Australian Government
Department of Climate Change, Energy, the Environment and Water

Australian & New Zealand
GUIDELINES FOR FRESH & MARINE WATER QUALITY

Response to public submissions on draft default guideline values for manganese in marine water

May 2026

Draft default guideline values (DGVs) for manganese in marine water were published on the Water Quality Guidelines website for a 3-month public consultation period. During this period, comments for the draft DGVs for manganese in marine water were received via public submission.

Responses to comments and any associated edits to the draft DGV technical brief are outlined in this report, de-identified for public record. In accordance with the formal post public comment DGVs approval process, the responses and revisions have been approved by the jurisdictional technical and policy oversight groups, and noted by the National Water Reform Committee.

The default guideline values for manganese in freshwater are now published as final. For additional information on the publication process, please refer to the pathway for toxicant default guideline value publication.

The Water Quality Guidelines Improvement Program thanks all submissions for their valuable contribution to the development of default guideline values for the protection of aquatic ecosystems.

Attachment A

Response to public submissions on draft default guideline values

Toxicant: Manganese in marine water

Public comment	Response	Action taken
Submission 1		
The document is well written and the derivation process made very transparent. It was clear what the authors did and the decisions were explained and justified. Along with the appendices, a reader could see each step and re-create the guideline if they wish. Thank you for the opportunity to review. My only consideration would be to include text on data availability for total manganese. Were there any studies that measured only total manganese? If so, were there any additional species or sensitive endpoints not available in the dissolved dataset that should be considered? Are total concentrations expected to be very different than dissolved at the range of water chemistry considered? For reference, CCME's freshwater manganese guideline converted some total concentrations to dissolved using a conversion factor of 0.978.	Thank you for the comments. Some information on total versus dissolved manganese from Yeats & Brewers (1985), Apte et al. (2007), Summer et al. (2019) and Golding et al. (2023) has been added to Section 1 (1st sentence of 3rd paragraph and 4th sentence of 5th paragraph). This information demonstrates that the majority of manganese in marine waters would be in the dissolved (soluble and some colloidal) fraction rather than the particulate fraction. In terms of including data based on total manganese, the data that passed the quality assessment were all based on filtered Mn (<0.45 µm) apart from one nominal value for coral and ESA (2008), and the value from Levy et al. (2004) who only measured dissolved Mn at the highest treatment concentration to confirm the concentration, and then used nominal values for the rest of the treatment concentrations. Therefore, there was no need to consider data based on measured total manganese.	Section 1 and References section of technical brief updated.

Attachment A

References

Apte SC, Adams MS, Melville F, Anderson L and Hales LT (2007). *Manganese oxidation study.* Prepared for Gladstone Pacific Nickel Limited. CSIRO Land and Water Science Report 12/07. Centre for Environmental Contaminants Research, CSIRO Land and Water, Lucas Heights, NSW.

ESA (Ecotox Services Australia) (2008). *Toxicity assessment of manganese to a suite of marine species*, Sinclair Knight Merz Pty Ltd, Test Report 0366, Ecotox Services Australia.

Golding LA, Binet MT, Adams MS, Hochen J, Humphrey CA, Price GAV, Reichelt-Brushett AJ, Salmon M and Stauber JL (2023). Acute and chronic toxicity of manganese to tropical adult coral (*Acropora millepora*) and deriving marine manganese guideline values. *Marine Pollution Bulletin*, 194: 115242, doi:10.1016/j.marpolbul.2023.115242.

Levy V, Smith REW, Stauber J and Binet MT (2004). *Manganese discharge from the Myuna Colliery, ANZECC/ARMCANZ study*, Hydrobiology Report CC/0401-Myuna-Mn.

Yeats PA and Brewers JM (1985). Manganese in the western North Atlantic Ocean. Marine Chemistry, 17: 255–263, doi.org/10.1016/0304-4203(85)90014-3.