Colorado Water Garden Society
c/o Newsletter Editor
1023 S. Kittredge Way
Aurora, Colorado 80017

First Class Mail

August 8
Gates Hall - DBG
***- Landscaping Around the Pond* - Blue Lotus Designs**

August 14-15
Tagawa Nursery, Aurora
Garden Club/Society Exhibits

August 21
CWGS Water Garden Spectacular
Denver Botanic Gardens

September 12
Morrison Center, Denver Botanic Gardens
- Board/Officer Elections
***- Design of Japanese Water Gardens* - Paul Swenby, aPR Landscaping**

December 4
CWGS Holiday Party
Morrison Center, Denver Botanic Gardens

Board Meetings are held at 12:00 pm prior to general meetings at 2:00 pm. Members are encouraged to attend.

Colorado Water Garden Society

The Water Garden

Volume 21, Number 5 *August 2004*

First Ever "Water Garden Spectacular" to be held at DBG August 21

The Colorado Water Garden Society and Denver Botanic Gardens will present the first ever "Water Garden Spectacular" on Saturday, August 21, from 10 a.m.-4 p.m. The Spectacular is timed to celebrate DBG's water garden displays, then in peak bloom. Visitors will receive a free waterlily or marginal plant, while supplies last, throughout the day.

Stroll through DBG's stunning water gardens, displaying hundreds of colorful waterlilies, tropical plants, and the rare Victoria waterlilies from the Amazon. Learn how to create a new garden, or extend the plant selections in your existing water garden. Meet the staff and CWGS volunteers behind the water gardens at Denver Botanic Gardens.

Experts from CWGS and DBG will be on hand all day to answer questions, conduct tours of the greenhouses and the water gardens, and demonstrate how you can become a more successful water gardener. If you would be interested in helping Garden visitors at one of three different stations that day, contact Duff Kerr, 303-871-0336. Members are being sought to discuss pond construction, planting around the pond, and their personal experiences with water gardens.

August CWGS meeting to feature pond landscaping

Blue Lotus Designs of Denver will discuss "*Landscaping Around the Pond*" at the monthly CWGS meeting August 8th. Located in Gates Hall in the DBG Conservatory, the CWGS Board will meet 12:00-1:30 pm, with the program from 2:00-4:00 pm.

Blue Lotus builds and maintains water gardens throughout the region, and has been a consistent participant in the CWGS Water Gardening and Pond Expo each year.

Official Journal of the Colorado Water Garden Society

Inside: Pond tour 2004 - Recap

Officers & Committee Chairs

President
Cyndie Thomas 303.755.1885
Vice President
Duff Kerr 303.871.0336
Secretary
Bill Powell 303.355.8098
Treasurer
Gail Goldberg 303.329.6624
Programs
Rebecca Nash 303.766.2863
Members-at-Large
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Lowell Coon 303.427.8532
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July Pond Tour & Picnic
Kathy Childs 303.221.5407
DBG May Plant & Book Sale
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Carla Littlefield 303.399.7946
Archivist
Mary Mirgon 303.922.9559

The Water Garden is the official journal of the Colorado Water Garden Society (CWGS)

http://www.colowatergardensociety.org

Upcoming Events

--- Coming in December 2004....an exclusive CWGS calendar featuring YOUR photographs. The photos that appear in the calendar will be selected by the CWGS Board, and all photos submitted will be put on the CWGS website. Send your pictures in digital format to: *michael.thomas@comcast.net*
If you don't have a digital camera, we can scan photos and convert them to digital format. All photos become property of CWGS.

--- Every year during Spring and Fall cleanup at the Denver Botanic Gardens, volunteer workers find change in the cleaned and drained ponds. This year we are offering CWGS members the opportunity to win a prize - a small pre-formed pond. What you do to win is guess how much money will be collected by the end of Fall cleanup, 2004. The Spring cleanup yielded a total of $2.18, collected after the Gardens drained the ponds before cleaning.
You can e-mail your guesses to Gail Goldberg, Treasurer, at ggold@pcisys.net or hand them in during a meeting. Each member can enter only once. There is a slight advantage to those volunteers that will be helping with the Fall cleanup, so contact Lowell Coon to sign up. The winner will be announced in the November newsletter, with the pond to be awarded at the Holiday Party. All monies collected will go back to Denver Botanic Gardens.

Express Membership Application

Membership Fees: $10.00 Individual; $15.00 Family
Fees may change without notice

Make checks payable to Colorado Water Garden Society;
DO NOT send cash. Thank you.

