

# OCEAN OPTICS XXIV

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<https://oceanopticsconference.org>

Monday, October 8

Poster Session 1

16:00–18:00

## Poster 49

### SATELLITE REMOTE SENSING OF THE HARMFUL ALGAE ALEXANDRIUM FUNDYENSE IN THE BAY OF FUNDY: AN ECOLOGICAL APPROACH

Alexandrium Fundyense spp. is a dinoflagellate that produces paralytic shellfish poisoning (PSP) toxins in the Bay of Fundy (BoF) and neighbouring Gulf of Maine. The toxins accumulate in shellfish through filter-feeding and can be fatal to vertebrate consumers. Recurrence of blooms of *A. fundyense* in the BoF leads every year to the closure of shellfish harvesting and causes issues to aquaculture. Given the patchy nature of *A. fundyense* bloom over large areas, satellite remote sensing represents an asset to monitor the dynamic of this algae. However, direct remote sensing of *A. fundyense* is challenging due to i) the low abundance (are as low as 200 cells·L<sup>-1</sup>) at which toxicity is detected in shellfish harvesting areas, and ii) its spectral signature to similar to that of other phytoplankton. Here we used an ecological approach based on sea-surface temperature and occurrence of diatoms derived by satellite to provide a warning system made of three levels: green for low abundance of *A. fundyense* (< 150 cell·L<sup>-1</sup>), orange for non-conclusive information and red for potentially high abundance of *A. fundyense*. Blooms of *A. fundyense* are known to occur after the termination of the spring diatom bloom when temperature increases. A sensitivity study that uses in situ abundance of *A. fundyense* and coincidental sea-surface temperature (AVHRR) and occurrence of diatoms (SeaWiFS) between 1998 and 2007 was performed to find thresholds that trigger one level of warning or the other. Spatial and temporal variation of *A. fundyense* blooms in the BoF was studied.

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