

Supplementary Materials

Shining light on photosynthesis in the harmful dinoflagellate *Karenia mikimotoi*– Responses to short-term changes in temperature, nitrogen form and availability

So Hyun (Sophia) Ahn ^{1*} and Patricia M. Glibert²

¹ University of Maryland Center for Environmental Science, Horn Point Laboratory, PO Box 775, Cambridge, MD 21613, United States; sahn@umces.edu

² University of Maryland Center for Environmental Science, Horn Point Laboratory, PO Box 775, Cambridge, MD 21613, United States; glibert@umces.edu

* Correspondence: sahn@umces.edu

The following figures illustrate the quantum yields of regulated (YNPQ) and non-regulated (YNO) nonphotochemical energy dissipation for all experimental treatments described in the companion text. Cultures of *Karenia mikimotoi* were enriched with either nitrate (NO_3^-), ammonium (NH_4^+) or urea with varying amounts (1, 5, 10, 20, 50 $\mu\text{M-N}$) and were incubated for 1 hr at temperatures of 15, 20, 25, 30°C. Using PAM fluorometry, rapid light curves were examined.

The companion excel file contains the photosynthesis parameters for all experiments.

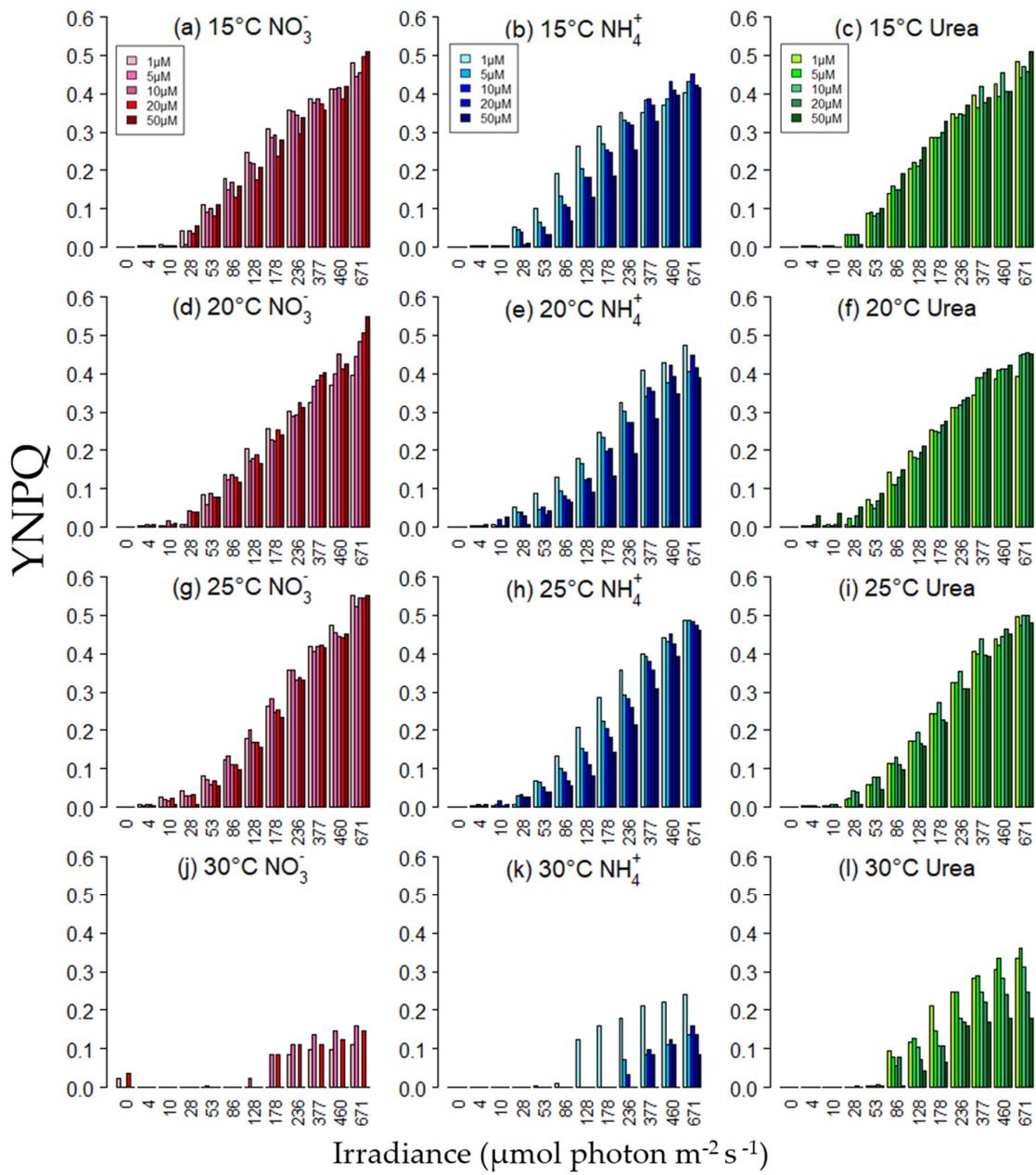


Figure S1. Quantum yield of regulated non-photochemical energy dissipation, YNPQ, as a function of irradiance for *K. mikimotoi* exposed to different temperatures (15, 20, 25, 30°C) when pulsed with different nitrogen forms (NO_3^- , NH_4^+ , urea) and amounts (1, 5, 10, 20, 50 μM). Within each depicted irradiance level, the darker the color of the bars, the higher the enrichment with added N. YNPQ represents energy loss of excitation energy thorough harmless heat dissipation related to non-photochemical quenching. Within each depicted temperature, the darker the color of the bars, the higher the enrichment with added N.

