

## Introduction

Accurate determination of ammonium in aquatic environments is a critical measurement when investigating Nitrogen cycling and nutrient dynamics. Historically, methods for ammonium determination have been a source of frustration within the scientific community due to the lack of a simple, accurate and affordable method, particularly in the submicromolar range.

## Ammonium Technique

The new ammonium technique offers researchers and technicians an excellent alternative to existing colorimetric methods. Benefits of the fluorometric method include:

- **Sensitivity: Detection in the submicromolar range.**
- **Wide Range:** Two protocols have been developed to allow for use in a wide range of concentrations.
- **Accuracy:** More accurate than previous methods for low ammonium concentration samples.
- **Simple:** Requires only one mixed, non-toxic reagent and no special equipment other than a Turner Designs fluorometer.
- **Convenient:** Easy sample collection and preservation.
- **Affordable:** Filter Fluorometer with optical kit and one working reagent.
- **Field Portable:** Use with the 10-AU-005-CE Field Fluorometer.
- **Non-toxic reagents:** OPA, sodium sulfite, and sodium borate.

The widely used colorimetric indophenol blue method is susceptible to inconsistent results, particularly with submicromolar ammonium concentrations. The new fluorometric technique has been proven to provide accurate and precise data over a wide range of water quality, ammonium concentration and salinity.

This fluorometric method is particularly useful for work in oligotrophic systems, where natural ammonium concentrations are commonly in the submicromolar range.

## Publications

Holmes, R.M., A.Aminot, R.Kerouel, B.A.Hooker, B.J.Peterson. 1999 . A simple and precise method for measuring ammonium in marine and freshwater ecosystems. *Can. J. Fish. Aquat. Sci.* **56**: 1801-1808.

K rouel, R., and A. Aminot. 1997. Fluorometric determination of ammonia in sea and estuarine waters by direct segmented flow analysis. *Mar. Chem.* **57**:265-275.

