

Phytoplankton Provinces and Functional Groups in China Seas

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Based on phytoplankton taxonomic groups, species composition and community structure in China Sea waters (CSW), coupling with their geographical location and biogeochemical aspects, phytoplankton provinces, sub-provinces, communities and cantonization of CSW is proposed here in the presentation. The biogeographic partition of CSW is according to Alan Longhurst's primary partition of biomes and secondary compartments of provinces. Further partition was deep into Sub-province which mainly based on phytoplankton functional groups, geographical location and biogeochemical aspects, and Assemblages which mainly be classified by phytoplankton species composition. In CSW, there are two provinces, Western Pacific Warm Pool Province (WARM) and China Sea Coastal Province (CHIN). WARM is Trade Biome show the small-amplitude response to trade-wind seasonality, it is quite even distribution in most part of South China Sea, which is mainly composed by picophytoplankton and coccolithophorids with some cyanobacteria here, the big-celled diatom and dinoflagellates are also presented here. CHIN is big and covers most of the China coastal zone. CHIN is Coastal Biome shows its feature of Winter-spring production with nutrient limitation, much modified by the effects of seasonal river discharge, it is much spatial heterogenic, and 10 Sub-provinces, the Coastal Bohai Sea Sub-provinces, the Central Bohai Sea Sub-provinces, the Coastal Yellow Sea Sub-provinces, the Central Yellow Sea Sub-provinces, the Yangtze River Estuary Sub-provinces, the Yellow Sea – East China Sea Mixture Sub-provinces, the East China Sea Continental Sub-provinces, the Kuroshio Sub-provinces, the Taiwan Strait Sub-provinces, the Coastal South China Sea Sub-provinces, the Kuroshio Sub-provinces, will present. CHIN is mainly composed by nanoplankton of diatom or dinoflagellates, and it will bloom in selective locations and form predominant species in special season. The important assemblages in the Central Yellow Sea Sub-provinces and Yangtze River Estuary Sub-provinces, and functional groups will also show in the presentation.

Keywords: Phytoplankton; community structure; Functional group; China Sea waters; phytoplankton spring bloom