Appendix IV

Table 1: Recommended Changes to Schedule H - Explanation of Scope

Change	Type of Change	Related Submission	Reasons for Change	Related Evidence	Related Tables and Maps in the Schedule
Addition of a Seawater Management Zone and Estuary Water Management Sub-zones	Consequential change following Provisional Determination on Coast		To ensure matters relating specifically to the CMA are addressed within the Coastal chapter of the POP	Maree Clark S42A Kate McArthur S42A	Table H.3 Maps H:3a – H:9a
Estuary Water Management Sub-zones given zone codes consistent with the parent Water Management Zone (River catchment) with the added CMA suffix	Consequential change following Provisional Determination on Coast		To ensure consistency with Schedule Ba	Maree Clark S42A Kate McArthur S42A	Table H.3 Table H.3a
The term 'characteristics' added Table H1 to replace the term 'values'	Result of question from the Hearing Panel		To avoid confusion with the values in Table H.2a	End of Hearing Report	Table H.1
General review and revision of the values and water quality standards in Schedule H	Consequential change following Provisional Determination on Coast and result of submissions	PNCC 241/48 PNCC 241/112 Rangitikei DC 346/112 Federated Farmers 426/39 Charlie Pedersen and others 101/2, Winstone Pulp 288/44	Changes to values and water quality standards in estuary sub-zones were necessary as a consequence of the movement of CMA-related matters from Schedule D into Schedule H. The estuary sub-zones now cover a much smaller physical area and the scope of values and standards has been narrowed and revised to be more site specific to these areas. Revisions have been made to reflect existing water quality more appropriately using the best available science	Kate McArthur S42A Dr John Zeldis S42A Dr Rob Davies-Colley S42A Mr McBride (verbal evidence to Panel) End of hearing report	Part C: Water Management List of tables (page (H-31) Table H.2 Table H.3 Table H.4a Table H.5a Table H.6a Table H.7a
Sites of Significance - Cultural – ticks have been added to Table H.3	Result of submission and consequential change	TMI 238/16	Sites of Significance - Cultural should be added to Schedule D; some areas identified now lie within the CMA and have consequentially been shifted to Schedule H	End of Hearing Report	Table H.3

Change	Type of Change	Related Submission	Reasons for Change	Related Evidence	Related Tables and Maps in the Schedule
Details of the Sites of Significance - Cultural Value – the locality description, reason and iwi added as a new table in Schedule H	Result of submission			End of Hearing Report	Table H.3a
Legend of Table H.3 amended to reflect the correct wording of the values and to move the Marine LSC class into the appropriate place in the key of the table	Consequential change		Consistency with Schedule Ba and result of question from the Hearing Panel		
Native Fish Spawning Value changed to Inanga Spawning	Consequential change		Consistency with Schedule Ba	Kate McArthur S42A	Table H.3
Native Fishery Value changed to Whitebait Migration	Consequential change		Consistency with Schedule Ba	Kate McArthur S42A	Table H.3
Amenity, Inanga Spawning and Whitebait Migration added as Value to all of the Estuary Sub-zones	Consequential change		To ensure values relating specifically to the CMA are addressed within the Coastal chapter of the POP (see scope for general review and revision of values and standards above)	Kate McArthur S42A	Table H.3
Existing Infrastructure added to the Values in Table H.3	Error of omission		Omitted in error when transferring values from Schedule D to H	Kate McArthur S42A	Table H.3
CAP removed from the Estuary Water Management Sub-zones	Consequential change		Estuaries are defined as rare and threatened habitat through the provisions of Schedule E, therefore it is inconsistent to apply this value	Kate McArthur S42A	Table H.3
Footnote regarding volcanic or lahar activity removed from Schedule H	Correct an error		This was carried through from Schedule D in error and is not relevant to the CMA	Kate McArthur S42A	Table H.5a
pH range and change in pH removed from Schedule H	Result of submission	PNCC 241/48 PNCC 241/112 Rangitikei DC 346/112 Federated Farmers 426/39 Charlie Pedersen and others 101/2, Winstone Pulp 288/44	Revision of standards to ensure they are site specific; pH is unlikely to be negatively affected by activities in the CMA due to the buffering effect of salinity therefore the standard is unnecessary	Dr John Zeldis S42A Kate McArthur S42A	Table H.4a Table H.5a Table H.6a Table H.7a

