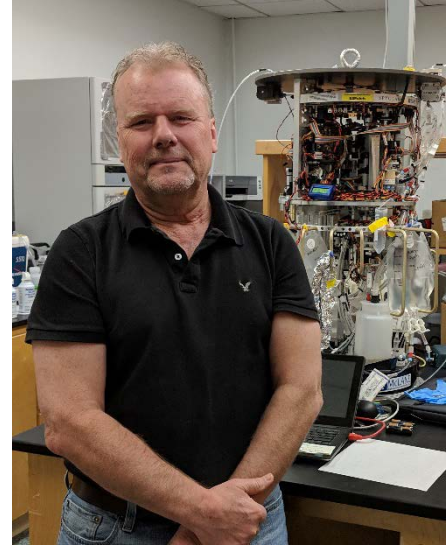


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Research Interests: Our group's research efforts are focused on the design, development, and application of detection technologies for marine and freshwater HAB species and their toxins, formatted for autonomous, in-situ platforms. These sensors/platforms have been deployed successfully on fixed-location moorings and on long-range autonomous underwater vehicles (LRAUVs) in multiple US coastal regions, including the Great Lakes. Near-real time data generated by these technologies support NOAA's HAB forecasting portfolio and inform decision making by resource managers charged with protecting public and ecosystem health.

Selected Publications:

- Bowers, H.A., Ryan, J.P., Hayashi, K., Woods, A.L., Marin, R. III, Smith, G.J., Hubbard, K.A., Doucette, G.J., Mikulski, C., Gellene, A.G., Zhang, Y., Kudela, R.M., Caron, D.A., Birch, J.M., Scholin, C.A. 2018. Diversity and toxicity of *Pseudo-nitzschia* species in Monterey Bay: Perspectives from targeted and adaptive sampling. *Harmful Algae* 78:129-141.
- Ryan, J.P., Kudela, R.M., Birch, J.M., Blum, M., Bowers, H.A., Chavez, F.P., Doucette, G.J., Marin III, R., Mikulski, C.M., Negrey, K., Pennington, J.T., Scholin, C.A., Smith, G.J., Zhang, Y. 2017. Causality of an extreme harmful algal bloom in the central California Current System during the 2014 – 2015 northeast Pacific warm anomaly. *Geophysical Research Letters* 44:5571–5579. doi:10.1002/2017GL072637.
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- Scholin, C., Doucette, G., Jensen, S., Roman, B., Pargett, D., Marin III, R., Preston, C., Jones, W., Feldman, J., Everlove, C., Harris, A., Avarado, N., Massion, E., Birch, J., Greenfield, D., Wheeler, K., Vrijenhoek, R., Mikulski, C., Jones, K. 2009. Remote detection of marine microbes, small invertebrates, harmful algae and biotoxins using the Environmental Sample Processor (ESP). *Oceanography* 22:158-167.
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Selected Book Chapters:

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