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## Carbon biomass, carbon-to-chlorophyll a ratios and growth rates of phytoplankton in Jiaozhou Bay, China

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Carbon biomass, carbon-to-chlorophyll a ratio (C:Chl a) values and growth rates of phytoplankton cells were studied during four seasonal cruises in 2017 and 2018 in Jiaozhou Bay, China. Water samples were collected from twelve stations, and phytoplankton carbon biomass (phyto-C) was estimated from microscope-measured cell volumes. Phyto-C ranged from 5.05 to 78.52  $\mu\text{g C/L}$  (mean 28.80  $\mu\text{g C/L}$ ) in the bay, and it constituted a mean of 38.16% of the total particulate organic carbon in the bay. High phyto-C values always appeared in the northern or northeastern bay. Diatom carbon was predominant during all four cruises. Dinoflagellate carbon contributed much less (<30%) to the total phyto-C, and high values always appeared in the outer bay. The C:Chl a of phytoplankton cells varied from 11.50 to 61.45 (mean 31.66), and high values appeared in the outer bay during all four seasons. The phyto-C was also used to calculate the intrinsic growth rates of phytoplankton cells in the bay, and phytoplankton growth rates ranged from 0.56 to 1.96  $\text{day}^{-1}$ ; the rate was highest in summer (mean 1.79  $\text{day}^{-1}$ ), followed by that in fall (mean 1.24  $\text{day}^{-1}$ ) and spring (mean 1.17  $\text{day}^{-1}$ ), and the rate was lowest in winter (mean 0.77  $\text{day}^{-1}$ ). Temperature and silicate concentration were found to be the determining factors of phytoplankton growth rates in the bay. To our knowledge, this study is the first report on phytoplankton carbon biomass and C:Chl a based on water samples in Jiaozhou Bay, and it will provide useful information for studies on carbon-based food web calculations and carbon-based ecosystem models in the bay.