# Comparison of CBP Parameters and Methods with MTAC Tidal Core Parameters

MTAC Monitoring Objective: Data for Report Card Indicators (threshold & WQ Standards comparisons).

CBP Monitoring Objectives: 1) Assess Tidal Dissolved Oxygen WQ Standards and 2) Status and Trends

| Parameter | MTAC Method | CBP Method |
|---|---|---|
| **Fixed Site Locations** | Shallow water & mid-channel. Boat access and streamside permitted. | Shallow water & mid-channel. Boat access (tidal) or EWI (nontidal) |
| ***In-situ* profile depths** | ≤3 meters: Surface & bottom 0.3 m<br>>3 meters: S & B, and 1 m intervals | Every 1-2 meter from surface (0.5 m) to bottom (-0.5 m). |
| **Frequency** | ≥ 2/month: Mar/Apr thru Oct/Nov (June Chl-*a* may be omitted.) | ≥1 /month: all months/year |
| **Pycnocline (density)** | None specified. | Various |
| **DO**[1] | • Pre- and post- air calibration of *in-situ* instruments | • Pre- and post- air calibration of *in-situ* instruments |
| **Temperature** | None specified | • *In-situ* thermistor on sonde; calibrated annually by vendor. |
| **Salinity** | None specified. | • Calibrate *in-situ* sonde for conductivity with KCL. |
| **Chlorophyll *a***[1] | • Use pole to dip sample bottle just below surface<br>• 0.7 µm field-filtered, hand vacuum pump, no max pressure specified.<br>• Filters placed in cooler, *no temp specified.* Aqueous backup sample.<br>• Preserved at -20°C.<br>• Spectrophotometric lab method. | • Submersible pump at 0.5 - 1.0 m, then AP, BP and bottom.<br>• 0.7 um field filtered, suction flasks ≤ 6 psi. Subdued light.<br>• Filters iced or frozen immediately.<br>• Preserved at -20°C<br>• Spectrophotometric method |
| **Water Clarity**[1] | • Secchi depth on shady side of boat.<br>• Average duplicate measurements.<br>• Consistent sunglass wear, off or on. | • Secchi on shady side of boat.<br>• No sunglasses, average duplicate measurements. |
| **Total Nitrogen**[1] **and Phosphorus**[1] **– Mid-channel** | • Kemmerer or submersible pump.<br>• Sample 1 m from surface; also take bottom sample when ≥ 4 m.<br>• Whole water samples iced or frozen<br>• Duplicate QC sample | • Submersible pump<br>• Sample 0.5- 1 m from surface & bottom. Also AP and BP samples<br>• Field filtered for dissolved + particulate N & P parameters. |
| **Total Nitrogen**[1] **& Phosphorus**[1] **-Streamside** | • Sampling pole to dip sample from low to medium flow; face upstream<br>• Sample depth not specified.<br>• Whole water samples iced or frozen<br>• Duplicate QC sample | • Streamside not permitted in tidal or nontidal protocols.<br>• Nontidal requires EWI samples. |
| [1] **MTAC Core Parameters** | | |

**Main differences between CBP and MTAC Protocols**

1. Procedures for temperature and salinity are unspecified. If the groups use different (non-sonde) procedure for temperature and salinity, these may yield slightly different results. Salinity is necessary for calculating Pycnocline for the tidal dissolved oxygen WQ standards.

2. Procedure for calculating Pycnocline omitted; however OK for CBP to calculate from salinity.

3. Sample depth for surface chlorophyll is unspecified; this may affect the algal concentrations.

4. Streamside samples are insufficient for CBP analyses, particularly DO, chlorophyll, nitrogen and phosphorus results.

5. UMCES Horn Point lab staff does not participate in AMQAW. Their inter-laboratory results show intermittent discrepancies with nutrient analysis.

6. No mention of stream gages for load calculations of N & P.

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