

PROGRAM

FORTIETH ANNUAL MEETING & INTERNATIONAL CONFERENCE

THE AQUATIC PLANT MANAGEMENT SOCIETY, INC.



**THE HANDLERY HOTEL & RESORT
SAN DIEGO, CALIFORNIA U.S.A.
JULY 16 – JULY 20, 2000**

1999 - 2000

APMS Sustaining Members

Applied Biochemists
Milwaukee, Wisconsin

Aquarius Systems
North Prairie, Wisconsin

Aquatic Nuisance Plant Control, Inc.
U.S.A.

Becker Underwood
Ames, IA

Biosonics, Inc.
Seattle, WA

Brewer International
Vero Beach, Florida

Cygnat Enterprises, Inc.
Flint, Michigan

Diversified Waterscapes, Inc
Laguna Niguel, CA

Electronic Data Solutions
Jerome, ID

Elf Atochem North America
Exton, Pennsylvania

Griffin, LLC
Valdosta, Georgia

SePRO Corporation
Carmel, Indiana

Zeneca Professional Products
Wilmington, Delaware

The above listing was taken from the best information available at the time the APMS Program Book was compiled and sent to the printer. We apologize for any omissions or errors and will make every effort to provide verbal recognition to any new or additional Sustaining Members during the conference. Please bring this information to the attention of Jim Schmidt, 2000 APMS Program Chair. Thank you for your understanding.

1999 - 2000

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AGENDA

FORTIETH ANNUAL MEETING

THE AQUATIC PLANT MANAGEMENT SOCIETY, INC.

Handlery Hotel & Resort - San Diego, California - July 16 - 20, 2000

SATURDAY JULY 15, 2000

1:00 pm - 5:00 pm	APMS Strategic Planning Ad Hoc Committee Meeting	TBA
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SUNDAY JULY 16, 2000

8:00 am - 12:00 noon	Golf Outing	
8:30 am - 3:00 pm	APMS Board of Directors Meeting	Executive Room
9:00 am - 6:00 pm	Exhibit Set-up	Garden Room
9:00 am - 6:00 pm	Poster Set-up	Terrace Toom
12:00 noon - 6:00 pm	Registration	Foyer
12:00 noon - 6:00 pm	Presenters' Slide Viewing	California Room
7:00 pm - 9:00 pm	President's Reception - All Delegates Invited	Poolside

MONDAY JULY 17, 2000

8:00 am - 5:15 pm	General Session	Crystal Room
8:00 am - 5:00 pm	Registration	Foyer
8:00 am - 5:00 pm	Exhibits	Garden Room
8:00 am - 5:00 pm	Posters	Terrace Toom
8:00 am - 5:00 pm	Presenters' Slide Viewing	California Room
8:30 am - 1:00 pm	Spouses' Tour of San Diego Historic Sites, Pt. Loma Lighthouse & Luncheon - Sponsored by Elf Atochem	Hotel Lobby
12:00 noon - 1:00 pm	International Guests & Student Presenters/Advisors Luncheon Sponsored by - Applied Biochemists	Tower Room
12:00 noon - 1:00 pm	AERF Board Meeting - Members & Invited Guests	Executive Room
5:30 pm - 7:30 pm	AERF Focus Group -Members & Invited Guests	Tower Room

TUESDAY, JULY 18, 2000

6:30 AM - 8:00 am	APMS Regional Chapters Presidents' Breakfast-Sponsored by Zeneca Professional Products	Executive Room
8:00 am - 5:00 pm	General Session	Crystal Room
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5:30 pm - 10:00 pm	Annual APMS Banquet - Cruise, Dinner & Entertainment Co-Sponsored by - SePro Corp. & APMS	Spirit of San Diego

Wednesday July 19, 2000

8:00 am - 4:00 pm	General Session	Crystal Room
8:00 am - 2:00 pm	Exhibits	Garden Room
8:00 am - 2:00 pm	Posters	Terrace Toom
8:00 am - 12:00 noon	Presenters' Slide Viewing	California Room
11:30 am - 1:15 pm	APMS AWARDS / OFFICER INSTALLATION LUNCHEON Sponsored by Zeneca Professional Products	Presidio Room
4:00 pm - 6:00 pm	Corps APCRP Review	Executive Room

Thursday July 20, 2000

8:00 am - 11:00 am	APMS Board of Directors	Executive Room
9:00 am - 3:00 pm	San Diego Zoo Animal Park Behind the Scenes Tour (36 max.) (Optional Pay as you go - Sign-up at Registration Desk by Noon on Monday July 17th)	Hotel Lobby
1:00 pm - 3:00 pm	Model Wetlands Marsh Project Tour - NO CHARGE (Sign-up at Registration Desk by noon 7/17 limited to the first 45 people)	Hotel Lobby

APMS MEETING FUNCTIONS AND SPONSORED EVENTS

Golf Outing

Sunday July 16, 2000 – 8:00 am Tee Time: Join in this informal “tournament” to compete for prizes awarded for: Closest to Pin; Longest Drive; Highest Score and Lowest Score. Organized by Tyler Koschnick of SePRO Corp. Sign up required by June 15th, but check for last minute openings. Cost is \$90.00 per golfer.

APMS President’s Reception

Sunday July 16, 2000 – 7:00 pm-9:00 pm: All delegates are invited to attend this informal kick-off to the meeting. Enjoy the beautiful San Diego weather, poolside at the Handlery, and sample some of their fine hors d’ oeuvres and beverages at the cash bar.

Spouses Tour

Sponsored by Elf Atochem – North America

Monday, July 17, 2000 – 8:30 am-1:00 pm: Enjoy a guided bus tour of San Diego including visits to historic sites and the Pt. Loma Lighthouse. Stop to shop along the way. Lunch included. Meet in the hotel lobby by 8:15 am.

