

Table 21 Saltmarsh (% Cover)

	DATA OPTION 1: Landsat ETM	DATA OPTION 2: Quickbird 2
<i>Spatial Dimensions</i>		
Area to cover	185 km x 185 km per scene	12 km x 12 km per scene
Mapping unit	15 m panchromatic 30 m multi-spectral	068m panchromatic 4.0 m multi-spectral
Positional accuracy	Depends on level of Geo-referencing	Dependent on georeferencing process
<i>Temporal Dimensions</i>		
When	Approx 9.45 am	Approx 10.45 am
How often	every 16 days	Minimum every 4 days
Variable to map	Saltmarsh cover.	Saltmarsh cover
Environmental / Sensor Restrictions	Cloud cover Saltmarsh fringe can be narrow, smaller then pixel size Standing water levels	Cloud cover Saltmarsh fringe can be narrow, smaller then pixel size Standing water levels
Processing technique (Output)	Image classification or feature detection (Vegetation type map and target features) Note: The ability to map specific targets will depend on their growth form and extent.	Image classification or feature detection (Vegetation type map and target features) Note: The ability to map specific targets will depend on their growth form and extent.
Resources – Hardware and Software	PC Image processing software GIS with image classification module (e.g. ARCGIS Image Analyst)	PC Image processing software GIS with image classification module (e.g. ARCGIS Image Analyst)
Resource – Personnel	Trained in image classification Experience with Landsat data Knowledge of area to be mapped	Trained in image classification Experience with high spatial resolution data Knowledge of area to be mapped
References: Note these are some	Jano et al (1998) Zhang et al (1997)	Belluco et al (2006) Gilmore et al (2008)

example references	Jefferies et al. (2006)	
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Belluco, E., Camuffo, M., Ferrari, S., Modenese, L., Silvestri, S., Marani, A., and Marani, M., (2006). "Mapping salt-marsh vegetation by multispectral and hyperspectral remote sensing." Remote Sensing of Environment 105: 54-67.

Gilmore, M. S., Wilson, E. H., Barrett, N., Civco, D. L., Prisloe, S., Hurd, J. D., and Chadwick, C., (2008). "Integrating multi-temporal spectral and structural information to map wetland vegetation in a lower Connecticut River tidal marsh." Remote Sensing of Environment 112: 4048-4060.

Jano, A., Jefferies, R., and Rockwell, R., (1998). "The detection of vegetational change by multitemporal analysis of LANDSAT data: the effects of goose foraging." Journal of Ecology 86(1): 93-99.

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Table 22 Saltmarsh (Species)

	DATA OPTION 1: Landsat ETM	DATA OPTION 2: Quickbird 2
<i>Spatial Dimensions</i>		
Area to cover	185 km x 185 km per scene	12 km x 12 km per scene
Mapping unit	15 m panchromatic 30 m multi-spectral	068m panchromatic 4.0 m multi-spectral
Positional accuracy	Depends on level of Geo-referencing	Dependent on georeferencing process
<i>Temporal Dimensions</i>		
When	Approx 9.45 am	Approx 10.45 am
How often	every 16 days	Minimum every 4 days
Variable to map	Saltmarsh (extent, species composition and above-ground biomass)	Saltmarsh (extent, species composition and above-ground biomass)
Environmental / Sensor Restrictions	Cloud cover Saltmarsh fringe can be narrow, smaller than pixel size Standing water	Cloud cover Saltmarsh fringe can be narrow, smaller than pixel size. Standing water
Processing technique (Output)	Image classification or feature detection (Vegetation type map and target features) Note: The ability to map specific targets will depend on their growth form and extent.	Image classification or feature detection (Vegetation type map and target features) Note: The ability to map specific targets will depend on their growth form and extent.
Resources – Hardware and Software	PC Image processing software GIS with image classification module (e.g. ARCGIS Image Analyst)	PC Image processing software GIS with image classification module (e.g. ARCGIS Image Analyst)
Resource – Personnel	Trained in image classification Experience with Landsat data Knowledge of area to be mapped	Trained in image classification Experience with high spatial resolution data Knowledge of area to be mapped
References:	Bartlett and Klemas	Gilmore et al (2008)

Note these are some example references	(1980) Zhang et al. (2008)	Belluco et al (2008) Silvestri et al (2008)
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Bartlett, D. and Klemas, V., (1980). "Quantitative assessment of tidal wetlands using remote sensing." Environmental Management 4: 337-345.

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Silvestri, S., Marani, M., and Marani, A., (2003). "Hyperspectral remote sensing of salt marsh vegetation, morphology and soil topography." Physics and Chemistry of the Earth, Parts A/B/C 28: 15-25.

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Table 23 Saltmarsh (Biomass)

	DATA OPTION 1: Radarsat, TerrsarX or ALOS Palsar	DATA OPTION 2: Quickbird 2
<i>Spatial Dimensions</i>		
Area to cover	Up to 3600 km ²	12 km x 12 km per scene
Mapping unit	5m -60mm	068m panchromatic 4.0 m multi-spectral
Positional accuracy	Dependent on Geo-referencing process	Dependent on georef- erencing process
<i>Temporal Dimensions</i>		
When	Approx 11 am	Approx 10.45 am
How often	Minimum every 4 days	Minimum every 4 days
Variable to map	Saltmarsh (above-ground biomass)	Saltmarsh (above-ground biomass)
Environmental / Sensor Restrictions	Saltmarsh fringe can be narrow, smaller then pixel size Standing water on leaves of Saltmarsh	Cloud cover Saltmarsh fringe can be narrow, smaller then pixel size. Standing water
Processing technique (Output)	Image classification or feature detection (Vegetation type map and target features) Note: The ability to map specific targets will depend on their growth form and extent.	Image classification or feature detection (Vegetation type map and target features) Note: The ability to map specific targets will depend on their growth form and extent.
Resources – Hardware and Software	PC Image processing software with radar image 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 radar data processing. Knowledge of area to be mapped	Trained in image classification Experience with high spatial resolution data Knowledge of area to be

		mapped
References: Note these are some example references	Kasischke et al (1997)	Belluco et al (2006)

Belluco, E., Camuffo, M., Ferrari, S., Modenese, L., Silvestri, S., Marani, A., and Marani, M., (2006). "Mapping salt-marsh vegetation by multispectral and hyperspectral remote sensing." Remote Sensing of Environment 105: 54-67.

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