Cyanobacteria and Cyanotoxin Analysis and Testing Services

[As of 3/15/2016]

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Academy of Natural Sciences – Phycology Section
Patrick Center for Environmental Research
1900 Benjamin Franklin Parkway
Philadelphia, PA 19103
Tel: (215) 299-1080
Fax: (215) 299-1079
Email General: patrickcenter@ansp.org
Email Don Charles: dfc63@drexel.edu
Email Frank Acker (primary soft-algae taxonomist): fwa23@drexel.edu
Services: Identification of algae and algal measurements/biovolume, cell counts, chlorophyll
Pricing: (Can give estimate based on sample, and separate the phytoplankton and periphyton in terms of how they are processed)
  - Semiquantitative count (relative abundance, five-point scale, rare to abundant) – $150-200
  - Algal identification (cell count, biovolume) – $440-550
  - Chlorophyll (fluorometer) – Call for cost
  - Diatom count – $300

Aquatic Services, Wayne Carmichael, Ph.D.
42184 Tweedle Lane
Seaside, Oregon 97138
Tel: (503) 755-0711
Email: wayne.carmichael@wright.edu
Services: Retired, limits active lab work to Algal Identification/Enumeration.
Pricing:
  - Algal Identification (genus/species when possible) – $100
  - Enumeration/biovolume – $150
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**Beagle Bioproducts, Inc.,** ([http://beaglebioproducts.com/](http://beaglebioproducts.com/))
959 Schrock Rd
Columbus, OH 43229
Tel: 614-519-0154
Email Stephanie: stephanie.smith@beaglebioproducts.com

Services: Toxin testing (ELISA for service-based testing, can also do LC/MS for contracts), algal ID (generally not enumeration, but can do that for contracts).

Pricing:
- Microcystin, cylindrospermopsin, anatoxin, or saxitoxin ELISA – $125
- Algae identification (non-quantitative scan for presence/absence) – $75

Note: may also offer a heavily discounted regular testing program for drinking water facilities in 2016.

**CyanoPros,** ([www.cyanopros.com](http://www.cyanopros.com))
Alan Wilson - Assistant Professor
Auburn University - Fisheries and Allied Aquacultures
203 Swingle Hall
Auburn, Alabama 36849
Tel: 703-292-5190
Email General: cyanopros@auburn.edu, alan.e.wilson@gmail.com

Services: Phytoplankton enumeration (abundance or biovolume), identifications, toxin testing (ELISA only, for microcystin, cylindrospermopsin, saxitoxin), and other water quality analyses.

Pricing:
- Microcystin ELISA in algae – $50
- Microcystin ELISA in water – $50
- Microcystin ELISA in fish – $125
- Cylindrospermopsin ELISA – $100
- Saxitoxin ELISA – $50
- Phytoplankton identification – $50
- Phytoplankton culturing – $100
- Phytoplankton enumeration – contact them
- Chlorophyll a – $25

**EcoAnalysts, Inc.,** ([www.ecoanalysts.com](http://www.ecoanalysts.com))
Main Office
1420 South Blaine St., Suite 14, Moscow, ID 83843
Tel: (208) 882-2588
Fax: (208) 883-4288
Email General: eco@ecoanalysts.com
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Email Gary: glester@ecoanalysts.com

Services: phytoplankton counts, biovolume, and identification (including cyanobacteria), toxin analysis

Pricing:
- ELISA (Microcystin, Saxitoxin, Anatoxin A, Cylindrospermopsin) – $115-200, per analysis, depending on the number of samples in the batch
- Taxonomic analysis of cyanobacteria (taxa present, cell counts, cell densities, but no photographs or measurements/biovolume) – $90 per sample
- Taxonomic analysis of cyanobacteria (taxa present, cell counts, cell densities, and also biovolume measurements) – $135 per sample
  - Digital Images: $25 per taxon
- Full community taxonomic analysis (no biovolume) – $165-195
- Full community taxonomic analysis (with biovolume) – $250-290

Note: Three full-time algae taxonomists on staff, can turn samples fairly quickly depending on the number received per batch.