International Guests & Student Presenters/Advisors Luncheon

Sponsored by Applied Biochemists

Monday July 17, 2000 – 12:00 noon-1:00 pm: All international speakers and guests plus student paper/poster presenters and their academic advisors are invited to attend this noon luncheon in the Tower Room, upstairs from the lobby of the Handlery Hotel. A great opportunity to broaden horizons by meeting and mingling with some new colleagues.

AERF Focus Group Reception

Sponsored by the Aquatic Ecosystem Restoration Foundation

Monday July 17, 2000 – 5:30 pm-7:30 pm: Limited to invited guests and AERF members. This focus group session is targeted to bring together academia, industry and government research personnel to discuss and find new avenues to enhance and support interest in the discipline of aquatic plant management. Meet in the Tower Room after the APMS sessions for discussion and light snacks/refreshments.

APMS Regional Chapters’ Breakfast

Sponsored by Zeneca Professional Products

Tuesday July 18, 2000 – 6:30 am -8:00 am: Compare notes on what is going on around the country and the world with aquatic plant management activities in each of our Chapter Regions. Breakfast will be served in the Executive Room, upstairs from the Handlery Hotel lobby. Two delegates per chapter are allowed to attend. David Tarver, APMS Vice President and Local Chapters Chair, will function as the moderator.

Annual APMS Banquet – Cruise, Dinner & Entertainment

Co-Sponsored by SePRO Corporation and APMS

Tuesday July 18, 2000 – 5:30 pm -10:00 pm: Board the buses outside the hotel lobby for a ride to the harbor to board the Spirit of San Diego cruise ship. Enjoy a pleasant San Diego Bay cruise while dining on fine food and listening to popular, live band music by Mumbo Gumbo. We will hold our annual scholarship drawing/raffle onboard ship, but have deferred awards, recognitions and officer installations until the noon luncheon on Wed. July 19th in order to take full advantage of the entertainment provided.

APMS Awards/Officer Installation Luncheon

Sponsored by Zeneca Professional Products

Wednesday July 19, 2000 – 11:30 am-1:15 pm: All delegates are invited and encouraged to attend this sit-down luncheon in the hotel's Presidio Room to recognize those who have served and contributed to the APMS, welcome new officers and directors and present student paper awards. The competition this year will be particularly tough with a record number (10) participants. Remember, there are more papers and equipment demos following the lunch, so plan on staying.

APMS Scholarship Raffle/Drawing

APMS wishes to thank the numerous individuals and companies who generously donated items to raise money for the APMS Scholarship Fund. At the time of this printing, a comprehensive list of contributors was unavailable, however, they will be recognized during the meeting.

Drawing Grand Prize - Donated by Cygnet Enterprises, Inc.

Cygnet Enterprises, Inc. has once again generously donated a premium raffle prize (**valued between \$1,600 to \$2,500**) to raise **APMS scholarship monies** at our Annual Banquet. This year's bidding wars are expected to be particularly fierce and competitive with the winner having

HIS OR HER CHOICE OF ONE OF THE FOLLOWING:

ISLAND CRUISE

SHOPPING SPREE

FISHING TRIP

Refreshment Breaks

Donated by APMS Exhibitor Participants

APMS wishes to thank its corporate members and 2000 Conference exhibitors for their participation in this year's meeting. Exhibit fees and additional donations made by these companies help to offset the costs of refreshment breaks. APMS delegates are encouraged to visit with these vendors during the meeting and show their support and gratitude.

40th Annual APMS Meeting Commemorative T-Shirts

Donated by the Western Aquatic Plant Management Society

Thank you to the WAPMS for their local arrangements support and meeting "souvenir".

General Funding

Financial & Technical Support from the U.S. Army Corps of Engineers

Thank you to the agency and staff of WES and the U.S. Army Engineer Research and Development Center for their contribution to this meeting

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Session I

Presiding

PLENARY

Lewis Decell - President APMS

Crystal Room

8:00:am

Call to Order

8:05 am

Opening Announcements:
Jim Schmidt, Program Chair/President-Elect APMS, Inc.
Lars Anderson, APMS Local Arrangements Chair

8:10 am

Presidential Address - Footprints for the Future.
Lewis Decell, President, APMS, Inc.

8:50 am

APMS Regional Chapter Reports - Florida - Midwest - Mid-south
Nile Basin - Northeast - South Carolina - Texas - Western
Selected Chapter Officer or Delegate

9:30 am

Sea Grant and Invasive Aquatic Plants: A New National Outreach Initiative
Heather M. Crawford, Connecticut Sea Grant Extension Program.

9:50 am

The Aquatic Ecosystem Restoration Foundation: A Unique Approach to Applied Research.
Michael D. Moore, Executive Director, AERF, Lansing, MI.

10:05 am

BREAK / REFRESHMENTS - EXHIBITS
Poster Viewing

Garden Room
Terrace Room

10:20 am

Silent Spring Revisited.
W. T. Haller, University of Florida, Center for Aquatic and Invasive Plants, Gainesville, FL.

Crystal Room

10:35 am

APIRS-Current Status and Potential New Directions.
Karen Brown, Univ. of FL Center for Aquatic & Invasive Plants, Gainesville, FL.

