Supplementary material

Geochemical controls on aluminium concentrations in coastal waters

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<table>
<thead>
<tr>
<th>Size range</th>
<th>Operationally defined size fraction</th>
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<tbody>
<tr>
<td>&lt;0.001 µm</td>
<td>Dissolved aluminium (free ions and low molecular weight complexes)</td>
</tr>
<tr>
<td>&gt;0.025 to &lt;0.45 µm</td>
<td>Colloidal aluminium complexes</td>
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<tr>
<td>&gt;0.45 µm</td>
<td>Particulate aluminium complexes</td>
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Fig. S1. The effect of time on the solubility of aluminium in filtered seawater (solid triangles) and seawater containing 30 mg L\(^{-1}\) of suspended particulates (open diamonds) spiked with (a) 1000, (b) 5000 and (c) 10 000 µg L\(^{-1}\) total aluminium. Error bars represent the standard deviation of three replicates.
Fig. S2. The spiked and measured total dissolved (<0.45 µm) aluminium concentrations measured for adsorption isotherm tests of suspended particulates from each site.

Spike controls that were prepared in filtered (<0.45 µm) seawater, mixed and allowed to stand for 24 h, showed that spiked concentrations were within 5 % of nominal values, indicating spikes were accurate and that there was negligible adsorption in the absence of suspended particulates.
Fig. S3. Adsorption isotherms for the unfiltered waters from each site.

Port Curtis 2
\[ y = 4.7168x - 8.4732 \]
\[ R^2 = 0.9963 \]

Port Curtis 4
\[ y = 7.6187x - 13.665 \]
\[ R^2 = 0.9941 \]

Georges River
\[ y = 1.3551x - 12.92 \]
\[ R^2 = 0.9956 \]

Bonnet Bay
\[ y = 5.4613x - 31.237 \]
\[ R^2 = 0.9964 \]