



# STS/Chemistry Laboratory

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## Analytical Services Provided at Sea and on Shore

### Salinity:

Guildline Autosal 8400A & 8500B

Standardization with IAPSO P-series standards  
Accuracy +/- 0.002,  
precision < 0.001,  
Values reported to nearest 0.001



### Inorganic Nutrients:

Seal Analytical AA3

$\text{NO}_3 + \text{NO}_2$ ,  $\text{NO}_2$ ,  $\text{PO}_4$ ,  $\text{SiO}_3$ ,  $\text{NH}_4$

Normal operating ranges are (in micro moles/liter):

$\text{NO}_3 + \text{NO}_2 = 0.02 - 46.5$

$\text{PO}_4 = 0.02 - 4$

$\text{SiO}_3 = 0.5 - 90$  ( or 180)

$\text{NO}_2 = 0.02 - 1.50$

$\text{NH}_4 = 0.04 - 6.00$

$\text{NO}_3$  ~0.5% reproducibility and 0.2% precision.

$\text{PO}_4$  ~1% reproducibility and 0.4% precision.

$\text{SiO}_3$  ~1% reproducibility and 0.2% precision.



### Dissolved Oxygen:

RTW automated oxygen titrator

UV detection of Winkler titration endpoint

PC controlled Titration and Data Acquisition

Instrument and lab view software developed/produced in house and are available for purchase.

Standardized with Potassium Iodate:

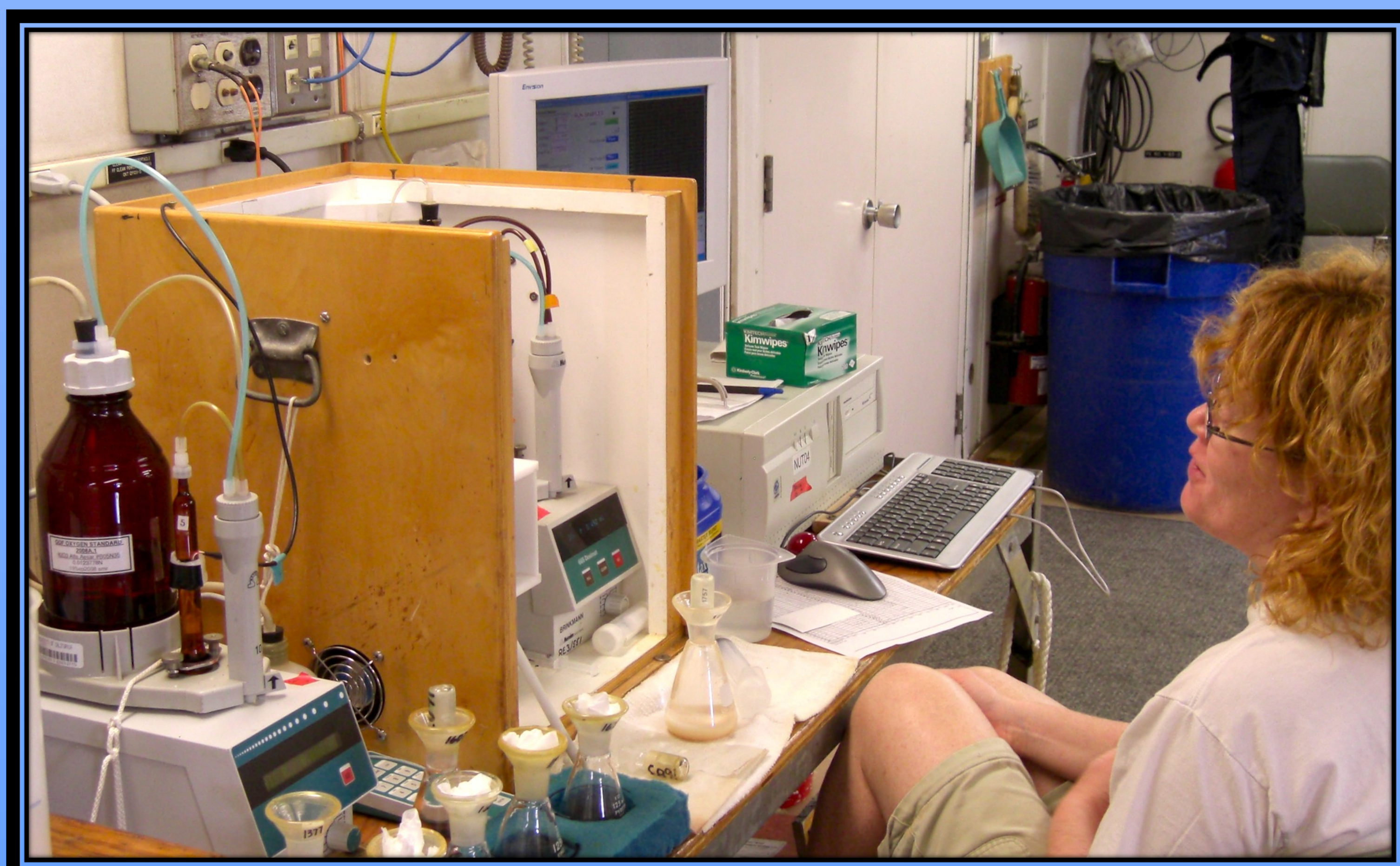
99.4 - 100% purity

Standards made in large batches (6L) and checked for accuracy against previous standard prior to use. History of all standards produced and tested saved.

< 0.5% reproducibility,

0.1% precisions

~ 1umol/kg detection limit.



### Development and use of Reference Materials for Nutrients in Seawater (RMNS):

In collaboration with:

Meteorological Research Institute, Japan (MRI)

IOC/ICES: Study Group on Nutrient Standards (SGONS)

Goals of the SGONS:

Develop and establish reference materials for nutrients in seawater (RMNS) collaborating with producers of currently available RMNS. Primary determinants are nitrate, nitrite, phosphate and silicate.

Collaborate and encourage National Metrology Institute of Japan to complete certification of RMNS for nitrate, nitrite, phosphate and silicate.

Carry out international collaboration exercises to verify the stability of the reference materials and test the proficiency of the new protocols.

Complete and publish a revised nutrients analysis manual (<http://www.go-ship.org/HydroMan.html>).

Promote the use of RMNS to aim for global acceptance in order to enable reliable comparability between global nutrient data sets.

Encourage the collaborations with communities of chemical reference materials for ocean sciences such as carbonate system RMs for DIC, TA and pH, and also for dissolved oxygen in seawater.