MONDAY JULY 17, 2000

10:50 am	Overview of the CALFED Program with an Invasive Species Perspective Bellory Fong , Environmental Program Manager, CALFED, Sacramento, CA.	
11:05 am	Aquatic Plant Management at the City of Orlando: Its Past, Present and Future. John A. Evertsen , City of Orlando Dept. of Streets & Drainage, Orlando, FL.	
11:20 am	ANNUAL APMS BUSINESS MEETING President Lewis Decell Presiding	
12:00 Noon	LUNCH	
12:00 Noon - 1:00 pm	International Guests & Student Presenters/Advisors' Luncheon Sponsored by - Applied Biochemists	Tower Room
12:00 Noon - 1:00 pm	Aquatic Ecosystem Restoration Foundation (AERF) Board of Directors Meeting & Luncheon	Executive Room
SESSION II Moderator	INTERNATIONAL Dr. Lars Anderson	Crystal Room
1:00 pm	Keynote: The Age of Water Scarcity: In Search of a New Paradigm in Aquatic Weed Control. Wim van Vierssen , I.H.E Delft, The Netherlands	
1:30 pm	Invasive Elodea Problems Impacting <i>Najas flexilis</i> : a Rare Native Macrophyte in Scottish Lochs. (Student Paper) Ruth Wingfield & K. J. Murphy, University of Glasgow, Glasgow, Scotland	
1:45 pm	Trait Variation in Lotic Macrophyte Populations from Scotland and Egypt in Relation to Water and Sediment Physio-Chemistry. Magdi M. Ali & K. J. Murphy University of Glasgow, Glasgow, Scotland	
2:00 pm	Plant-Groundwater Interactions in Freshwater Wetlands: A Functional Monitoring Approach. (Student Paper) Michael P. Kennedy , K. J. Murphy, & D. J. Gilvear, University of Glasgow, Glasgow, Scotland.	
2:15 pm	Studies for Aquatic Plant Management in Hydro Electrical Lakes in Brazil. Daniel A. S. Marcondes , Andre L. Mustafa & Robson H. Tanaka, Directorate of Environment, CESP, Dagoberto Martins, Edivaldo D. Velini & Robinson A. Pitelli, Sao Paulo State University, SP, Brazil	
2:30 pm	Aquatic Plant Survey in Hydro Electrical Lakes in Brazil. Robson H. Tanaka , Directorate of Environment, CESP, Dagoberto Martins, Luciana R. Cardoso & Robinson A. Pitelli, Sao Paulo State University, SP, Brazil.	
2:45 pm	Macrophyte Population Changes in Santana Reservoir, Rio de Janeiro, Brazil, Five Years of History. R. A. Pitelli , G. F. Nachigal, A. M. Pereira, R. Bosari, & E. Vierira, FCAV/UNESP, Sao Paulo, Brazil State University, R. A. Bichara & L. A. B. Grande, LIGHT, Usina de Fontes, RJ, Brazil	

MONDAY JULY 17, 2000

3:00 pm	BREAK / REFRESHMENTS - EXHIBITS Poster Viewing	Garden Room Terrace Room
3:15 pm	Managing Excessive Aquatic Plant Growth in a Lake Down-Under, Build It and They Shall Proliferate. Danny Roberts , Geoff Sainty, Sharon Cummins & Geoff Hunter, Sainty and Associates, NSW Australia & Lars Anderson, USDA, UC-Davis, Davis, CA	
3:30 pm	Managing Stormwater Runoff with an Off-line Wetland Treatment System. Geoff Sainty , Sainty and Associates, PTY ltd., Geoff Hunter, Hunter Environmental Services, Jerome Allchin & David Bluett, Business Land Group, & David Hunt, David Hunt & Associates, Pty Ltd., NSW Australia.	Crystal Room
3:45 pm	Alligator Weed: Tasty Vegetable in Australian Backyards. Lalith Gunasekera & Julio Bonilla, Cooperative Research Centre for Weed Management Systems, Agriculture Victoria, Dept. of Natural Resources & Environment	
4:00 pm	Evaluation of New Herbicides for the Control of Submerged Weeds In New Zealand. Deborah Hofstra & J. S. Clayton, National Institute of Water and Atmospheric Research, Hamilton, New Zealand & J. D. Getsinger, U. S. Army Engineer Research & Development Center, Vicksburg, MS	
4:15 pm	Lake Victoria Regional Water Hyacinth Management Program. Thomas J. McNabb , Clean Lakes, Inc., Martinez, CA, Thomas G. Moorhouse, Clean Lakes, Inc., Kampala, Uganda & Dick Nyeko, Ministry of Agriculture, Entebbe, Uganda.	
4:30 pm	The Management of Giant Hogweed (<i>Heracleum mantegazzianum</i>) in an Irish River Catchment. Joe Caffrey , Central Fisheries Board, Dublin, Ireland	
4:45 pm	Introduction and Release of the Alligator Flea Beetle, <i>Agasicles hygrophila</i> in Puerto Rico. Edwin Abreu & Nelson Semidey, Crop Protection Dept., University of Puerto Rico, & Lourdes Bernier, Dept. of Natural Resources & Environment, Puerto Rico.	
5:00 pm	ANNOUNCEMENTS & ADJOURN	
5:30 pm - 7:30 pm	AERF Focus Group - AERF Member & Invited Guests	Tower Room

TUESDAY, JULY 18, 2000

6:30 AM - 8:00 am

APMS Regional Chapters Presidents' Breakfast-Sponsored
by **Zeneca Professional Products**

Executive Room

8:00 am - 5:00 pm

General Session

Crystal Room

8:00 am - 5:00 pm

Registration

Foyer

8:00 am - 5:00 pm

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8:00 am - 5:00 pm

Posters

Terrace Toom

8:00 am - 5:00 pm

Presenters' Slide Viewing

California Room

5:30 pm - 10:00 pm

Annual APMS Banquet - Cruise, Dinner & Entertainment

Co-Sponsored by - **SePro Corp. & APMS**

Spirit of San Diego

SESSION III

AQUATIC PLANT ECOLOGY & PHYSIOLOGY

Crystal Room

Moderator

Dr. Dean Martin

8:00 am

Isolation and Characterization of Bioactive Compounds from
Typha domingensis.

Dean F. Martin & Maria T. Gallardo-Williams, University of South
FL, Tampa, FL. & Cherie L. Geiger, University of Central FL,
Orlando, FL.

8:15 am

Removal of Aqueous Selenium by Four Aquatic Plants. (**Student
Paper**)

Kathleen M. Carvalho & Dean F. Martin, University of South FL,
Tampa, FL.

8:30 am

Effect of Water Depth on Torpedograss Establishment.