Change	Type of Change	Related Submission	Reasons for Change	Related Evidence	Related Tables and Maps in the Schedule
Temperature change removed from Schedule H	Result of submission	PNCC 241/48 PNCC 241/112 Rangitikei DC 346/112 Federated Farmers 426/39 Charlie Pedersen and others 101/2, Winstone Pulp 288/44	Revision of standards to ensure they are site specific; temperature is unlikely to be negatively affected by activities in the CMA due to the thermal inertia of seawater therefore the standard is unnecessary	Dr John Zeldis S42A Kate McArthur S42A	Table H.4a Table H.5a Table H.6a Table H.7a
Change to dissolved oxygen standards in some estuary Water Management Sub-Zones	Result of submission	PNCC 241/48 PNCC 241/112 Rangitikei DC 346/112 Federated Farmers 426/39 Charlie Pedersen and others 101/2, Winstone Pulp 288/44	Revisions have been made to reflect existing water quality more appropriately using the best available science; to avoid the potential for hypoxia to occur in estuaries the minimum dissolved oxygen saturation should be 70% rather than 60% for all estuary sub-zones	Dr John Zeldis S42A Kate McArthur S42A	Table H.5a
BOD_5 removed from Schedule H	Result of submission	PNCC 241/48 PNCC 241/112 Rangitikei DC 346/112 Federated Farmers 426/39 Charlie Pedersen and others 101/2, Winstone Pulp 288/44	BOD standards are considered unnecessary because the dissolved oxygen is adequately protected by the DO saturation standard; sewage fungus growth is not relevant to the CMA	Dr John Zeldis S42A Kate McArthur S42A	Table H.4a Table H.5a Table H.7a
All units (with the exception of algal biomass) changed from mg/m^3 to g/m^3 throughout the Schedule	Consequential change		Consistency with Schedule D. In the Schedule some parameters were in mg/m^3 and some in g/m^3; g/m^3 was chosen as the preferred unit as it is consistent with laboratory reporting	Kate McArthur S42A Dr John Zeldis supplementary evidence	Table H.4a Table H.5a Table H.6a Table H.7a
All headers where DO shows a 'less than' sign changed to a 'greater than' sign	Correct an error		The DO standard should be greater than the percentage saturation in the table, not less than	Kate McArthur S42A Dr Bob Wilcock S42A	Table H.4a Table H.6a
All standards that had flow requirements in the POP Schedule H for three times median flow changed to apply at less than the 20^{th} flow exceedence percentile	Result of submission	HRC 182/115	Flow exceedence percentiles are better statistics to use as they also provide some guidance as to the proportion of time over which the standard is relevant	Kate McArthur S42A staff submission Dr Barry Biggs S42A	Table H.4a Table H.6a

Change	Type of Change	Related Submission	Reasons for Change	Related Evidence	Related Tables and Maps in the Schedule
Ammonia in the Schedule changed to refer to Ammoniacal Nitrogen	Result of submission	HRC 182/134	This is the correct term to use	Kate McArthur S42A Dr Bob Wilcock S42A	Table H.4a Table H.5a Table H.6a Table H.7a
Particulate Organic Matter (POM) removed from Schedule H	Result of submission	PNCC 241/48 PNCC 241/112 Rangitikei DC 346/112 Federated Farmers 426/39 Charlie Pedersen and others 101/2, Winstone Pulp 288/44	POM standards are considered inappropriate to the CMA environment as they relate specifically to rivers	Dr John Zeldis S42A Kate McArthur S42A	Table H.4a Table H.7a
All references to periphyton in Schedule H removed and replaced with algal biomass in mg/m^3	Result of submission	PNCC 241/48 PNCC 241/112 Rangitikei DC 346/112 Federated Farmers 426/39 Charlie Pedersen and others 101/2, Winstone Pulp 288/44	Better reflects the existing water quality as periphyton is not relevant to the CMA	Dr John Zeldis S42A Kate McArthur S42A and supplementary evidence	Table H.4a Table H.5a Table H.6a Table H.7a
Algal biomass in the Seawater Management Zone changed to 3 mg/m^3	Result of submission	PNCC 241/48 PNCC 241/112 Rangitikei DC 346/112 Federated Farmers 426/39 Charlie Pedersen and others 101/2, Winstone Pulp 288/44	Better reflects the existing water quality	Dr John Zeldis supplementary evidence Kate McArthur supplementary evidence	Table H.7a
Algal biomass in the Estuary Water Management Sub-zones changed to 4 mg/m^3	Result of submission	PNCC 241/48 PNCC 241/112 Rangitikei DC 346/112 Federated Farmers 426/39 Charlie Pedersen and others 101/2, Winstone Pulp 288/44	Better reflects the existing water quality	Dr John Zeldis supplementary evidence Kate McArthur supplementary evidence	Table H.5a

