

## 6.0 CONCLUSION

In this study, spatial and temporal distributions of phytoplankton were carried out for the first time at Carey Island mangrove ecosystem. Information on phytoplankton variation and composition according to different tides, months and locations were successfully recorded.

The phytoplankton species at study site were proved to be the common species to inhabit mangrove ecosystem, with fusion of species originated from freshwater, estuarine and marine ecosystems. In other words, it shall be concluded that this mangrove ecosystem consists of unique and diverse phytoplankton composition.

*Skeletonema costatum* of division Bacillariophyta was recorded as the most dominant species to inhabit Carey Island mangrove ecosystem. Temporally, there were occasions of *S. costatum* bloom in which the cell density was more than  $1.00 \times 10^6$  cells/L. The phenomenal showed that the mangrove ecosystem of Carey Island is at threat to red tide exposure, which could harm the ecosystem. Field observation is crucial to be enhanced at study site to control the density of this bloom-forming species.

Some physiochemical parameters were proved to be responsible in influencing phytoplankton diversity and composition of study site significantly. Temperature, nitrate, phosphate and silicate are the most important parameters to correlate with phytoplankton. However, details information on which parameters specifically affected phytoplankton distribution spatially and temporally were not discussed in this study.

Nevertheless, though mentioned parameters are responsible to influence phytoplankton, seasonal turbulence such as heavy and light rainfall are still the main factors which able to change and alter the physiochemical factors, which later indirectly affected the phytoplankton distribution and composition. Other factor which is the

biological factor, which through observation believed to give high impact on phytoplankton density at study site, is grazing.