

Wansiri Chuennyom 2012: Assessment of *Noctiluca scintillans* (Macartney)
Ehrenberg Role on Nutrient Uptake: A Case Study of Tha Chin Estuary, Samut Sakhon
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Study on *Noctiluca scintillans* population in the Tha Chin Estuary was carried out based on objective to analyze distribution patterns in quantity (cell density) and quality (cell size) during the red tide incident. The 30 survey stations in the estuary were set and the samplings were done 3 times during November-December 2009 (for analysis on population development) and 3 times during April, August, and November 2010 (for analysis on seasonal variation). Water quality, nutrients, and chlorophyll *a* of ambient conditions were simultaneously examined. The results indicated that *N. scintillans* density was high in the outer area of the estuary. Cell density reached 72,333 cells/L and significantly related with dissolved inorganic nitrogen (DIN) ($r=-0.28$, $P<0.01$) and orthophosphate-phosphorous (P) ($r=-0.23$, $P<0.05$). In addition, a significantly relationship between the proportion of small cells ($<300\ \mu\text{m}$) and orthophosphate-phosphorus ($r = 0.73$, $P < 0.05$) was recognized. Thus, the DIN and P nutrients played an important role on *N. scintillans* population in this area. Chlorophyll *a* of *N. scintillans* cell ranged from 3.42-9.37 ng/cell. Analysis on roles of *N. scintillans* on DIN and P uptakes in the Tha Chin Estuary implied that the outer zone had higher uptake rates than the inner zone. The uptake rates of DIN and P were highest during dry season (13.62 and 21.30 %, respectively). The overall views of this study implied that P could play important role on *N. scintillans* situation and development in this estuarine area. Thus, the level of P should be monitored and controlled for further conservation of the water environment.

Student's signature

Thesis Advisor's signature