

**This document includes NAMASTE recommendations from the technical workgroup provided specifically to the National Estuarine Research Reserve (NERR) Tidal Marsh Vegetation SOP.**

Last updated Oct 1, 2024 by Chris Peter.

Pink cells indicate a data handling recommendation. green represents a field recommendation.



<b>Topic</b>	<b>1 - Species names</b>	<b>2- Data format</b>
<b>Problem</b>	Taxonomists are always changing them...	For analyses, a horizontal format (one row per quadrat, with species in different columns) is easier for most than the CDMO vertical format (one row per species, many rows per quadrat)
<b>Solution</b>	Require Reserves to use updated species names via <a href="http://www.itis.gov">www.itis.gov</a> when submitting to CDMO	Would you prefer data submission in horizontal or vertical data format?
<b>Protocol Edit</b>	Reserves are required to submit data submissions to CDMO with updated species names each year using <a href="http://www.itis.gov">www.itis.gov</a> . Each year upon submission, each Reserve is required to notify CDMO of any species name change. CDMO will then identify all other Reserves where that species is present and work with those Reserves to apply the species name change to past data submissions.	(No change, but rec adding this text to the protocol) A R-script based method (ref and link) has been developed to transform data from the vertical to horizontal format.
<b>Rationale</b>	Allows for consistent national analyses. CDMO will update changes to species names for past submission	Allows Reserves to analyze data locally and nationally much more quickly after downloading data
<b>Topic</b>	<b>3 - Quadrat size</b>	<b>4 - Plot photos</b>
<b>Problem</b>	1 m2 plots are hard on the back for short people like Kerstin	Hard to interpret data from unfamiliar site
<b>Solution</b>	Allow option of smaller plot sizes (0.25 m2, 0.5 m2) so long as same minimum area (20m2) of marsh is sampled by transects	Require one photo taken from above for each quadrat
<b>Protocol Edit</b>	We strongly recommend use of a 1 m2 quadrat. However, Reserves can justify exceptions and use smaller quadrats (0.5 or 0.25 m2 at minimum) if needed for logistical reasons or continuity with regional datasets. A total area of 20 m2 must still be sampled, as per the existing protocol.	Photos are very valuable for interpreting findings, troubleshooting errors, and for outreach. One photo from above of each quadrat during each sampling is required. Photos will be stored by CDMO. Details TBD, probably one folder per Reserve per year, with each photo labeled Site_Year_TransectName_PlotNumber. (Include some example photos in protocol, including sign for IDing it, also maybe some guidance on file size).
<b>Rationale</b>	Differences in quadrat size have negligible effect on trends in national analysis (compared to differences in species and habitat)	Helps with QA/QC and visualizing change

<b>Topic</b>	<b>5 - Plant height</b>	<b>6 - Estimating cover</b>
<b>Problem</b>	Reserves use lots of different methods - average, tallest, left as is vs. pulled straight, etc.	60% of reserves use ocular cover, 40% use point intercept
<b>Solution</b>	Require all reserves to measure maximum stem length of dominant Measurement of maximum stem length of at least one dominant species per transect (e.g. 3-5 tallest stems per quadrat of that species if present, measured by gently stretching if folded over) is required as of 2025. Reserves that have measured height differently in the past (average height, or height of canopy without unfolding stem) can continue to do so and continue to submit these data also. Addition of the new maximum stem length of dominant measurement should only add 2 min per quadrat and offers greater consistency among sites. (Also be sure to indicate what your dominant species that are measured this way are in metadata).	Require a single method or allow Reserves to choose.
<b>Protocol Edit</b>		(No change, but rec adding this text to the protocol) End-users interested in comparing data across methods can transform PI to OC (ref NSC projects 2x that provides access to instructions and R-scripts)
<b>Rationale</b>	Quick and repeatable to do max; unstretched better for sensitive plants	Ability to conduct regional and national analyses more accurately

<b>Topic</b>	<b>7 - Ocular as 100%</b>	<b>8 - Point Intercept as 100%</b>
<b>Problem</b>	For reserves using ocular cover, 66% Reserves assess one canopy layer (cover totals 100%), 33% assess all canopy layers (cover can be >100%)	For reserves using point-intercept, the data can be submitted to CDMO in multiple formats, leading to system-wide inconsistencies
<b>Solution</b>	Require only the top of the canopy to be assessed (2D, forced to 100%)	Require point intercept to be forced to 100% (i.e., individual covers are converted to 100 points per plot, then normalized down to have the plot total = 100%)
<b>Protocol Edit</b>	(No change) End-users interested in comparing data across ocular cover method should consider normalizing all data to 100% per plot	No change. Reserves are still required to submit their PI data to CDMO as percent cover (e.g., if a Reserve collects 50 point-intercepts per plot, each point-intercept will be multiplied by 2 to arrive at percent cover).
<b>Rationale</b>	More consistency among reserves in national analysis	More consistency among reserves in national analysis

<b>Topic</b>	<b>9 -Abiotic categories</b>
<b>Problem</b>	Some reserves find it helpful to use more detailed breakdown of abiotic categories; in order to facilitate analysis of loss of vegetation currently only "unvegetated" allowed
<b>Solution</b>	<p>So long as distinction between vegetated vs. unvegetated cover remains clear, Reserves can optionally add categories like "wood", "rock", and "dead"</p> <p>Reserves can choose to submit data for the below listed abiotic categories, so long as there is clear distinction between vegetated vs unvegetated cover:</p> <p>Bare = unvegetated, unconsolidated sediments</p> <p>Rock = solid consolidated minerals</p> <p>Dead = non-living plant material originating from the plot from prior years</p> <p>Wrack = non-living plant material originating from outside the plot typically brought in by the tides</p> <p>Wood = large woody debris</p> <p>Water = standing water present at low tide</p>
<b>Protocol Edit</b>	<p>Overstory = canopy cover of larger vegetation, typically trees, shading the plot</p> <p>Unvegetated = catch all for abiotic/faunal cover when these categories are NOT parsed out</p> <p>Other Unvegetated = catch all for any other abiotic/faunal cover when these categories ARE parsed out</p> <p>**Overstory, Water, and Wrack categories should only be used in conjunction with measuring other cover metrics (e.g., if Water is covering Bare, then Bare should also be counted). Additionally, if using ocular cover forced to 100%, these three covers do not count toward the plot totals and are considered additional canopy layers.</p>
<b>Rationale</b>	Allows national and reserve version of database to be more similar (rather than forcing reserves to simplify)