

AMERICAN WATER RESOURCES ASSOCIATION  
AND  
WATER RESEARCH CENTER • TEL AVIV UNIVERSITY

# 2017 International Conference CUTTING-EDGE SOLUTIONS TO WICKED WATER PROBLEMS

## FINAL PROGRAM



Hosted By Tel Aviv University • Tel Aviv, Israel

September 10-11, 2017



**AWRA**

*Community, Conversation, Connections*

AMERICAN WATER RESOURCES ASSOCIATION



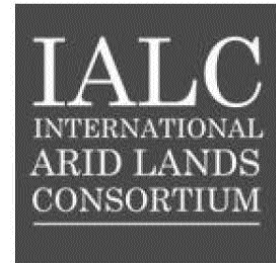
Water Research Center  
Tel Aviv University

AWRA would like to thank our

## Collaborating Partners

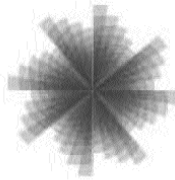


Water Research Center  
Tel Aviv University



THE UNIVERSITY OF ARIZONA  
COLLEGE OF AGRICULTURE & LIFE SCIENCES

**WATER RESOURCES  
RESEARCH CENTER**



**IDE**  
Technologies



**WATEC Israel 2017**  
September 12-14, 2017  
Water Technology and Environment Control  
Exhibition & Conference

### MEETING REGISTRATION INFORMATION

**ALL PERSONS, INCLUDING PRESENTERS, ARE REQUIRED TO REGISTER FOR THIS MEETING AND MUST PAY THE APPROPRIATE REGISTRATION FEE**

**AUTHORS, PANELISTS, AND MODERATORS ARE REQUESTED TO MEET IN THEIR RESPECTIVE MEETING ROOMS 10 MINUTES PRIOR TO THE START OF THEIR SESSION**

**ALL PARTICIPANTS ARE REQUIRED TO REGISTER PRIOR TO THEIR SESSIONS**

### REGISTRATION DESK HOURS OF OPERATION

**SUNDAY • SEPTEMBER 10 • 7:30 A.M. TO 5:00 P.M.**

**MONDAY • SEPTEMBER 11 • 7:30 A.M. TO 5:00 P.M.**

The Board of Directors and members of the American Water Resources Association would like to thank President Joseph Klafter and Rector Yaron Oz of Tel Aviv University for hosting the 2017 *International Conference on Cutting-Edge Solutions to Wicked Water Problems*. We especially appreciate the warm hospitality of Dr. Dror Avisar, Director, Dr. Gefen Ronen-Eliraz, Research Associate, and Dr. Teishi Papeshi, Mascot, for their warm hospitality and tremendous assistance in making this important conference a reality.

THE AMERICAN WATER RESOURCES ASSOCIATION AND  
THE WATER RESEARCH CENTER OF TEL AVIV, ISRAEL  
WELCOMES YOU TO THE

2017 INTERNATIONAL CONFERENCE ON  
CUTTING-EDGE SOLUTIONS TO WICKED WATER PROBLEMS

The American Water Resources Association (AWRA) and the Water Research Center of Tel Aviv University have convened this dynamic two-day dialogue to explore how water managers, engineers, scientists and policy makers are working together to develop and implement solutions to address some of the world's most pressing water challenges. Keynote speakers and technical session presenters will explore cutting-edge technological and institutional innovations designed to address both water scarcity and water quality problems. The Opening Plenary will focus on how Israel and California in the USA have approached some of their wicked water problems. A field trip to the Sorek Desalination Plant or a virtual tour of the Sea of Galilee will familiarize attendees with Israel's technological advances and natural system management. A closing plenary session on the Red Sea-Dead Sea Project will familiarize attendees with this cutting-edge regional collaboration developed to mitigate water scarcity and the wicked problem of the receding Dead Sea. An opening day gala reception will provide additional networking opportunities at this conference being held in state-of-the-art facilities at the Tel Aviv University campus. Activities conclude with an optional, hosted post-conference tour to Netafim's production drip irrigation manufacturing headquarters at Kibbutz Hatzerim.

We are excited about the information, knowledge, and data that will be shared by the esteemed researchers, practitioners, and water officials in attendance. Attendees include scientists, engineers, practitioners, water managers and professionals from academia, government agencies, private institutions and consulting organizations from Israel, the USA, and countries around the world.

Thank you for attending this conference. We look forward to this remarkable two days of sharing your experience and knowledge about wicked water problems and their solutions!