Dian Smith & Michael Smart, U.S. Army Engineer Research and
Development Center, LAERF, Lewisville, TX & Chuck Hanlon,
SFWMD, West Palm Beach, FL

8:45 am

Traits of Four Submersed Aquatic Macrophyte Species:

Effects on Resources, Environmental Conditions and
Resilience after Clipping and Drought Disturbances. (**Student
Paper**)

Katharina Engelhardt & John A. Kadlec, Utah State University,
Logan, UT.

9:00 am

Simulation of Potential Persistence of Sago Pondweed and
American Wildcelery in Peoria Lake, Illinois, Using Recent and
Historical Data on Light Availability and Suspended Sediments.
(WU 33128)

Elly P.H. Best & William Boyd, U.S. Army Engineer Research and
Development Center, Vicksburg, MS, William F. James, USAERDC,
Spring Valley, WI,

9:15 am

Economic Value of Aquatic Vegetation to Fisheries. (WU 33307).

James P. Kirk & Jim E. Henderson, U.S. Army Engineer
Research and Development Center, Vicksburg, MS.

9:30 am

Effects of Hypoxia on Fish Distribution in Vegetated Habitats.
(WU 32944)

K. Jack Killgore & Jan Jeffrey Hoover, U.S. Army Engineer
Research and Development Center, Vicksburg, MS.

9:45 am

Selection and Use of Aquatic Vegetation by Migratory
Waterfowl in North Central Texas. (**Student Paper**)

JoEtta K. Smith, Robert D. Doyle & Ken L. Dickson, University of
North Texas, Denton, TX & Gary O. Dick, LAERF, Lewisville, TX.

10:00 am

BREAK / REFRESHMENTS - EXHIBITS

Poster Viewing

Garden Room

Terrace Room

TUESDAY, JULY 18, 2000

SESSION IV

Moderator

CASE STUDIES & EXPERIENCES

Crystal Room

Dr. Alison Fox

- 10:15 am The Resilience of Rhizomes: A Case-study of Pickerelweed.
Alison Fox, University of FL/IFAS, Gainesville, FL.
- 10:30 am Predicting the Sprouting of Hydrilla Turions and Tubers in Clear Lake, California.
David Spencer & Gregory Ksander, USDA-ARS Exotic and Invasive Weed Research Unit, UC Davis, CA.
- 10:45 am Nonchemical Alternatives for Weed Control in Oregon Irrigation Canals
Mark Sytsma, Portland State University, Portland, OR & **Michael Parker**, Southern Oregon University, Ashland, OR.
- 11:00 am Operational Biological Control at the Aquatic Plant Control Operations Support Center (APCOSC) in the Jacksonville District.
Charles Ashton, U.S. Army Corps of Engineers, Jacksonville, FL.
- 11:15 am Triploid Grass Carp: A Review of the Imperial Irrigation District's Biological Program.
Mike Mizumoto, Imperial Irrigation District, El Centro, CA.
- 11:30 am Biology and Control of Limnophila.
W. T. Haller, University of Florida, Center for Aquatic and Invasive Plants, Gainesville, FL.
- 11:45 am *Salvinia molesta* in Alabama - The First Year Story.
Joe Zolczynski, Alabama Div. Of Wildlife and Freshwater Fisheries, Spanish Fort, AL.

12:00 Noon LUNCH (On You Own)

Session V

Moderator

Chemical Control

Crystal Room

Dr. Kurt Getsinger

- 1:00 pm Small-scale Herbicide Evaluations Against Giant Salvinia. (WU 32437)
Linda S Nelson & Kurt D. Getsinger, U.S. Army Engineer Research and Development Center, Vicksburg, MS & **John G. Skogerboe**, LAERF, Lewisville, TX.
- 1:15 pm Aquatic Vegetation Control in Irrigation Conveyance Systems and Treatment Results on *Salvinia molesta* with Clearigate Aquatic Herbicide.
Paul Westcott, Applied Biochemists, Phoenix, AZ
- 1:30 pm Effects of Water and Copper Complexes in Combination with Reward Herbicide.
Steven J. Kammerer, Zeneca Professional Products, St. Augustine, FL.
- 1:45 pm Evaluations of Aquathol K Combined with Reward, Cutrine-Plus and Hydrothol 191 for Improved Control of Hydrilla. (WU 33304)
Toni Pennington, Aquatic Ecosystem Restoration Foundation, Flint, MI & **John G. Skogerboe**, U.S Army Engineer Research and Development Center, Vicksburg, MS.