Return this form with your payment to:
CWGS Membership
1023 S. Kittredge Way
Aurora, CO 80017

(Please Print)

Name(s) _____

Street _____

City _____ State _____ Zip _____

Home Phone ( ) _____

Work Phone ( ) _____

E-Mail _____

Signature _____

Date _____

Pond Experience (Beginner) _____ (Some Skill) _____ (Pro) _____

Contact me concerning volunteer opportunities I have checked below:

CWGS Sale (June) _____ Pond Tour (July) _____ Outreach _____

DBG Plant Help (Spring) _____ (Fall) _____ DBG Sale (May) _____

pH - Why is it Important?

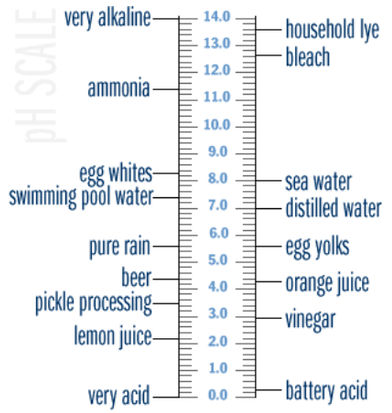
The pH of a sample of water is a measure of the concentration of hydrogen ions. The term pH was derived from the manner in which the hydrogen ion concentration is calculated - it is the negative logarithm of the hydrogen ion (H+) concentration.

What this means to those of us who are not mathematicians is that at higher pH, there are fewer free hydrogen ions, and that a change of one pH unit reflects a tenfold change in the concentrations of the hydrogen ion.

For example, there are 10 times as many hydrogen ions available at a pH of 7 than at a pH of 8. The pH scale ranges from 0 to 14. A pH of 7 is considered to be neutral. Substances with pH of less that 7 are acidic; substances with pH greater than 7 are basic.

The pH of water determines the solubility (amount that can be dissolved in the water) and biological availability (amount that can be utilized by aquatic life) of chemical constituents such as nutrients (phosphorus, nitrogen, and carbon) and heavy metals (lead, copper, cadmium, etc.).

For example, in addition to affecting how much and what form of phosphorus is most abundant in the water, pH may also determine whether aquatic life can use it. In the case of heavy metals, the degree to which they are soluble determines their toxicity. Metals tend to be more toxic at lower pH because they are more soluble.



Reasons for Natural Variation

Photosynthesis uses up dissolved carbon dioxide which acts like carbonic acid (H_2CO_3) in water. CO_2 removal, in effect, reduces the acidity of the water and so pH increases. In contrast, respiration of organic matter produces CO_2, which dissolves in water as carbonic acid, thereby lowering the pH. For this reason, pH may be higher during daylight hours and during the growing season, when photosynthesis is at a maximum.

Respiration and decomposition processes lower pH. Like dissolved oxygen concentrations, pH may change with depth in a lake, due again to changes in photosynthesis and other chemical reactions. There is typically a seasonal decrease in pH in the lower layers of a stratified lake because CO_2 accumulates. There is no light for plants to fix CO_2 and decomposition releases CO_2.

Fortunately, lake water is complex; it is full of chemical “shock absorbers” that prevent major changes in pH. Small or localized changes in pH are quickly modified by various chemical reactions, so little or no change may be measured. This ability to resist change in pH is called buffering capacity. Not only does the buffering capacity control would-be localized changes in pH, it controls the overall range of pH change under natural conditions. The pH scale may go from 0 to 14, but the pH of natural waters hovers between 6.5 and 8.5.

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Fish and Koi Societies and Clubs

(eff. June 2004 - USE AT YOUR OWN RISK!!)

Mid Atlantic Koi Club (Virginia)
Contact: Susan Boland
3920 Shaker Court
Montclair, Virginia 22026
Website: www.makc.com

Central CA Koi Society - Fresno (California)
Contact: George Garrison
1225 E Aluvial
Fresno, California 93710
Telephone: 209-291-8874

Koi Club of San Diego (California)
Contact:
PO Box 28027
San Diego, California 92128
Telephone: 619-597-1426

Mendocino Cst Koi & Watergarden Society (California)
Contact: Jim Hooper
203 Pine Street
Fort Bragg, California 92128
Telephone: 707-964-2618

Southern California Koi Club (California)
Contact: Burt Ballou
1338 W. 159th Street
Gardenia, California 90247
Telephone: 714-839-1836