GreenWater Laboratories/CyanoLab, (www.greenwaterlab.com), Andrew Chapman or Mark Aubel
205 Zeagler Drive, Suite 302
Palatka, FL 32177
Tel: (386) 328-0882 or (877) 869-2542
Fax: (386) 328-9646
Email General: info@greenwaterlab.com
Email Mark Aubel: achapman@greenwaterlab.com
Email Andrew Chapman: andrewchapman@greenwaterlab.com

Services: Algal Identification/Enumeration, Toxin Testing.

Pricing:
- Phycological Services
  - Potentially Toxic Cyanobacteria Screen – $75
  - Qualitative Algal Identification – $100
  - Cyanobacteria ID & Enumeration – $150
  - Total Algal ID & Enumeration – $200
  - Algal ID, Enumeration & Biovolume – $325
- Microcystins/Nodularin:
  - ELISA – $100-125
  - LC-MS & UV Scan – $250-275
  - LC-MS/MS Suite (12 Variants & Nodularin) – $250-275
  - LC-MS/MS MMPB (oxidation, extraction & analysis for water) – $200-250
- Cylindrospermopsin
  - ELISA – $125-150
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- LC-MS/MS – $150-200
- Anatoxin-a
  - LC-MS/MS – $200-250
- Saxitoxins
  - ELISA – $125-150
  - LC-MS/MS Suite (C1/C2, GTX (1,2,3,4,5), dcGTX2/3, dcSTX, NEO, STX) – $250-300
- BMAA (includes isomers AEG & DAB) LC-MS/MS – $250-300
- 4 toxin bundle: Microcystins (ELISA), Cylindrospermopsin (LC-MS/MS), Saxitoxin (ELISA), Anatoxin-a (LC-MS/MS) – $500

New Hampshire Department of Environmental Services Laboratory (www.des.nh.gov)
29 Hazen Dr.
P.O. Box 95
Concord, NH 03302
Tel: (603) 271-3445
Fax: (603) 271-2997
Services: Cyanobacteria identification, cell concentration
Pricing: No charge for the 78 samples analyzed in 2015. These services/pricing are for New Hampshire residents only. External samples would be considered on a case by case basis.

Northeast Laboratories, Inc. (www.nelabsct.com)
129 Mill Street
Berlin, CT 06037
Tel: (860) 828-9787 (Ext. 103 for Alan Johnson) or Toll free in state: (800) 826-0105 and out of state: (800) 654-1230
Fax: (860)829-1050
Email General: nelabsct@aol.com
Email Alan Johnson: alan@nelabsct.com
Services: Algae/Cyanobacteria Cell Counts & Identification (to genus, not to species), cyanotoxins (Microcystins, Nodularin, Cylindrospermopsin – ELISA, and Abraxis screening dip sticks, potentially also looking at LC-MS for Microcystins)
Pricing: Depends significantly on turnaround time (if things need to be rushed).
  - Cell Counts (including identification) – $45-80
  - Semi-quantitative screening (Abraxis) – $50
  - ELISA – $75-80
  - Chlorophyll a – $60
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620 Broad Street, Suite 100
St. Joseph, MI 49085
Tel: (269) 983-3654
Fax: (866) 728-5579/(269) 983-3653
Email General: info@phycotech.com
Services: Phytoplankton counts (to species, Natural Units/mL and Cells/mL) including toxin and taste/odor cyanobacteria, with full archival slides if requested. Will have a fast response semi-automated solution available starting June 1, 2016.

Pricing:

- Phytoplankton Analyses
  - Species count w/ biovolume calculations – $359
  - Species count w/o biovolume calculations – $260
  - Genus count w/ biovolume calculations – $239
  - Genus count w/o biovolume calculations – $170
  - Division count – $163
  - Relative count to species – $260
  - Relative count to genus – $170

- Phytoplankton Analysis Targeted for Algal Blooms
  - Rapid Assay: Qualitative Species (when possible) Assay weighted for Biovolume, with 3 HPMA slides – $183
  - Rapid Assay: Qualitative Species (when possible) Assay weighted for Biovolume, without HPMA slides – $122
  - Toxic/Bloom Scan, One Species – $130

- Chlorophyll-A – $99

Rhode Island Department of Health (http://www.health.ri.gov/programs/detail.php?pgm_id=132)
Division of State Laboratories and Medical Examiner
50 Orms Street
Providence, RI 02904
401-222-5600
Email: evan.philo@health.ri.gov, henry.leibovitz@health.ri.gov
Services: Algal Identification/Enumeration, toxin testing.

