

**Table 5 The remotely sensed variable WATER QUALITY: Chlorophyll (CHL) CONTENT**  
and the listing of data types, processing requirements and costs for mapping and monitoring this variable using several suitable types of remotely sensed data. MMU: Minimum mapping unit; GRE: Ground resolution element

	<b>DATA OPTION 1: MERIS</b>	<b>DATA OPTION 2: Airborne hyperspectral</b>
<b><i>Spatial Dimensions</i></b>		
<b>Area to cover</b>	Swath width 572km	Up to 1000km <sup>2</sup>
<b>Mapping unit</b>	300m	0.5m – 5m
<b>Positional accuracy</b>	Dependent on Georeferencing process	Dependent on Georeferencing process
<b><i>Temporal Dimensions</i></b>		
<b>When</b>	1030 hrs	User defined
<b>How often</b>	3 days	User defined (can be < 1 day)
<b>Variable to map</b>	Chlorophyll A concentrations	Chlorophyll A concentrations
<b>Environmental Restrictions</b>	Optically shallow areas  Strong winds, breaking waves	For sub-tidal vegetation to < 5m  Strong winds, breaking waves
<b>Processing technique</b>  <b>(Output)</b>	Image based deterministic (inversion of radiative transfer model).  (Map showing Chl a concentration in mg/m <sup>3</sup> in each pixel)	Image based deterministic (inversion of radiative transfer model) or empirical approach using field data  (Map showing Chl a concentration in mg/m <sup>3</sup> in each pixel)
<b>Resources – Hardware and Software</b>	PC Image processing software with Hyperspectral analysis capabilities, including sub-pixel mapping techniques.	PC Image processing software with Hyperspectral analysis capabilities, including sub-pixel mapping techniques.
<b>Resource – Personnel</b>	Trained in hyperspectral data processing. Knowledge of area to be mapped	Trained in hyperspectral data processing. Knowledge of area to be mapped
<b>Estimated task and times</b>	Image pre-processing (1 day)	Image pre-processing (1 day)

	<p>Image modeling (4 days per site)</p> <p>Field/Photo verification for a select number of sample sites: (4 days)</p> <p>Map output production: (2 days)</p> <p>Total = 11 days per site</p>	<p>Image modeling (6 days per site)</p> <p>Field/Photo verification for a select number of sample sites: (4 days)</p> <p>Map output production: (2 days)</p> <p>Total = 13 days per site</p>
<p><b>Estimated Cost</b></p> <p>Note that these are estimates are flexible</p>	<p>Data acquisition: Image data = no cost</p> <p>Processing = 11 days of technical officer @ \$875/day= \$9625</p> <p>Total = \$9625</p> <p>Note: This assumes software have been purchased</p>	<p>Data acquisition: Image data = \$20000</p> <p>Processing = 13 days of technical officer @ \$875/day= \$11375</p> <p>Total = \$31375</p> <p>Note: This assumes software have been purchased</p>