**SHARON B. MEGDAL**

Conference Co-Chair  
Director, Water Resources Research Center  
University of Arizona  
College of Agriculture and Life Sciences  
Tucson, Arizona, USA

**DROR AVISAR**

Conference Co-Chair  
Director, Water Research Center  
School of Earth Sciences  
Faculty of Exact Sciences  
Tel Aviv University  
Tel Aviv, Israel

**AWRA FUTURE MEETINGS**

**2017**

**NOVEMBER 5-9, 2017 • AWRA 2017 ANNUAL WATER RESOURCES CONFERENCE**

RED LION ON THE RIVER-JANTZEN BEACH HOTEL • PORTLAND, OREGON

**2018**

**APRIL 22-25, 2018 • AWRA 2018 SPRING SPECIALTY CONFERENCE**

**"GIS AND WATER RESOURCES X: SPATIAL ANALYSIS OF WATERSHEDS -  
ECOLOGICAL, HYDROLOGICAL, AND SOCIETAL RESPONSES"**

ROSEN CENTRE HOTEL • ORLANDO, FLORIDA

**JULY 9-11, 2018 • AWRA 2018 SUMMER SPECIALTY CONFERENCE**

**"TRANSBOUNDARY GROUND WATER MANAGEMENT AND GOVERNANCE"**

FORT WORTH, TEXAS

**NOVEMBER 4-8, 2018 • AWRA 2018 ANNUAL WATER RESOURCES CONFERENCE**

BALTIMORE MARRIOTT INNER HARBOR AT CAMDEN YARDS • BALTIMORE, MARYLAND

## NETWORKING OPPORTUNITIES AND SPECIAL EVENTS

### SUNDAY ~ SEPTEMBER 10

#### **NETWORKING LUNCH**

**SUNDAY • SEPTEMBER 10 • 12:00 NOON-1:30 P.M. • ATRIUM  
PORTER SCHOOL OF ENVIRONMENTAL STUDIES BLDG.**

A box lunch service will be provided in the lobby of the Porter School of Environmental Studies Building for all conference attendees. Have lunch and continue your conversations with colleagues and new friends, sharing information and experiences.

#### **FIELD TRIP TO SOREK DESALINATION PLANT**

**SUNDAY • SEPTEMBER 10 • 12:15 P.M.-5:00 P.M.**

**LED BY AVIV KAPLAN • THE HYDROCHEMISTRY RESEARCH GROUP • WATER RESEARCH CENTER  
TEL AVIV UNIVERSITY • TEL AVIV, ISRAEL**

**MEET BUS AT THE PORTER SCHOOL MAIN ENTRANCE BY 12:00 NOON • COST: \$10.00**

The Sorek Desalination Plant sets significant new industry benchmarks in desalination technology, capacity, and water cost. It provides clean, potable water for over 1.5 million people, comprising 20% of the municipal water demand in Israel, thus alleviating the country's potable water shortage while minimizing the impact on terrestrial and marine environments. Those who have registered should pick up their box lunch in the Porter School Building and go to the bus at the entrance to the Porter Building.

#### **CONFERENCE GALA RECEPTION**

**SUNDAY • SEPTEMBER 10 • 5:30 P.M.-7:00 P.M. • SENATE BUILDING**

All registered conference participants are invited to attend the Conference Gala Reception. Join your colleagues for food and conversation in the Senate Building located near the Porter School of Environmental Studies. Prof. Eyal Zisser, the Vice Rector of TAU, will speak on "Immigration and the Water Crisis."

### MONDAY ~ SEPTEMBER 11

#### **NETWORKING LUNCH**

**MONDAY • SEPTEMBER 11 • 12:00 NOON-12:45 P.M. • ATRIUM  
PORTER SCHOOL OF ENVIRONMENTAL STUDIES BLDG.**

A box lunch service will be provided in the lobby of the Porter School of Environmental Studies Building for all conference attendees. Have lunch and continue your conversations with colleagues and new friends. Then, take the tour of the Porter Environmental Studies Building. The tour is free but you must sign up for it at the Conference Registration Desk.

#### **PORTER SCHOOL OF ENVIRONMENTAL STUDIES BUILDING TOUR**

**MONDAY • SEPTEMBER 11 • 12:45 P.M.-1:30 P.M. • ATRIUM  
PORTER SCHOOL OF ENVIRONMENTAL STUDIES BLDG.**

Visitors to the Porter School of Environmental Studies (PSES) Capsule Building are invited to partake in a tour of the building: an educational route that touches upon points of interest throughout the building, providing visitors with explanations of technical and architectural elements. The tour includes points of interest in the building and explanations of the building's major elements, including: the entrance plaza and the constructed wetlands, learning of the greywater purification process; the foyer or atrium, with its information screens, planned to convey constant data regarding the building's energy and water usage; the EcoWall, green roof, and much more.