Pricing:

- Algal ID & Enumeration – $50/sample.
- Microcystin/Nodularin Screen by ELISA – $50/freshwater sample; $100/brackish water sample.
- Mycrocystins (10), Nodularin, cylindrospermopsin (1) and anatoxin (1) by LC-MS/MS – $200/sample.
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SUNY-ESF, Dr. Greg Boyer, Professor of Biochemistry
Syracuse, NY 13210
Tel: (315) 470-6825
Email Greg Boyer: gboyer@esf.edu

Services: Capable of analyzing for many cyanobacteria toxins: Microcystins and nodularins -80 congeners; Paralytic shellfish toxins 56 congeners; anatoxin-a (6 congeners), anatoxin a(S) 1 variant and cylindrospermopsin (3 congeners). Can also analyze chlorophyll, phycocyanin, and can identify species/genus for samples. Results from analyses are generally available within three to four weeks by telephone or email.

Pricing: Rush orders (within 10 days) include a surcharge of $50-200 per sample, and advance arrangements must be made.

- Basic handling charge (includes data processing, sample filtration and preparation of extract, reports, voucher sample storage for 1 year and all our labor) – $110
- Microcystin analysis by PPIA (activity based enzyme assay) – $40
- Microcystin analysis by ELISA (antibody based structure assay) – $90
- Microcystin analysis by LCMS (HPLC with UV and mass selective detection) – $40
- Microcystin analysis by LC-MS/MS (HPLC analysis with tandem MS detection) – $90
- Tissue microcystins by MMPB (Bound microcystins in tissue by oxidation Anatoxin-a by HPLC-LCMS $25 (HPLC with mass selective detection) – $call
- Anatoxin-a by HPLC-FD (James et al HPLC via fluorescence detection) – $call
- Cylindrospermopsin by HPLC-PDA-MS (HPLC assay w/ uv and MS detection) – $25
- Cylindrospermopsin by ELISA (antibody based structure assay) – $90
- Beta methyl amino alanine by LC-MS (HPLC with mass selective detection) – $50
  - Bound BMAA as above (Determination of protein bound BMAA) – $90
- Anatoxin-a(s) by ACEI (activity based enzyme inhibition assay) – $call

Note: Greg cautioned that the lab is often manpower short – just because something is on the price sheet does not mean that the lab is actively running any given assay at any given time.

UConn Center for Environmental Science and Engineering (http://www.cese.uconn.edu/analyt_serv.html)
3107 Horsebarn Hill Road; U-4210
Storrs, CT 06269
Phone: (860) 486-2668
Email: christopher.perkins@uconn.edu

Services: Toxin analysis (ELISA and UPL/MS/MS)

Pricing:
- UPLC/MS/MS for microcystins (-RR, -YR, -LR, and -LA) and anatoxin-a in water – $139 for CT state agencies and municipalities, otherwise $182
  - Analysis for these compounds in filters – $151 for CT state agencies and municipalities, otherwise $199
- Total microcystin in water – $81 for CT state agencies and municipalities, otherwise $107
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Vermont Department of Health Laboratory (http://healthvermont.gov/enviro/ph_lab/PublicHealthLaboratory.aspx)
PO Box 1125
Burlington, VT 05402-1125
Phone: (800) 660-9997 or (802) 338-4724
Fax: (802) 338-4706
E-Mail: Kirk.Kimball@vermont.gov
Services: toxin analysis
Pricing: Services and pricing listed are for Vermont residents only. External samples would be considered on a case by case basis.
- Microcystin and Cylindrospermopsin by ELISA – $20.00
- Anatoxin-a by LC/MS/MS – $20.00

Water Resource Services Inc., Dr. Kenneth J. Wagner, Ph.D., CLM
144 Crane Hill Road
Wilbraham, MA 01095
Tel: (413) 219-8071
Email: kjwagner@charter.net
Services: Identification and count to genus level, many other lake management services.
Pricing: Unknown.
Note: Ken has a limit on how many clients he can serve, as this is only one of many lake management services he offers. He recommends Greenwater Labs for one shot assessments, and if ongoing testing is needed, he suggests contacting Abraxis about getting kits to do one’s own analyses.