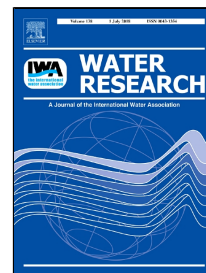


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Fluorescence probes for real-time remote cyanobacteria monitoring: a review of challenges and opportunities



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1 **Fluorescence probes for real-time remote cyanobacteria**
2 **monitoring: a review of challenges and opportunities**

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11 **Abstract**

12 In recent years, there has been a widespread deployment of
13 submersible fluorescence sensors by water utilities. They are used to
14 measure diagnostic pigments and estimate algae and cyanobacteria
15 abundance in near real-time. Despite being useful and promising
16 tools, operators and decision-makers often rely on the data provided
17 by these probes without a full understanding of their limitations. As a
18 result, this may lead to wrong and misleading estimations which, in
19 turn, means that researchers and technicians distrust these sensors. In
20 this review paper, we list and discuss the main limitations of such
21 probes, as well as identifying the effect of environmental factors on
22 pigment production, and in turn, the conversion to cyanobacteria
23 abundance estimation. We argue that a comprehensive calibration
24 approach to obtain reliable readings goes well beyond manufacturers'
25 recommendations, and should involve several context-specific

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