes (Tipa & Nelson, 2008).

Step	Objective of step and application in the case	Methods	Outputs
1. Initiate the project	To identify the body representing Maori and secure mandates.	Meetings with tribal leaders, elders, and tribal members.	1. Research agreement. 2. Mandates.
2. Document the association	<p>a. To identify the multiple dimensions that collectively represent cultural association with the study area.</p> <p>b. To identify the attributes used to assess whether environmental flows are sufficient to sustain cultural interests.</p> <p>c. To examine how their experiences are impacted by aquatic conditions, in particular river flow.</p> <p>d. To document perceptions of changes to flow patterns over time, and the impact of these changes on cultural values.</p>	<p>Focus groups.</p> <p>Semi structured interviews with key informants.</p>	<p>3. Report describing the cultural association.</p> <p>4. Maps of association.</p> <p>5. List of attributes used by Maori.</p>
3. Cultural Opportunity mapping	<p>a. To identify the cultural values associated with specific sites, together with the opportunities sought at each site given the values identified.</p> <p>b. To formulate a catchment wide concept map that visually depicts water management issues (including flow) perceived by Maori as impacting their experiences at the sites identified. Interrelationships between issues are also mapped.</p>	<p>Focus groups.</p> <p>Semi structured interviews.</p> <p>Focus group to validate the data.</p>	<p>6. Detailed (site specific) maps of values and opportunities sought.</p> <p>7. Draft concept maps of perceived issues.</p>
4. Focus the investigation	<p>a. To critically review the data collected and to focus on environmental flows and specific flow issues affecting the waterways being investigated.</p> <p>b. To distinguish between (1) cultural values, opportunities, and issues to be evaluated as part of existing EFAs; (2), cultural values, opportunities, issues (and consequently flow attributes) that are place specific but could be addressed within an existing EFA; (3) those cultural values, opportunities, issues and flow attributes that were unlikely to be adequately addressed via existing EFA methods and are more appropriately addressed through a cultural assessment.</p>	Focus group.	<p>8. Assessment framework comprising attributes identified by Maori.</p> <p>9. Refined concept map.</p>
5. Cultural Flow Preference field assessments	<p>a. To undertake assessments at sites to assess whether environmental flows sustain cultural values and provide the opportunities sought.</p> <p>b. To assess each site under different flow conditions using the attributes previously identified by Maori.</p> <p>Assessors assess:</p> <ul style="list-style-type: none"> • Significance – the significance of each attribute at that site. • Satisfaction – whether they were satisfied that the flow being observed sustains the attributes associated with the cultural values at that site. <p>A rating of 1-7 is given by Maori assessors for all flow attributes at each site (1 being totally satisfactory, 7 being totally unsatisfactory). For each <u>attribute</u> the individual ratings are averaged producing a single 1-7 score. Then the flow attributes within each <u>theme</u> are averaged - for example the nine attributes scores for the mahinga kai component are averaged. The output is a single score for each of the four themes. These averaged scores can then be directly compared with recorded flows for the time/date of assessment. By examining the data for all nineteen attribute scores, attributes that contributed to the level of satisfaction/dissatisfaction at the flows observed are identified.</p>	<p>Mandated representatives undertaking field assessments.</p> <p>Focus groups.</p>	<p>10. Assessment forms completed.</p> <p>11. Sketches of each site with key flow issues highlighted.</p> <p>12. Photographic profiles of each site.</p>
6. Analysis to inform decision making	Qualitative analysis and statistical analysis to identify flow thresholds, flow related issues, and management priorities.	<p>Focus groups.</p> <p>Statistical analyses.</p>	13. Report.