TUESDAY, JULY 18, 2000

2:00 pm	Field Demonstrations of Aquathol K Combined with Reward, Cutrine-Plus and Hydrothol 191 for Improved Control of Hydrilla. (WU 33304) Toni G. Pennington , Aquatic Ecosystem Restoration Foundation, Flint, MI & John G. Skogerboe, U.S Army Engineer Research and Development Center, Vicksburg, MS	
2:15 pm	Estimating Exchange Flows and Herbicide Transport in a Shallow Lake. (Student Paper) Sveinn O. Palmarrsson , S. Geoffrey Schladow & Lars W. J. Anderson, University of California, Davis, CA	
2:30 pm	Fall Application of Sonar for Control of <i>Egeria densa</i> in a Seasonally-filled Lake in Northern California. Lars W. J. Anderson & Chris Piroosko, USDA-ARS Exotic and Invasive Weed Research, UC Davis, CA & Tyler Koshnick, SePro, Carmel, IN.	
2:45 pm	Differential Response of Hydrilla to Fluridone. Mike Netherland , SePro Corp., Carmel, IN, Kurt D. Getsinger, U.S. Army Engineer Research and Development Center, Vicksburg MS, W.T. Haller, University of Florida, Center for Aquatic and Invasive Plants, Gainesville, FL, Carole A. Lembi, Purdue University, West Lafayette, IN.	
3:00 pm	BREAK / REFRESHMENTS - EXHIBITS Poster Viewing	Garden Room Terrace Room
Session VI	BIOLOGICAL, MECHANICAL & ENVIRONMENTAL CONTROL	Crystal Room
Moderator	Dr. John D. Madsen	
3:15 pm	Restoration of a Shallow Lake Through Drawdown. John D. Madsen , R. Michael Stewart & John W. Barko, U.S Army Engineer Research and Development Center, Vicksburg, MS & Daniel R. Helsel, Wisconsin Dept. Of Natural Resources, Milwaukee, WI	
3:30 pm	Potential Control of <i>Hydrilla verticillata</i> by Use of a Classical Biocontrol Agent in Combination with a Competitive Native Plant Species. (WU 33117) Michael J. Grodowitz & R. Michael Smart, U.S. Army Engineer Research and Development Center, Vicksburg, MS & Robert Doyle, University of North TX., Denton, TX.	
3:45 pm	Nutritional Status of <i>Hydrilla verticillata</i> Grown Under Various Environmental Conditions and its Effect on <i>Hydrellia pakistanae</i> . (WU 33305 & 33028) Jan E. Freedman , Michael J. Grodowitz & Dwilette G.I McFarland, U.S. Army Engineer Research and Development Center, Vicksburg, MS.	
4:00 pm	Impact of Parasites and Predators on <i>Hydrellia pakistanae</i> , a Biological Control Agent of <i>Hydrilla verticillata</i> . (WU 33028) (Student Paper) Christi Snell & Jennifer Booker, University of North Texas, Denton, TX, Michael J. Grodowitz & Alfred F. Cofrancesco, U. S. Army Research & Development Center, Vicksburg, MS.	

TUESDAY, JULY 18, 2000

4:15 pm	Possible Impact of <i>Hydrilla pakistanae</i> on Lake Seminole Hydrilla. (WU 33028) Al Cofrancesco Michael J. Grodowitz, R. Michael Stewart & John D. Madsen, U.S. Army Engineer Research and Development Center, Vicksburg, MS, Don Morgan, U. S. Army Engineer District, Lake Seminole Field Office, Chattahoochee, FL, & Ed Snoddy, formerly TVA, Muscle Shoals, AL.	
4:30 pm	Population Management of Triploid Grass Carp. (WU 33200) James P. Kirk , U.S. Army Engineer Research and Development Center, Vicksburg, MS.	
4:45 pm	Macrophyte Management via Mechanical Shredding: Effects on Water Quality in Lake Champlain (Vermont-New York). William F. James & Harry L. Eakin, U.S. Army Engineer Research and Development Center, Spring Valley, WI, John W. Barko, U. S. Army Engineers Research and Development Center, Vicksburg, MS.	
5:00 pm	ADJOURN	
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8:00 am - 2:00 pm	Posters	Terrace Toom
8:00 am - 12:00 noon	Presenters' Slide Viewing	California Room
11:30 am - 1:15 pm	APMS AWARDS / OFFICER INSTALLATION LUNCHEON Sponsored by Zeneca Professional Products	Presidio Room
4:00 pm - 6:00 pm	Corps APCRP Review	Executive Room

SESSION VII
Moderator

EURASIAN WATERMILFOIL BIOLOGY & CONTROL
Holly Crosson

Crystal Room

8:00 am	Commercial Use of the Milfoil Weevil as a Biological Control for Eurasian Water Milfoil. Martin A. Hilovsky & Christina Brandt, EnviroScience, Inc. Stow, OH, Sallie Sheldo, Middlebury College, Middlebury, VT.
8:15 am	Overwinter Habitat and the Relationship to In-Lake Densities of the Milfoil Weevil, <i>Euhrychiopsis lecontei</i> : A Eurasian Water Milfoil Biological Control Agent. Raymond M Newman David W. Ragsdale, Alyson Milles & Cary Oien, University of Minnesota, St. Paul, MN.
8:30 am	Indigenous Populations of <i>Euhrychiopsis</i> , <i>Acentria</i> and <i>Cricotopus</i> with Implications for the Biological Control of Eurasian Watermilfoil. Robert L. Johnson , Cornell University, Ithaca, NY.
8:45 am	The Search for Exudates from Eurasian Water Milfoil and Hydrilla. (Student Paper) Lee Ann Glomski Carole A. Lembi, Karl V. Wood, Ralph L. Nicholson & Phillip Wharton, Purdue University, West Lafayette, IN.

