

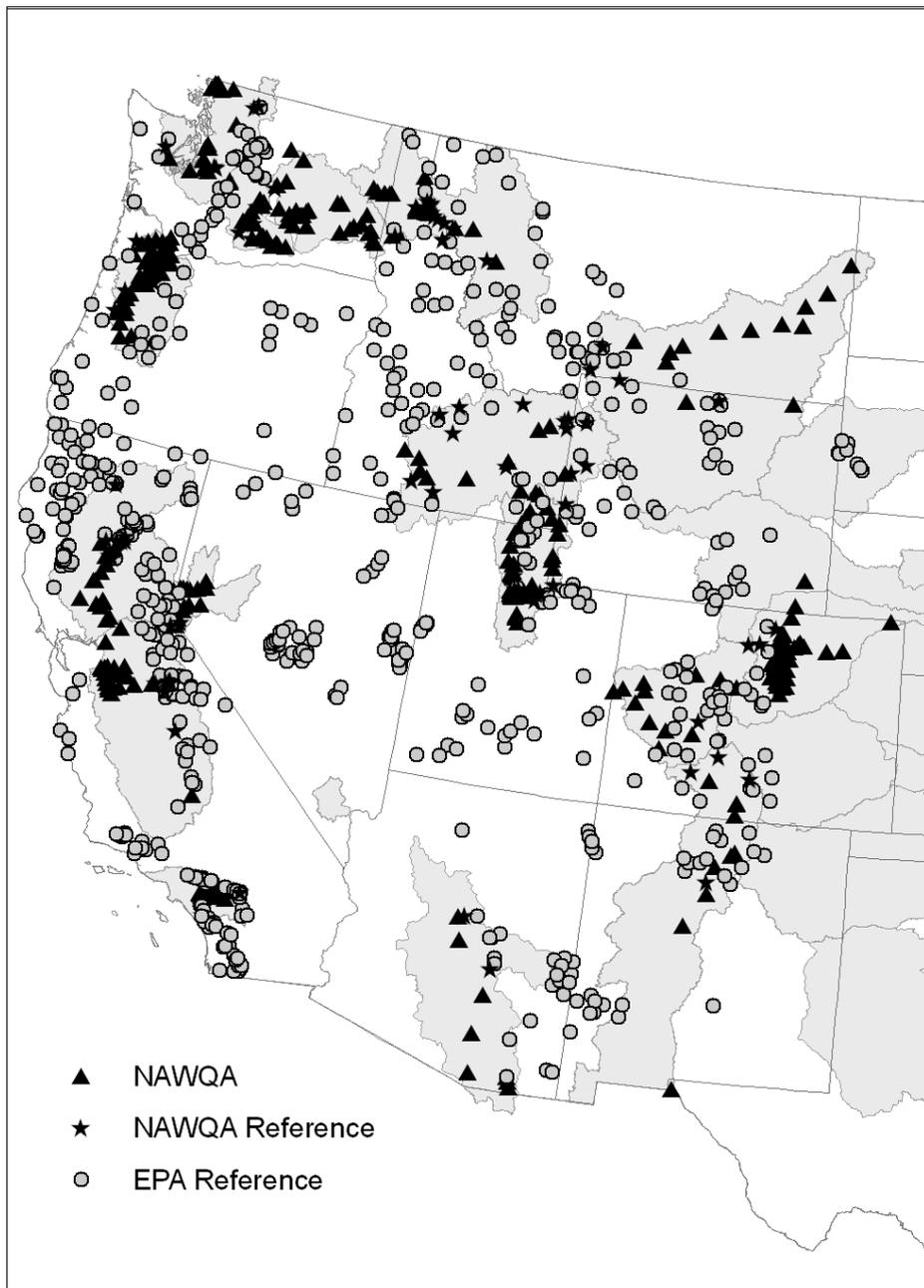
# Formation of a Taxonomic ~~Consistency~~ Issues Workgroup

Steve Moulton, Sarah Spaulding, Scott Grotheer, Rob Hood  
US Geological Survey

Sam Stribling  
Tetra Tech, Inc.