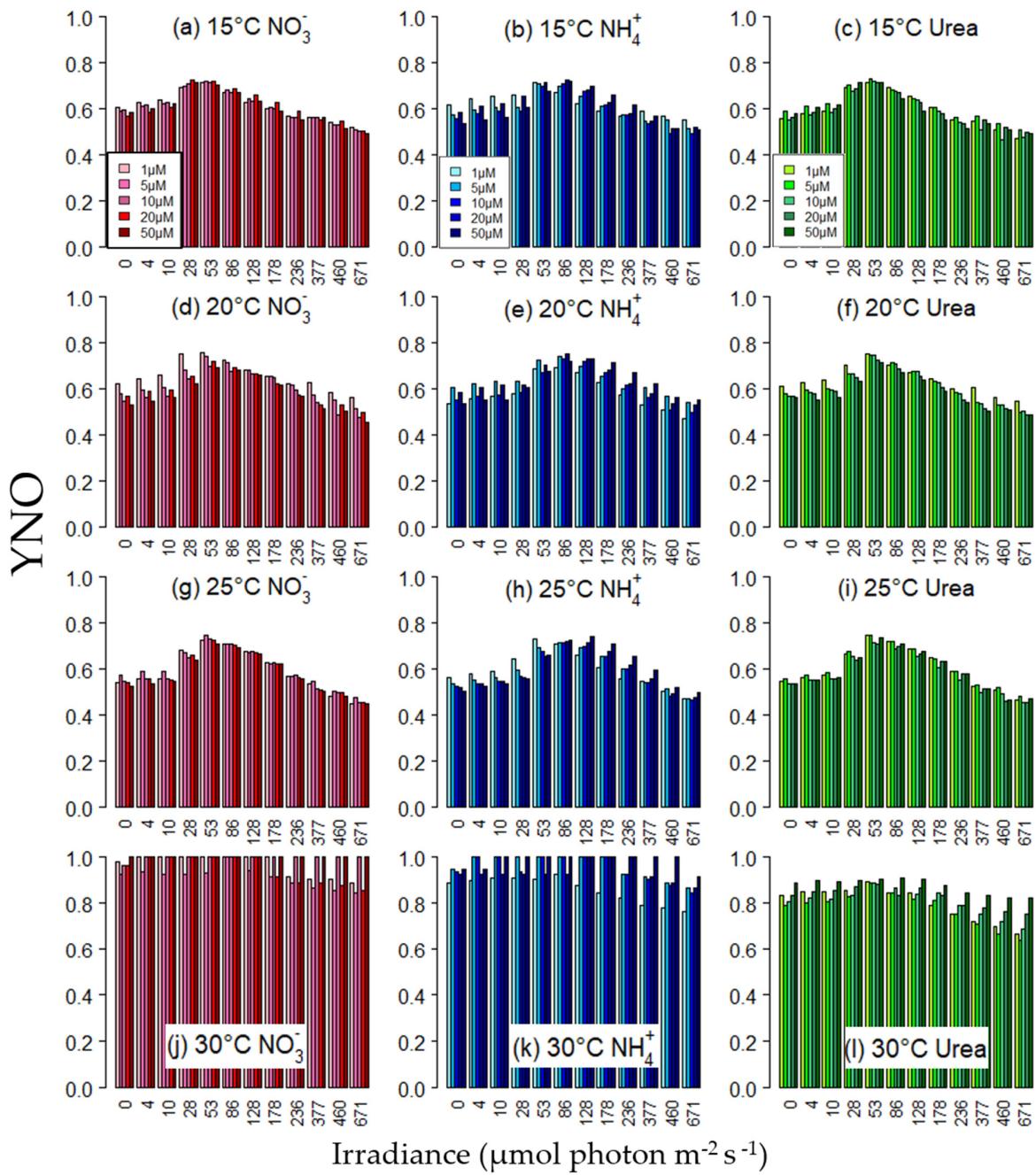


Figure S2. Quantum yield of non-regulated non-photochemical energy dissipation, YNO as a function of irradiance for *K. mikimotoi* exposed to different temperatures (15, 20, 25, 30°C) when pulsed with different nitrogen forms (NO_3^- , NH_4^+ , urea) and amounts (1, 5, 10, 20, 50 μM). Within each depicted irradiance level, the darker the color of the bars, the higher the enrichment with added N. YNO represents the sum of non-regulated heat dissipation and fluorescence emission (“primarily constitutive losses”). Within each depicted temperature, the darker the color of the bars, the higher the enrichment with added N.