Wednesday July 19, 2000

9:00 am	<p>Selected Fungal Associates of <i>Myriophyllum spicatum</i> L.: Pathogens or Endophytes? (WU 33306) Judy F. Shearer, U.S. Army Engineer Research and Development Center, Vicksburg MS.</p>	
9:15 am	<p>Epiphytic Macroinvertebrate Abundance Along a Gradient of Eurasian Water Milfoil Cover. (Student Paper) Kendra S. Cheruvellil, P. A. Soranno & M. J. Sanborn, Michigan State Univ., East Lansing, MI, J. D. Madsen, U. S. Army Engineer Research and Development Center, Vicksburg, MS.</p>	
9:30 am	<p>The Indirect Effects of Eurasian Watermilfoil and Its Management on Largemouth Bass Recruitment. (Student Paper) Rahman D. Valley & Mary T. Bremigan, Michigan State University, East Lansing, MI</p>	
9:45 am	<p>BREAK / REFRESHMENTS - EXHIBITS Poster Viewing</p>	<p>Garden Room Terrace Room</p>
10:00 am	<p>Washington's Aquatic Plant Quarantine - Preventing the Introduction of the next Eurasian Water Milfoil. Kathy Hamel & Jennifer Parsons, Washington Dept. of Ecology, Olympia, WA.</p>	Crystal Room
10:15 am	<p>Eurasian Watermilfoil Control and Exotic Species Prevention in Seattle's Lake Youngs Reservoir. Rob Zisette, Herrera Environmental Consultants, Seattle, WA.</p>	
10:30 am	<p>Evaluation of Sonar versus Egeria and Eurasian Water Milfoil in a Flowing Environment. Michael D. Netherland & Steve D. Cockreham, SePro Corp., Carmel, IN, John G. Skogerboe, U. S. Army Engineers Research and Development Center, LAERF, Lewisville, TX.</p>	
10:45 am	<p>Low Dose Applications of Triclopyr for the Selective Control of Eurasian Watermilfoil. (WU 32841) Angela G. Poovey, AScl Corp., U.S. Army Engineer Research and Development Center, Vicksburg, MS, John G. Skogerboe, U. S. Army Engineers, LAERF, Lewisville, TX, Kurt D. Getsinger, John D. Madsen & R. Michael Stewart, U. S. Army Engineers Research and Development Center, Vicksburg, MS, Tyler Koshnick & Alicia Staddon, SePro Corp., Carmel, IN.</p>	
11:00 am	<p>Responses of Eurasian watermilfoil (<i>Myriophyllum spicatum</i>) to three endothall products (<i>Aquathol K</i>, <i>Hydrothol 191</i>, <i>Super K</i>). Chris Pirosko & Lars W. J. Anderson, USDA-ARS Exotic and Invasive Weed Research, UC Davis, CA.</p>	
11:30 am	<p>APMS AWARDS / OFFICER INSTALLATION LUNCHEON Sponsored by Zeneca Professional Products</p>	Presidio Room
<p>Session VIII Moderator</p>	<p>GIS/GPS USE IN AQUATIC PLANT MANAGEMENT Terry McNabb</p>	Crystal Room
1:15 pm	<p>Sampling Techniques for Quantifying Submersed Aquatic Plants in L-Anse Creuse Bay, Lake St. Clair. (WU 33127) R. Michael Stewart John D. Madsen & Bruce M. Sabol, U.S. Army Engineer Research and Development Center, Vicksburg, MS.</p>	

Wednesday July 19, 2000

1:30 pm

Remote Sensing and Bathymetric Mapping Techniques to Support
Large-Scale Sonar Applications
Doug Henderson & Terry McNabb, ReMetrix, LLC., Carmel, IN.

1:45 pm

What's Out There for GPS Data Collection?
Patrick Akers, California Dept. of Agriculture,

2:00 pm

Demonstration of GPS Data Collection: Techniques and Issues
(based on Trimble GeoExplorer GPS units).
GPS Workshop
Patrick Akers, California Dept. of Agriculture,

Poolside

4:00 pm

ADJOURN 2000 ANNUAL MEETING

4:00 pm - 6:00 pm

Corps APCRP Review

Executive Room

Thursday July 20, 2000

8:00 am - 11:00 am

APMS Board of Directors

Executive Room

9:00 am - 3:00 pm

San Diego Zoo Animal Park Behind the Scenes Tour (36 max.)
(Optional Pay as you go - Sign-up at Registration Desk by Noon on
Monday July 17th)

Hotel Lobby

1:00 pm - 3:00 pm

Model Wetlands Marsh Project Tour - NO CHARGE
(Sign-up at Registration Desk by noon 7/17
limited to the first 45 people)

Hotel Lobby

**Friday July 20 through
Tuesday July 25, 2000**
Optional Field Trip

Tour of Aquatic and Riparian Invasive Plants and Management
Projects in California - Optional Field Trip

Alternate Submitted Papers

Evaluation of Sonar for Selective Eurasian Watermilfoil Control
Within the Treatment Season at One Year Post-treatment
Tyler J. Koschnick, SePro Corp., Carmel, IN, John D. Madsen,
U. S. Army Engineers Research and Development Center,
Vicksburg, MS, Chetta Owens, U. S. Army Engineers LAERF,
Lewisville, TX.

NOTES

Posters
Terrace Room

Sagittaria graminea: Emerging Aquatic Weed in Victoria, Australia. Lalith Gunasekera & Kevin Krake, Cooperative Research Centre for Weed Management Systems, Agriculture, Victoria, Dept. of Natural Resources & Environment, Tatura, Australia.

Identification of Male and Female Plants of *Egeria* sp. In Jupia Reservoir, Brazil. Daniel A. S. Marcondes, Andre L. Mustafa, Rene A. F. Belmont, Robson H. Tanaka, & Carlos J. Rodrigues, Directorate of Environment, CESP - Companhia Energetica de Sao Paulo, SP, Brazil.

Concepts for Modeling Competition Between Submersed Macrophyte Species (WU 33308). Elly P. H. Best, U. S. Army Engineer Research & Development Center, Vicksburg, MS.

Impacts of Herbicide Use on Threatened and Endangered Plant Species (WU 33199). Linda S. Nelson and Kurt Getsinger, U. S. Army Engineer Research and Development Center, Vicksburg, MS.

Impact of Different Populations of *Euhrychiopsis lecontei* on Eurasian Watermilfoil. Alfred F. Cofrancesco, Dwilette G. McFarland and John D. Madsen, U. S. Army Engineer Research and Development Center, Vicksburg, MS.

Methods to Determine Dispersal Mechanisms for Hydrilla and Eurasian Watermilfoil (WU 33188). Chetta S. Owens, Ascis Corp., U. S. Army Engineer Research and Development Center, LAERF, Lewisville, TX and John D. Madsen, U. S. Army Engineer Research & Development Center, Vicksburg, MS.

Ecological Attributes of Exotic and Native Plant Communities (WU 33186). R. Michael Smart, U. S. Army Engineer Research and Development Center, LAERF, Lewisville, TX, Gary O. Dick and David R. Honnell, Institute of Applied Science, University of North Texas, Denton, TX.

Sediment Resuspension Dynamics in Canopy- and Meadow-forming Submersed Macrophyte Communities (WU 33128). William F. James, U. S. Army Engineer Research and Development Center, LAERf, Lewisville, TX and John W. Barko, U. S. Army Research and Development Center, Vicksburg, MS.

