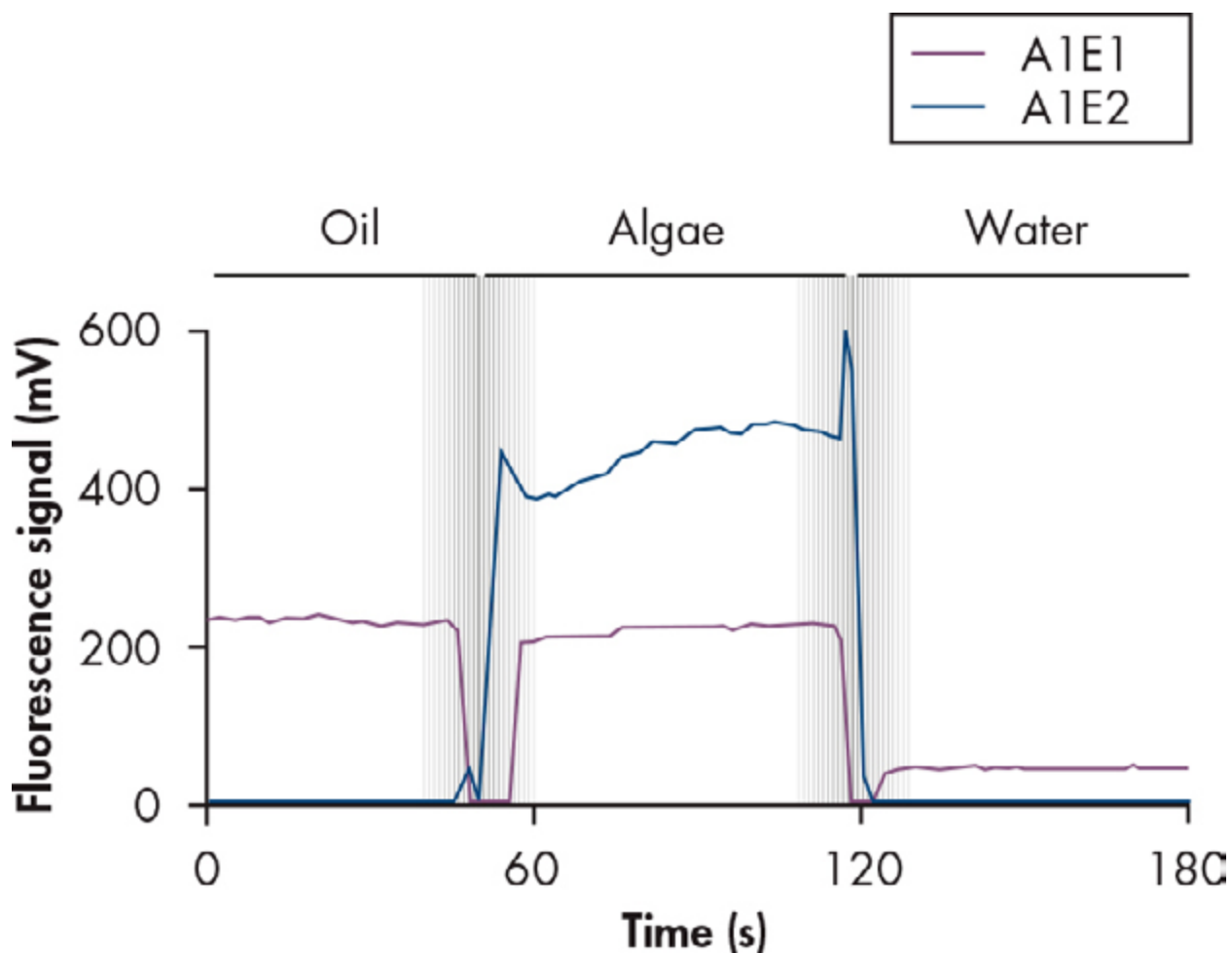




Oil and Algae in Water

A small mobile, handheld system (ESElog plus cuvette holder) was used to check water quality and determine possible contamination in drinking water reservoirs. An oil-contaminated sample, an algal sample, and a water blank sample were measured, with the signal being recorded continuously.

The black trace shows strong responses for both lubricator oil and algae: the response to algae is undoubtedly due to NADPH fluorescence, which is used routinely as a marker for aquatic biomass. Clearly this measurement is open to interference from oils and other aromatic hydrocarbon products. The additional use of the second channel, which is sensitive to generic algal chlorophylls, effectively differentiates algal fluorescence from fluorescence due to oils. The use of chlorophyll-specific wavelength sets may also be used to differentiate different algal types.



Effective differentiation of algal fluorescence from oils: The shaded regions represent sample changeover. The blue trace shows the signal optimized for algae (excitation 365 nm, emission 680 nm); the black trace shows the signal for excitation 365 nm, emission 460 nm.