

Oligotrophication results in more ocean acidification in a semi-enclosed bay

KEDONG YIN AND JIANZHANG HE¹²

¹School of Marine Sciences, Sun Yat-sen University,
Guangzhou, China

²School of Medicine, Sun Yat-sen University

We presented the long time series of pH during 1986-2014 in Tolo Harbour of Hong Kong. We found that ocean acidification has occurred in those waters as the linear decreasing trend over time is significant. Ocean acidification is stronger in the inner part of the semi-enclosed bay than outer bay. The inner part of the bay with a long residence time used to receive anthropogenic input of nutrients, but the input has been reduced since the late 90s. Therefore, the bay has been going through the oligotrophication process, as shown in the decreasing trend in *Chl-a* and increasing trend in dissolved oxygen. In comparison, the outer bay experiences more exchange with more oligotrophic oceanic waters of the South China sea due to seasonal monsoons, which prevents the long-term accumulation of nutrients and eutrophication. The evidence suggests that oligotrophication can make a coastal bay with long residence time be more vulnerable to ocean acidification.