Camellia Koi Club-Sacramento (California)
Contact: Doug & Dianne Peccianti
8435 Crater Hill Road
Newcastle, California 95658
Telephone: 916-484-1253

Valley of the Sun Koi Club-Phoenix (Arizona)
Contact: Kathy Rhodes
3224 E Sweetwater
Phoenix, Arizona 85032
Telephone: 602-867-2764

Southern Arizona Koi Association (Arizona)
Contact: Debby Tibbetts
11355 W. Picture Rocks Road
Tucson, Arizona 85743 United States
Email: tidbitkoi@aol.com

Tucson Koi Society (Arizona)
Contact: Steve Caruso
232 W Eric
Tucson, Arizona 85706
Telephone: 520-294-9867

High Desert Koi Fanciers (California)Contact:
Jim Summerfield
Telephone: 805-722-3364

South African Koi Keepers Society Contact:
Email: mrkoi@global.co.za

Hoseki Koi Club - San Gabriel/San Fernando
Contact: Peter Helf
Telephone: 818-353-3809

Nishiki Koi Club- Orange County (California)
Contact: Carl Caddies
2031 E Pioneer Avenue
Fullerton, California 92631
Telephone: 310-943-8197
Fax: 310-947-1223

San Francisco Bay Area Koi Club (California)
Contact: Larry Gill
14755 Oleander Street
San Leandro, California 94578
Telephone: 510-352-7168

Valley Koi Society-Modesto (California)-
Contact:
2512 Talent Drive
Modesto, California 95355

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MARKET PLACE

CWGS Members - use this space to TRADE or DONATE water garden plants and supplies. Let us know what you have too much of, don't need anymore, or would like to have. We'll put your

Free Firewood - U-Haul

Cut dry pine logs, need to be split.
Call 303-688-3435

Koi and Fish Societies & Clubs

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Zen Nippon Airinkai-Orange County Contact: Doug Dahl
Telephone: 714-731-5610

Ventura County Koi Society (California)-
Contact: Doug Dahl
Telephone: 714-731-5610

Zen Nippon Airinkai-Southern California (California)
Contact: Vergil & Marlyn Hettick
Telephone: 714-970-6390

Rocky Mountain Koi Club (Colorado)Contact: Del Pakiser-President
Email: DRPakiser@aol.com

Central Florida Koi Club (Florida)
Contact: Sherri or Joe White
Email: swkoi@aol.com

North Florida Koi Club-Jacksonville (Florida)
Contact: Jon Lockerman
1945 Hickman Road
Jacksonville, Florida 32216-4444
Email: yogyoen@aol.com

Hawaii Goldfish & Carp Assoc. (Hawaii)-
Contact: Bruce Ushijima
45-1109 Haleloke Place
Kaneohe, Hawaii 96744

Warner Robins Koi Society (Georgia)Contact: Norbun Watson
711 Bernard Drive
Warner Robins, Georgia 30193

Greater Louisville Koi & Goldfish Society (Kentucky)
Contact: Charles Phelps
6806 Briscoe Lane
Louisville, Kentucky 40228
Telephone: 502-239-1323

Desert Koi Club of Southern Nevada (Nevada)
Contact: Fred Malueng
Telephone: 702-656-9917

Sierra Koi Club (Nevada)
Contact: Linda Barlow
1241 Kirston Street
Reno, Nevada 89503
Telephone: 702-746-2588

Oklahoma Koi Society (OK)
Contact: Bill Puckett
5 Cow Trail Road
Shawnee, OK 74801
Telephone: 405-275-3880
Email: bbarkoi@geocities.com
Website: www.geocities.com/Heartland/Flats/5295/

Cascade Koi & Goldfish Club (Oregon)-
Contact: George Bowman
11487 SE 45th
Milwaukie, Oregon 97222
Telephone: 503-659-2023

Koi/Goldfish Club-ZNA Chapter (Washington)
Contact: Morris or Jeanie Bush
5200 NE 109th Street
Vancouver, Washington 98686
Telephone: 206-573-3320

Pacific Wonderland Koi Club (Oregon)-
Contact: Jim & Kathy Ferriss
4900 SE Thiessen Rd
Milwaukie, Oregon 97267
Email: AKOIDOC623@AOL.COM

Diamond State Aquarium Society (Delaware)
Contact:
P.O. Box 545
Delaware City, Delaware 19706 United States