### TUESDAY ~ SEPTEMBER 12

#### **POST-CONFERENCE FIELD TRIP TO NETAFIM AND KIBBUTZ HATZERIM**

**TUESDAY • SEPTEMBER 12 • 9:00 A.M.-5:00 P.M.  
CONTACT SHARON MEGDAL VIA E-MAIL (SEE BELOW)**

There is a post-conference field trip to Netafim and Kibbutz Hatzerim on Tuesday, September 12. There is limited space available. If you are interested then please contact Sharon Megdal via email at smegdal@email.arizona.edu.

#### **PLEASE NOTE - IN THE FINAL PROGRAM**

The **PRESENTER** of each paper is identified in **BOLD** type immediately following the paper title. Co-authors are then listed in parentheses. The affiliation given is that of the Presenter.

**PLEASE TURN OFF YOUR CELL PHONES WHEN ENTERING THE SESSION ROOMS!**



**2017 International Conference : Cutting-Edge Solutions  
to Wicked Water Problems**  
American Water Resources Association  
Water Research Center - Tel Aviv University

September 10-11, 2017  
Tel Aviv University, Tel Aviv, Israel



**PROGRAM-AT-A-GLANCE**

**• SUNDAY ~ SEPTEMBER 10 •**

**8:30 AM - 10:00 AM • OPENING PLENARY SESSION**

**WELCOME AND OPENING REMARKS**

**DROR AVISAR • CONFERENCE Co-CHAIR**  
TEL AVIV UNIVERSITY • TEL AVIV, ISRAEL

**JOSEPH KLAFTER**  
PRESIDENT • TEL AVIV UNIVERSITY • TEL AVIV, ISRAEL

**RAFAEL E. FRIAS III**  
PRESIDENT • AMERICAN WATER RESOURCES ASSOCIATION  
BLACK & VEATCH CORP. • CORAL SPRINGS, FLORIDA

**SHARON B. MEGDAL • CONFERENCE Co-CHAIR**  
THE UNIVERSITY OF ARIZONA • TUCSON, ARIZONA

**KEYNOTE SPEAKERS**

**EILON M. ADAR**  
BEN-GURION UNIVERSITY OF THE NEGEV  
SEDE BOQER CAMPUS, ISRAEL

**FELICIA MARCUS**  
CALIFORNIA STATE WATER RESOURCES BOARD  
SACRAMENTO, CALIFORNIA

**10:30 AM - 12:00 NOON  
CONCURRENT SESSIONS 1, 2, & 3**

- 1 Water Quality and Quantity Monitoring and Assessment**
- 2 Improving Agricultural Practices**
- 3 Mechanisms for Understanding and Influencing Water Use**

**12:00 NOON - 1:30 PM  
BOX LUNCH SERVICE  
AVAILABLE IN THE LOBBY**

**12:15 PM - 5:00 PM  
FIELD TRIP TO  
SOREK DESALINATION PLANT**

**1:30 PM - 3:00 PM  
SESSION 4 – PART 1**

**The Sea of Galilee – A Virtual Tour and Discussion of its Continued Importance as a Freshwater Resource**  
Doron Markel  
Israel Water Authority

**3:30 PM - 5:00 PM  
Session 4 – Part 2**

**Screening of the Documentary Film “Beyond the Mirage”**  
Sharon B. Megdal  
Moderator • Univ. of Arizona

**5:30 PM - 7:00 PM  
CONFERENCE  
GALA RECEPTION**

**• MONDAY ~ SEPTEMBER 11 •**

**8:30 AM - 10:00 AM  
CONCURRENT SESSIONS 5 & 6**

**5 Water Treatment: Contaminants/Drugs**

**6 Addressing Community and Customer Needs and Values**

**10:30 AM - 12:00 NOON  
CONCURRENT SESSIONS 7 & 8**

**7 Wastewater Treatment and Other Technologies**

**8 Scale Considerations for Water Management**

**1:30 PM - 3:00 PM  
CONCURRENT SESSIONS 9 & 10**

**9 Factors Affecting Optimal Water Use and Wastewater Provision**

**10 Water Banking, Recharge, and Reuse**

**3:30 PM - 5:00 PM  
CONCURRENT SESSIONS 11 & 12**

**11 Management of Lakes and Other Water Bodies**

**12 Improving Land and Water Management**

**12:00 NOON - 12:45 PM  
BOX LUNCH SERVICE AVAILABLE IN THE LOBBY**

**12:45 PM - 1:30 PM  
TOUR OF PORTER SCHOOL OF ENVIRONMENTAL STUDIES BUILDING**

**5:00 PM - 7:00 PM • CLOSING PLENARY SESSION  
THE RED SEA-DEAD SEA PROJECT**

**MODERATOR • SHARON B. MEGDAL • CONFERENCE Co-CHAIR**  
DIRECTOR • WATER RESOURCES RESEARCH CENTER • THE UNIVERSITY OF ARIZONA • TUCSON, ARIZONA

**SPEAKER • ODED FIXLER • RS-DS PROJECT • JOINT CHAIRMAN JAB**  
SENIOR DEPUTY DIRECTOR • MINISTRY OF REGIONAL COOPERATION • TEL AVIV, ISRAEL

**CLOSING REMARKS • DROR AVISAR • CONFERENCE Co-CHAIR**  
DIRECTOR • WATER RESEARCH CENTER • SCHOOL OF EARTH SCIENCES • FACULTY OF EXACT SCIENCES  
TEL AVIV UNIVERSITY • TEL AVIV, ISRAEL

**DAY-AT-A-GLANCE / SUNDAY / SEPTEMBER 10, 2017**

**REGISTRATION DESK OPEN / 7:30 A.M.-5:00 P.M.**  
ATRIUM

**MORNING NETWORKING BREAK / 7:30 A.M.-10:00 A.M.**  
ATRIUM

**CONFERENCE OPENING PLENARY SESSION / 8:30 A.M.-10:00 A.M. / AUDITORIUM**  
KEYNOTE SPEAKERS  
**EILON M. ADAR**  
BEN-GURION UNIVERSITY OF THE NEGEV • SEDE BOQER CAMPUS, ISRAEL  
**FELICIA MARCUS**  
CHAIR • CALIFORNIA STATE WATER RESOURCES CONTROL BOARD • SACRAMENTO, CALIFORNIA

**MORNING NETWORKING BREAK / 10:00-10:30 A.M. / ATRIUM**

**CONCURRENT SESSIONS 1, 2, & 3 / 10:30 A.M.-12:00 NOON**

**SESSION 1**  
**WATER QUALITY AND**  
**QUANTITY MONITORING**  
**AND ASSESSMENT**

AUDITORIUM

**SESSION 2**  
**IMPROVING**  
**AGRICULTURAL**  
**PRACTICES**

ROOM 101

**SESSION 3**  
**MECHANISMS FOR**  
**UNDERSTANDING AND**  
**INFLUENCING WATER USE**

ROOM 105

**12:45 P.M.-1:30 P.M. / ATRIUM / PORTER SCHOOL OF ENVIRONMENTAL STUDIES BUILDING (SEE PG. 2)**

**12:15 P.M.-5:30 P.M. / FIELD TRIP TO SOREK DESALINATION PLANT**  
LED BY AVIV KAPLAN • THE HYDROCHEMISTRY RESEARCH GROUP • WATER RESEARCH CENTER  
TEL AVIV UNIVERSITY • TEL AVIV, ISRAEL  
PICK UP BOX LUNCHES AT THE ATRIUM & BOARD BUS AT THE PORTER SCHOOL MAIN ENTRANCE (SEE PG. 2)

**SESSION 4 - PART 1 / 1:30 P.M.-3:00 P.M.**

**SESSION 4 / PART 1**  
**THE SEA OF GALILEE – A VIRTUAL TOUR AND**  
**DISCUSSION OF ITS CONTINUED IMPORTANCE**  
**AS A FRESHWATER RESOURCE**  
**DORON MARKEL**  
ROOM 101

**AFTERNOON NETWORKING BREAK / 3:00 PM-3:30 P.M.**  
SECOND FLOOR NEXT TO CLASSROOMS

**SESSION 4 - PART 2 / 3:30 P.M.-5:00 P.M.**

**SESSION 4 / PART 2**  
**SCREENING OF THE DOCUMENTARY FILM**  
**“BEYOND THE MIRAGE”**  
**SHARON B. MEGDAL • MODERATOR**  
ROOM 101

**CONFERENCE GALA RECEPTION / 5:30 P.M.-7:00 P.M.**  
SENATE BUILDING (SEE PG. 2)

**CONFERENCE OPENING PLENARY SESSION**  
**SUNDAY • SEPTEMBER 10 • 8:30 A.M.-10:00 A.M. • AUDITORIUM**

**WELCOME AND OPENING REMARKS**



**DROR AVISAR**  
**Conference Co-Chair**  
Director  
Water Research Center  
School of Earth Sciences  
Faculty of Exact Sciences  
Tel Aviv University  
Tel Aviv, Israel