Measurement Systems for Rapid Detection and Characterization of Aquatic Plants (WU 33118). Bruce M. Sabol, U. S. Army Engineer Research and Development Center, Vicksburg, MS.

Establishment of Native Aquatic Plants: An Overview (WU 33084). R. Michael Smart, U. S. Army Engineer Research and Development Center, LAERF, Lewisville, TX. and Gary O. Dick, Institute of Applied Science, University of North Texas, Denton, TX.

Integrated Endothall-fungal Pathogen Treatment on Four Submersed Plants (WU 32953). Linda S. Nelson and Judy Shearer, U. S. Army Engineer Research and Development Center, Vicksburg, MS.

Status of Introduced *Hydrellia* spp. At Alabama, Georgia, and Texas Sites as of November, 1999 (WU 33028). Michael J. Grodowitz, Jan E. Freedman, Harvey L. Jones and Alfred A. Cofrancesco, U. S. Army Engineers Research and Development Center, Vicksburg, MS.

Mass Rearing *Hydrellia pakistanae*, *Deonier* and *Hydrellia balciunasi* Bock, Biological Control Agents of *Hydrilla verticillata* (L.F.) Royle (WU 33028). Jan E. Freedman and Michael J. Grodowitz, U. S. Army Engineer Research and Development Center, Vicksburg, MS.

Surveys of *Eichornia crassipes* and *Hydrilla verticillata* and Associated Insect Biological Control Agents on the Lowe Rio grande (WU 33028). Michael J. Grodowitz, Jan E. Freedman and Harvey L. Jones, U. S. Army Engineer Research and Development Center, Vicksburg, MS, Lavon Jeffers, Dyntel Corporation, U. S. Army Engineer Research and Development Center, Vicksburg, MS, Carlos F. Lopez, U. S. Bureau of Reclamation, Oklahoma-Texas Area Office, Austin, TX and Fred Nibling, U. S. Bureau of Reclamation, Technical Service Center, Research and Investigations, Denver, CO.

Preliminary Studies on Propagule Survival in Water Chestnut Treated with the Penny Shredder System (WU 33029). Dwillette G. McFarland and R. Michael Stewart, U. S. Army Engineers Research and Development Center, Vicksburg, MS.

Development of an Endemic Fungal Pathogen for Biological Control of Hydrilla (WU 32863). Judy F. Shearer, U. S. Army Engineer Research and Development Center, Vicksburg, MS.

Comparison of Areal Production Rates of Two Mechanical Systems for Control of Water Chestnut in Lake Champlain. R. Michael Stewart and John Madsen, U. S. Army Engineer Research and Development Center, Vicksburg, MS and David R. Honnell, Institute of Applied Science, University of North Texas, Denton, TX.

Changes in Levels of Soluble Sugars During Sprouting of Vegetative Propagules of Hydrilla and Pondweeds. D. F. Spencer and G. G. Ksander, USDA-ARS Exotic and Invasive Weed Research Unit, UC-Davis, CA and F. J. Ryan, USDA-ARS Horticultural Corps Research Laboratory, Fresno, CA.

The Use of Stream Delta Surveillance as a Mechanism for Early Detection and Control of Eurasian Watermilfoil. Lawrence W. Eichler, Eric A. Howe and Charles W. Boylen, Darrin Fresh Water Institute, Troy, NY.

Preventing the Purple Plague from Taking over California's Waterways. Carri Benefield, Integrated Pest Control Branch, California Dept. of Food and Agriculture, Sacramento, CA.

Oregon and Chilean Populations of *Egeria densa* are Genetically Similar. M. Carol Carter and Mark D. Sytsma, Dept. of Environmental Biology, Portland State University, Portland, OR.

Assessing Potential for Spread and Impacts of Eurasian Watermilfoil (*Myriophyllum spicatum*) in Lake Tahoe Using *in situ* Transplants and Bioassays. Katey Walter and Charles Goldman, USD Environmental Studies and Policy-Tahoe Research Group and Lars Anderson, USDA-ARS Exotic and Invasive Weed Research, UC-Davis, Davis, CA

Establishment and Competitive Ability of *Nelumbo lutea* in relation to *Myriophyllum spicatum*. Joe R. Snow, University of North Texas, Denton, TX and R. Michael Smart, U.S. Army Engineer Research and Development Center - LAERF, Lewisville, TX.

Experimental Study on the Stresses of Eutrophication to the Growth of *Potamogeton maackianus* A. Been. Leyi Ni, Donghu Experimental Station of Lake Ecosystems, The State Key Laboratory of Freshwater Ecology and Biotechnology, Institute of Hydrobiology, the Chinese Academy of Sciences, Wuhan, China.

Rehabilitation of a Shallow Lake (Big Muskego Lake, Wisconsin) via Draw-down: Sediment Response (WU 33309). William F. James and Harry L. Eakin, U.S. Army Engineer Research and Development Center, Environmental Laboratory, Eau Galle Aquatic Ecosystem Research Facility, Spring Valley, WI, John W. Barko, U.S. Army Engineer Research and Development Center, Environmental Laboratory, Vicksburg, MS, and Daniel R. Helsel, Wisconsin Department of Natural Resources, Madison, WI.

A Website for Aquatic Invasive Species in the Western USA and Canada. Mark D. Sytsma and Mark Rosenkranz, Center for Lakes and Reservoirs, Portland State University, Portland, OR.

Mail Order, the Internet, and Invasive Aquatic Weeds. Stratford H. Kay and Steve T. Houle, North Carolina State University, Raleigh, NC.

NOTES

POST-CONFERENCE FIELD TRIPS

Field Trip #1: Thursday July 20th from 1:00 – 3:00 pm

Model Wetland/Marsh Project

No fee for APMS Delegates and Guests - Participation limited to the first 45 participants to sign up by noon, Monday, July 17th.

“Friendship Marsh”, is a model Marsh Restoration Project.