Change	Type of Change	Related Submission	Reasons for Change	Related Evidence	Related Tables and Maps in the Schedule
A standard for Estuary Water Management Sub-Zone macro-algal cover added	Result of submission	PNCC 241/48 PNCC 241/112 Rangitikei DC 346/112 Federated Farmers 426/39 Charlie Pedersen and others 101/2, Winstone Pulp 288/44	Better reflects the existing water quality	Dr John Zeldis supplementary evidence Kate McArthur supplementary evidence	Table H.4a Table H.5a
The QMCI standard removed from Schedule H	Correct an error (Provisional Determination)		This standard was not been removed from the Standards Key but was removed from the standards tables	Kate McArthur S42A	Table H.4a
Turbidity standards removed from Schedule H	Result of submission	PNCC 241/48 PNCC 241/112 Rangitikei DC 346/112 Federated Farmers 426/39 Charlie Pedersen and others 101/2, Winstone Pulp 288/44	Revision of standards to best science and to be more site specific; changes have been made to reflect existing water quality more appropriately. Water clarity is the parameter of interest therefore water clarity should be the standard applied	Kate McArthur S42A Dr Rob Davies-Colley S42A Dr John Zeldis S42A	Table H.4a Table H.5a Table H.6a Table H.7a
The toxicity symbol < changed to % throughout the Schedule and added to the header of the tables; the wording of the toxicity standard has been changed to match the Schedule D wording	Correct an error also result of submission and expert caucus	PNCC 241/48 PNCC 241/112 Rangitikei DC 346/112 Federated Farmers 426/39 Charlie Pedersen and others 101/2, Winstone Pulp 288/44	Revision of standards to best science and to be more site specific; changes have been made to reflect existing water quality more appropriately. To ensure it fits with ANZECC guideline toxicity reference	Keith Hamill EIC for PNCC Kate McArthur supplementary evidence Maree Clark S42A	Table H.4a Table H.5a Table H.6a Table H.7a
Removal of the cyanobacteria (blue green algae) toxin standard from the Schedule	Result of submission	PNCC 241/48 PNCC 241/112 Rangitikei DC 346/112 Federated Farmers 426/39 Charlie Pedersen and others 101/2, Winstone Pulp 288/44	Revision of standards to best science and to be more site specific; changes have been made to reflect existing water quality more appropriately. National guidelines recommend lower toxin safety levels to those proposed in the Plan and strongly advise management via percent cover of potentially toxic species; we cannot manage the production of toxins, only the organisms which produce them	Kate McArthur S42A	Table H.7a

Change	Type of Change	Related Submission	Reasons for Change	Related Evidence	Related Tables and Maps in the Schedule
Minimum visual clarity (horizontal black disc) standards ; added to the Seawater Management Zone and the Estuary Management Sub-zones	Result of expert agreement on clarity standards		Agreement, requested by Hearing Panel	End of Hearing Report	Table D2a
The word 'visual' added to all references to clarity as 'visual clarity' is the attribute of the water in question	Result of expert agreement on clarity standards		Agreement, requested by Hearing Panel	End of Hearing Report	Table H.4a Table H.5a Table H.6a Table H.7a
All references to a 200 mm black disc removed from Schedule H	Result of expert caucus	PNCC 241/48 PNCC 241/112	Revision of standards to best science	Keith Hamill EIC Kate McArthur supplementary evidence	Table H.4a Table H.6a
The word 'changed' replaced with 'reduced' in the visual clarity change explanation	Consequential change		Consistency with Schedule D	Kate McArthur S42A Dr Rob Davies-Colley S42A	Table H.4a
Reference to Secchi depth removed	Result of expert agreement on clarity standards		Agreement, requested by Hearing Panel	End of Hearing Report	Table H.6a
A Euphotic Depth Standard added to the Estuary Water Management Sub-zones	Result of submission	PNCC 241/48 PNCC 241/112 Rangitikei DC 346/112 Federated Farmers 426/39 Charlie Pedersen and others 101/2, Winstone Pulp 288/44	Revision of standards to best science and to be more site specific; changes have been made to reflect existing water quality more appropriately	Kate McArthur S42A Dr Rob Davies-Colley S42 A Dr John Zeldis S42A	Table H.4a Table H.5a
E. coli standard added for the Estuary Water Management Sub-zones	Result of expert agreement on faecal indicator standards		Agreement, requested by Hearing Panel	End of Hearing Report	Table H.4a Table H.5a
Enterococci and faecal coliform standards moved from the additional water quality standards for the Seawater Management Zone (text) into Table H6.a and Table H.7a	Result of submission	Jill Strugnell 366/2	Clarity and ease of use	Kate McArthur S42A	Table H.6a Table H.7a

Change	Type of Change	Related Submission	Reasons for Change	Related Evidence	Related Tables and Maps in the Schedule
The words 'standards spelt out' changed to full wording of the standard	Result of submission	Jill Strugnell 366/2	Clarity and ease of use	Consistency with Schedule D	Table H.4a Table H.6a
Footnotes have been added to the Soluble Inorganic Nitrogen (SIN) and Ammoniacal Nitrogen full wording of the standards	Consequential change		Consistency with Schedule D: clarity and ease of use	Consistency with Schedule D	Table H.4a