Monitoring resources are limited...

Growing need to share and use data (with confidence!) from multiple sources to facilitate assessments at local, regional, and national scales (e.g. reference sites).



Combined NAWQA & EPA invertebrate data facilitated development of models to assess condition throughout the western US

NAWQA assessments put in regional context allowing direct comparisons among river basins

# Taxonomic Issues

- Documentation of lab methods to prepare, subsample, and sort organisms
- Application of taxonomic conventions in documenting nomenclature and related metadata
- Accuracy/precision of identifications
- Quality assurance / Quality control

# Challenges

- Taxonomy is dynamic
- Post-hoc taxonomic harmonization time consuming and expensive if done properly
- Generally high staff turnover in labs
- Differences among labs in applying taxonomic conventions and identification aids (e.g., nomenclatural & metadata standards)
- Use of unpublished/undocumented field and lab protocols, methods, and standard operating procedures

# Recent Advancements

# Taxonomic Certification for Freshwater Invertebrates

The screenshot shows the website for the Society for Freshwater Science (SFS) Taxonomic Certification Programme. The page features a header with the SFS logo and navigation links. A search bar is present, and a main banner describes the organization's focus on freshwater organisms, ecosystems, and restoration. The main content area is titled 'TAXONOMIC CERTIFICATION PROGRAMME' and includes several paragraphs of text explaining the program's goals and procedures. A 'NAVIGATION' sidebar on the right lists various resources and links. The footer contains 'Terms of Use' and 'Privacy Policy' links.

www.nabstcp.com

Mail | DOI Remote Access | USGS | @The Core | NAWQA Public | NAWQA Intranet | Webforms | WebEx | IT Help | Other Bookmarks

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SOCIETY FOR FRESHWATER SCIENCE  
TAXONOMIC CERTIFICATION PROGRAMME

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SEARCH SFS  GO

SFS IS AN INTERNATIONAL ORGANIZATION WHOSE MEMBERS STUDY FRESHWATER ORGANISMS, BIOTIC COMMUNITIES, PHYSICAL PROCESSES THAT AFFECT ECOSYSTEM FUNCTION, LINKAGES BETWEEN FRESHWATER ECOSYSTEMS AND SURROUNDING LANDSCAPES, HABITAT AND WATER QUALITY ASSESSMENT, CONSERVATION, AND RESTORATION

### TAXONOMIC CERTIFICATION PROGRAMME

The accurate and precise identification and classification of organisms provides the foundation for many ecological investigations of streams, rivers, and lakes, including biological assessment and monitoring programs aimed at evaluating the quality of habitat and water.

High quality taxonomy is crucial to credible ecological studies and reliable bioassessment programs. However, there is concern that (A) there are many errors and inaccuracies associated with the taxonomy of some on-going programs; (B) there is no recognizing protocol in North America for evaluating the taxonomic ability of people identifying invertebrates; and (C) academic support for faculty positions and student training related to non-molecular, organismal taxonomy is declining. These concerns have been expressed to the SFS leadership by a number of state and federal agencies (e.g., Kentucky, North Carolina; Environment Canada, US Environmental Protection Agency, US Geological Survey) involved in environmental regulation and monitoring as well as by individuals involved in both basic and applied scientific research.

Consequently, the SFS decided to implement a certification program for those involved with invertebrate identification in North America. This program will certify that trained and skilled persons are providing aquatic invertebrate identifications. In addition, it is anticipated that this program will help promote undergraduate and graduate training of new taxonomic experts, the training of taxonomic technicians through workshops, the development of new manuals for identifying aquatic invertebrates, and taxonomic excellence in other disciplines and other parts of the world. The certification program will test a candidate's knowledge and skills in aquatic invertebrate taxonomy and will provide the successful applicant with a certificate of proficiency. The program is administered on behalf of SFS through Acadia University in Wolfville, Nova Scotia.