Dr. Sharook Madon with the Pacific Estuarine Research Laboratory (PERL) will provide an introduction and tour of this unique project that straddles the US/Mexican Border. **(NOTE: TOUR IS CONFINED TO THE USA SIDE)**

Here's a brief description of the project:

“The Tidal Linkage: the role of diversity in ecosystem function”

Investigators: Joy Zedler, John Callaway, Gary Sullivan, Georgeann Keer

Introduction: This project is designed to answer the question: does species diversity matter? We are evaluating how plant species diversity affects ecosystem function within the restored wetland at the Tidal Linkage.

Approach: We are testing the general hypothesis that salt marsh functioning differs for assemblages with 0, 1, 3, and 6 plant species (randomly selected from a pool of 8 species). Functional responses are being assessed as three main variables: soil nitrogen retention, canopy development, and assemblage persistence. We have set up 87 2x2-m experimental plots at the Tidal Linkage (see diagram below). Random combinations at each level of plant species diversity were chosen from a pool of 8 species that commonly occur on the mid-marsh plain (*Salicornia virginica*, *Salicornia bigelovii*, *Triglochin concinna*, *Batis maritima*, *Jaumea carnosa*, *Suaeda esteroa*, *Frankenia salina*, and *Limonium californicum*). The treatments were established in early spring 1997. We measured plant cover, height and layering after 6, 12, and 18 months, and will continue with annual measurements in late summer. We also are sampling soil nitrogen and below ground biomass at similar frequencies. The site will be monitored for at least one more year. Plots were maintained with their original treatments (removing unwanted species and replacing plants which had died) for 18 months, and plant assemblages are now allowed to change naturally due to recruitment and natural mortality.

FIELD TRIP #2: Thursday July 20th from 9am to 3 pm

Wild Animal Park Tour

Includes a 2 hour behind the scenes guided tour, roundtrip transportation (45 min. each way) plus full-all-day admission:

Cost: \$29.65 per each adult; \$16.15 each child under 12. **NOTE: Participation is limited to the first 36 who sign up by noon, Monday, July 17th. Payment is due at the time of the tour.**

This price includes full admittance and the unique guided tour with additional discussion by the Animal Park's Horticulture specialist. Following the tour, you are free to see the park until the bus leaves at 2 PM, or *if you have your own transportation, until the park closes at 10 PM.*

FIELD TRIP #3: Friday, July 21 – Tuesday, July 25

**TOUR OF AQUATIC AND RIPARIAN INVASIVE PLANTS AND
MANAGEMENT PROJECTS IN CALIFORNIA**

(Otherwise known as “The Big Loop”)

5 DAYS, 4 NIGHTS. Departs San Diego July 21 (Friday) at 7am and returns to the Handlery July 25 (Tuesday). Limited to the first 20 who register and pay a \$200 deposit by June 20, 2000. Total cost is \$800 includes all lodging, meals, transportation (From Handlery and return), and group photograph. The \$600 remaining after the \$200 Deposit is due by noon Monday July 17th..

This trip includes the following stops:

1. **Grass Carp production facilities of the Imperial Irrigation District** (Brawley and Imperial, CA). This is the heart of the one of the most successful hydrilla eradication projects in the world. The infestation was reduced from more than 500 miles of irrigation canals to just a few sparsely located plants within 5 years.
2. **Diamond Valley Lake:** As you read this, the water is just beginning to flow into the newest, largest, constructed reservoir in South California. It will take three years to reach the 800,000 acre-ft (260 billion gal.) capacity!! At a cost of \$2 billion (That's with a “b”), Diamond Valley Lake, constructed by the Metropolitan Water District, will nearly double the current water surface storage area in Southern California. As part of the project, a new 13,000 acre reserve has been created and nearly 4,000 acres have been added to The Nature Conservancy lands. Site visit will include discussions of the history, construction, geology, paleontology and hydrological features of the site.
3. **Salt Cedar management and restoration project at Thousand Palms.** Successful removal of salt cedar coupled with management practices is restoring a desert/ riparian environment to its natural state.
4. **Mono Lake:** A unique habitat that was nearly lost due to diversion of water for Southern California, Mono Lake has some of the most interesting ecological and geological features in the Valley.
5. **Lake Tahoe:** We'll take a boat tour on the world's most famous, largest, deepest and clearest lakes. We'll visit sites impacted by Eurasian watermilfoil and discuss management practices with staff of the Tahoe Keys Marina. Current issues of eutrophication, MTBE and public impacts will be addressed by staff, the UC-Davis Tahoe Research Group, founded by Dr. Charles Goldman. Oh, yes, sufficient time will be allotted for participants who wish to lose money at the nearby Nevada-side casinos!)
6. **Upper Sacramento-San Joachin Delta:** This expansive natural (and modified) delta supports abundant fish and wildlife populations, native and exotic plants and is the source of

water for over 20 million Californians. With the complexities of seasonal snowmelt runoff, tidal action and downstream saline environments, the San Francisco Bay-Delta is on the most interesting-and threatened- aquatic habitats in the US. The Department of Boating and Waterways will host a discussion on the Delta system, including their programs for the management of water hyacinth and egeria.

7. **State/ Federal Pumping plants near Tracy:** While 75% of the state's rainfall occurs north and east of the Delta, nearly 80% of water "demand" is in Southern California. These pumping systems are the "head waters" of massive artificial rivers- The California Aqueduct and the Delta Mendota Canal, which transport water 500 miles to the Los Angeles area and supply much of the state's agricultural production systems.
8. **Cut-flower production system in Carlsbad,** south of LA. The last stop will be a stop at one of the largest and most diverse flower production systems in the US., and nearly a tuber's throw from the Pacific Ocean.

NOTES

2000 APMS Meeting Sponsors

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The above listing was taken from the best information available at the time the APMS Program Book was compiled and sent to the printer. We apologize for any omissions or errors and will make every effort to provide verbal recognition to any unlisted sponsors during the conference. Please bring this information to the attention of Jim Schmidt, 2000 APMS Program Chair. Thank you for your understanding.