Mid-Atlantic Koi Club (Virginia)
Contact: John File
11794 Target Court
Woodbridge, Virginia 22192
Telephone: 215/464-2207
Email: makckoi@mail.erols.com
Website: www.makc.com

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Koi and Fish Societies & Clubs

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Greater Piedmont Spartanburg Koi Club (South Carolina)
Contact:
6631 Roosevelt Avenue
Charleston, West Virginia 25304

Showa Koi Club - Charleston (South Carolina)
Contact: Ray Kennerty
2914 Foxhall Road
Charleston, South Carolina 29414
Telephone: 803/571-3166

Joy of Koi Club - Houston (Texas)Contact: Bob
Lake Forest Drive
West Columbia, Texas 77486
Telephone: 409/345-5532

Lone Star Koi Club-Houston and Austin (Texas)
Contact: John Howell
1511 S. Hearthside Dr.
Richmond, Texas 77469
Email: jhponds@hal-pc.org
Website: www.lonestarkoi.com

Goldfish Society of America (Ohio)
Contact:
PO Box 87
Brunswick, Ohio 44212-0087
Email: goldfish.society@prodigy.netWebsite: www.goldfishsociety.net

Texas Koi and Fancy Goldfish Society (Texas)
Contact: Ray Jordan
San Antonio, Texas
Email: rayjdiver@aol.

Colorado Water Garden Society

Welcome to CWGS!!

Renewing Members
Jim Banman
Gabriella & Mario Bertelmann
Edwin & Alice Campbell
Lee Carlson
Ron Delongchamp
Don & Sue Eloe
Mike Gibson
Jonathan & April Hough
Rosemary Isbell
Kerstin Karloev
Jamie Mangone
Steve and Maryann Miller
Ron & Karen Shaw
Trey & Nancy Styler
Andria Thomas
Micaela Thomas
Mike & Cyndie Thomas
Valerie Weibel

New Members
Scott & Samantha Eddy
Jan Davis
Tom & Anne Herbst
Damian & Quanah Konecny
Kristy Wasserbach
Richard Young

pH - Why is it Important?

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Expected Impact of Pollution
When pollution results in higher algal and plant growth (e.g., from increased temperature or excess nutrients), pH levels may increase, as allowed by the buffering capacity of the lake. Although these small changes in pH are not likely to have a direct impact on aquatic life, they greatly influence the availability and solubility of all chemical forms in the lake and may aggravate nutrient problems. For example, a change in pH may increase the solubility of phosphorus, making it more available for plant growth and resulting in a greater long-term demand for dissolved oxygen.
Values for pH are reported in standard pH units, usually to one or two decimal places depending upon the accuracy of the equipment used.
Since pH represents the negative logarithm of a number, it is not mathematically correct to calculate simple averages or other summary statistics.
Instead, pH should be reported as a median and range of values; alternatively the values could be converted to hydrogen ion concentrations, averaged, and re-converted to pH values.
Generally, during the summer months in the upper portion of a productive or eutrophic lakes, pH will range between 7.5 and 8.5. In the bottom of the lake or in less productive lakes, pH will be lower, 6.5 to 7.5, perhaps. This is a very general statement to provide an example of the differences you might measure.

The Case of Acid Rain
An important exception to the buffering of pH changes in lakes is the case of lakes affected by acid rain. Lakes that have received too much rain with a low pH (acid rain), lose their buffering capacity. At a certain point, it takes only a small bit of rain or snowmelt runoff for the pH to change. After that point, change occurs relatively quickly. According to the EPA, a pH of 5-6 or lower has been found to be directly toxic to fish (for additional information, see our acid rain links).

REFERENCES
Michaud, J.P. 1991. *A citizen's guide to understanding and monitoring lakes and streams.* Publ. #94-149. Washington State Dept. of Ecology, Publications Office, Olympia, WA, USA (360) 407-7472.
Moore, M.L. 1989. *NALMS management guide for lakes and reservoirs*. North American Lake Management Society, P.O. Box 5443, Madison, WI, 53705-5443, USA (*http://www.nalms.org*).
Source of article:
http://wow.nrri.umn.edu/wow/under/parameters/ph.html

Jan Davis

Scott & Samantha Eddy

Dennis Martin & Diane Thompson

Allen & Andrea Shultz

More pictures at
www.colowatergardensociety.org

Pond tour 2004 - Recap

Dan Fyles & Andrea Sahlen

Mike & Cyndie Thomas

Rebecca Nash

Tom & Anne Herbst