Individuals may be certified either at the "Family Level" or "Genus Level". Genus level testing is conducted using actual specimens either whole or slide mounted in a scheduled certification examination. The Genus level tests are held at various locations in North America as well as at the annual SFS conference. The upcoming tests are listed on the web site. The Family level tests are web based using images and can be taken online at pre-arranged testing centres with a registered Proctor. In addition we offer a free self evaluation test to prepare candidates for the online testing.

**All Taxonomic Certifications stand for five years. Please contact the TCP about your renewal process.**

### ANNOUNCEMENTS

**NEW Recertification Petition Posted - Friday, September 21, 2012**  
As of September 21, 2012 the SFS- Taxonomic Certification Committee has posted a new version of the Re-certification Petition.

**Taxonomic Certification Committee Members - Monday, June 06, 2011**  
We currently have one vacant seat on the TCC.

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SFS-TCP

# Diatoms of the United States



## Diatom identification guide & ecological resource

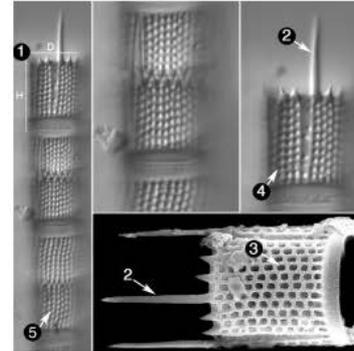
for water resource managers, ecologists, taxonomists, analysts, systematists, students, and the public.

We aim to provide users with accurate information about diatoms of the United States.

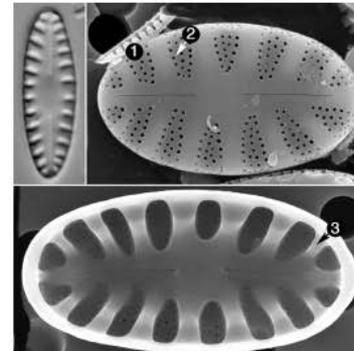
Expert contributors are submitting text and images for freshwater genera and North American species, including taxonomic and ecological information.

Our project organizer is creating composite illustrations for all taxa (examples to the right). For many species, environmental response plots and geographic distribution maps are included.

The editorial review board is ensuring the scientific merit of each submission and directing site development.



*Aulacoseira granulata*



*Hygropetra*

GENERA	SPECIES
131 Completed	494 Completed
21 Underway	161 Underway
152 TOTAL	655 TOTAL

## Getting Started

- [ABOUT THIS WEBSITE](#)
- [WHAT ARE DIATOMS?](#)
- [IDENTIFY YOUR TAXA](#)

## Special News

25 March, 2011  
Information for new contributors

## News

25 October, 2012  
Why so slow?

25 September, 2012  
U.S. Geological Survey BioData

[More news...](#)

## Projects

Algal biodiversity in Great Smoky Mountains National Park

Diatoms from the Crown of the Continent

Atmospheric deposition of nitrogen and its effects on diatoms

[More projects...](#)



# Standardization Efforts

- Southern California Association of Marine Invertebrate Taxonomists
- USGS National Water Quality Lab Bio Group & BioData System
- Southwestern Association of Freshwater Invertebrate Taxonomists
- [Methods and Data Comparability Board](#) (e.g., NEMI & WQDEs)

# Approach

- Convene ad hoc workgroup to prepare a charter
- Circulate charter establishing workgroup to NWQMC (via MDCB) for approval
- Reach out to NWQMC **constituency** for input and participation
- Use biennial meetings to hold special workgroup sessions & technical workshops

# Objectives

- Identify and prioritize issues promoting taxonomic accuracy and consistency in algae, invertebrates, and fish data
- Provide active resolution of issues
- Provide guidance and recommendations

# Example Outcomes & Products

- Enhancement of existing Methods and data Comparability Board resources (e.g., NEMI & WQDEs)
- Development of standardization protocols (taxonomic convention, identification literature, metadata documentation)
- Tool development (e.g., Diatoms of US)
- Technical workshops & special sessions

Questions?