**Supplement 1: Error propagation**

Error propagations equations are presented, which were used to calculate propagation of measurement error linked to solar radiation, attenuation, temperature and biomass. Equations were derived from the partial derivations of the original equations. We assumed that measurement errors of each variable are independent from each other, follow a normal distribution and there is no or negligible covariance between the errors.

**Underwater light climate**

The variation of Kd for both lagoons depends on several turbidity parameters and was calculated employing the formula by Xu et al. (2005):

The error was estimated as followed:

The underwater irradiance above the macrophytobenthic canopy at 0.75 m water depth (PARz) was derived from the underwater irradiance (PAR0) by applying the Lambert-Beer law:

The error of the underwater irradiance was calculated using following equation:

The self-shading of macrophytobenthos was taken into consideration by estimating the available irradiance within the macrophytobenthic canopy in µmol m-2 s-1 using the equation of Cerco and Moore (2001):

Uncertainty associated with self-shading of macrophytobenthos was calculated as followed:

**Net primary production of the macrophytobenthos**

The NPP of the macrophytobenthos was calculated using the equation of Walsby (1997):

Uncertainty of macrophytobenthic NPP due to propagation of error was calculated using following derivation of the original equation:

The second equation employed to calculate hourly oxygen evolution rates of single macrophytobenthic species was taken from Jasby and Platt (1976):

Uncertainty of macrophytobenthic NPP due to propagation of error was calculated using following derivation of the original equation:

The seasonal photosynthetic parameters were calculated with the following equation (Prosser, 1961):

Uncertainty in seasonal photosynthetic parameters associated with temperature variability was calculated as followed:

Table S1 Average net primary production of the macrophytobenthos per site and sample occasion. The statistical error and uncertainty linked to error propagation is shown.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Vitter Bodden |  |  |  | Grabow |  |  |  |
|  | April (n=5) | July (n=10) | September (n=10) | December (n=5) | April (n=5) | July (n=10) | September (n=10) | December (n=5) |
|  | 1 |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Mean mgC m-2d- | 3756.48 | 2544.45 | 5933.28 | -2340.23 | 25.7 | 81.54 | 10.5 | -6.9 |
|  |  |  |  |  |  |  |  |  |
| Statistical error mgC m-2d- | 732.3 | 450.41 | 2213.79 | 487.88 | 6.87 | 30.99 | 2.68 | 2.94 |
|  |  |  |  |  |  |  |  |  |
| Error propagation mgC m-2d- | 749.38 | 451.91 | 2223.0 | 491.5 | 6.87 | 31.0 | 2.69 | 2.95 |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |