## Table 30 Water Quality – Chlorophyll concentration (Suspended Organic Matter Concentration)

| | DATA OPTION 1: MERIS | DATA OPTION 3: Landsat ETM |
|---|---|---|
| *Spatial Dimensions* | | |
| **Area to cover** | Swath width 572 km | 185 km x 185 km per scene |
| **Mapping unit** | 300 m | 15 m panchromatic 30 m multi-spectral |
| **Positional accuracy** | Dependent on Geo-referencing process | Dependent on Geo-referencing process |
| *Temporal Dimensions* | | |
| **When** | 1030 hrs | Approx 9.45 am |
| **How often** | 3 days | every 16 days |
| **Variable to map** | Chlorophyll A concentrations | Chlorophyll A concentrations |
| **Environmental / Sensor Restrictions** | Optically shallow areas  Clouds, strong winds and breaking waves. | Optically shallow areas  Clouds, strong winds and breaking waves.  Unable to detect low levels of chlorophyll concentration |
| **Processing technique**  (Output) | Image based deterministic (inversion of radiative transfer model).  (Map showing Chl a concentration in mg/m$^3$ in each pixel) | Image based deterministic (inversion of radiative transfer model).  (Map showing Chl a concentration in mg/m$^3$ in each pixel) |
| **Resources – Hardware and Software** | PC Image processing software with Hyper-spectral analysis capabilities, including sub-pixel mapping techniques. | PC Image processing software GIS with image classification module (e.g. ARCGIS Image Analyst) |
| **Resource – Personnel** | Trained in hyper-spectral data processing. Knowledge of area to be mapped | Trained in image classification Experience with Landsat data |

|  |  | Knowledge of area to be mapped |
|---|---|---|
| **References:** Note these are some example references | Gons et al (2002) | Ekstrand (1992) |

Gons, H., M. Rijkeboer, and K. Ruddick, (2002). "A chlorophyll-retrieval algorithm for satellite imagery (Medium Resolution Imaging Spectrometer) of inland and coastal waters." Journal of Plankton Research 24, 947.

Ekstrand, S. (1992). "Landsat TM based quantification of chlorophyll-a during algae blooms in coastal waters." International Journal of Remote Sensing 13, 1913-1926.