**Application of BIO-OPTICAL Modeling tools to Remotely Sensed Data for Routine Monitoring of Water Quality Changes in drinking water reservoirs in Southern California**

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Availability of remotely sensed (satellite) data with high spectral, temporal and spatial resolution sufficient to depict the dynamics of drinking water supply reservoirs presents a unique opportunity for developing satellite-based lake and reservoir water quality monitoring tools. While applied remote sensing research over the last three decades have clearly shown a greater potential of using remotely sensed data for water quality management of coastal and inland waterbodies, satellite-based tools that are useful for operative monitoring purpose of drinking water reservoirs are still not well developed. Moreover, with harmful algal blooms more often threatening drinking water supplies due to changing climate and continued nutrient pollution entering water ways, lake and reservoir managers need unconventional monitoring tools that allow them to proactively manage water quality problems. Towards this end, we conducted feasibility study on bio-optical modeling tools to determine their capability to allow operative monitoring of drinking water reservoirs. We retrospectively applied bio-optical tools to LANDSAT ETM+ and AQUA MODIS data to characterize various algal bloom events encountered in recent years in multiple reservoirs operated by the Metropolitan Water District of Southern California (MWDSC) and gaged the potential of these remotely sensed data use for routine monitoring of reservoir operations. Results indicate that remotely sensed data can be used for operational monitoring of MWDSC’s reservoirs but uncertainties still exist in identifying phytoplankton functional groups and population succession partly due to lack of pigment-based chemotaxonomic data.

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