**JOSEPH KLAFTER**  
President  
Tel Aviv University  
Tel Aviv, Israel



**RAFAEL E. FRIAS III**  
President  
American Water  
Resources Association  
Black & Veatch Corp.  
Coral Springs, Florida, USA



**SHARON B. MEGDAL**  
**Conference Co-Chair**  
Director • Water  
Resources Research Center  
University of Arizona  
College of Agriculture  
and Life Sciences  
Tucson, Arizona, USA

**KEYNOTE SPEAKERS**



*How Israel Has Addressed the  
Wicked Problem of Water Scarcity*  
**EILON M. ADAR**  
Alain PÖHER Chair of Hydrogeology  
and Arid Zones  
Zuckerberg Institute for Water Resources  
Blaustein Institutes for Desert Research  
Ben-Gurion University of the Negev  
Sede Boqer Campus, Israel



*How California Is  
Addressing Its Wicked  
Water Problems*  
**FELICIA MARCUS**  
Chair  
California State Water  
Resources Control Board  
Sacramento, California, USA

**10:00 A.M.-10:30 A.M. • MORNING NETWORKING BREAK • ATRIUM**

**ORAL PRESENTATIONS**

**CONCURRENT SESSIONS 1, 2, & 3**

**10:30 A.M.-12:00 NOON**

**SESSION 1 • AUDITORIUM**

**SUNDAY ~ SEPTEMBER 10**

**WATER QUALITY AND QUANTITY MONITORING AND ASSESSMENT**

**MODERATOR • RAFAEL E. FRIAS III • PRESIDENT, AWRA • BLACK & VEATCH CORP. • CORAL SPRINGS, FLORIDA, USA**

- 10:30 A.M. Geospatial Assessment of Source Water Quality Vulnerabilities - Noah Garfinkle, U.S. Army Engineer Research and Development Center, Champaign, IL, USA (co-authors: E. Jenicek, N. Bartholomew)**
- 10:50 A.M. The Development and Demise of the USDA National Water Quality Program in the United States - Carl Evensen, University of Hawaii, Honolulu, HI, USA**
- 11:10 A.M. Risk Assessment of Drought Hazards Based on Water Resources Vulnerability in Guangdong Province, China - Yongqin David Chen, Department of Geography and Resource Management, Shatin, Hong Kong, People's Republic of China (co-author: D. Hua)**
- 11:30 A.M. San Francisco Bay: Climate Adaptation Challenges and Solutions - Warner Chabot, San Francisco Estuary Institute, San Francisco, CA, USA**

**SESSION 2 • ROOM 101**  
**IMPROVING AGRICULTURAL PRACTICES**

**MODERATOR**

**SHAD NELSON • TEXAS A&M UNIVERSITY • KINGSVILLE, TEXAS, USA**

- 10:30 A.M. Alternative On-Farm Orchard Designs in Citrus Irrigation Management That Improve Water Savings for Flood and Drip Irrigation Systems - Shad Nelson, Texas A&M University-Kingsville, Kingsville, TX, USA (co-authors: C.R. Simpson, M. Setamou, B. Turner, J. Gonzales, S. Telagamsetty)**
- 10:50 A.M. Bringing Out the Best in Digital Farming With Precise Irrigation Management - Izhar Gilad, Netafim, Tel-Aviv, Israel**
- 11:10 A.M. Palestinian Wastewater: The Scramble for a New Resource - Jeanne Perrier, ART-Dev, Université Montpellier, France**

**SESSION 3 • ROOM 105**  
**MECHANISMS FOR UNDERSTANDING AND INFLUENCING WATER USE**

**MODERATOR**

**CHAD STADDON • UNIVERSITY WEST OF ENGLAND BRISTOL • BRISTOL, UNITED KINGDOM**

- 10:30 A.M. Enhanced Water Resource Decoupling in the Jordan Basin Riparians: The Case for Sharing Best Practice - Michael Gilmont, University of Oxford, Oxford, UK (co-authors: N. Tal, M. Bundokji)**
- 10:50 A.M. Understanding Israeli Water Customer Preferences for Online, Feedback Technologies - Amir Cahn, SWAN Forum, Tel Aviv, Israel**
- 11:10 A.M. Getting to Yes: U.S. Models for Resolving Complex Groundwater and Environmental Problems - Joshua B. Epel, Former Chairman Colorado Public Utilities Commission and Chairman of the Colorado Oil and Gas Conservation Commission, Denver, CO, USA**
- 11:30 A.M. Socio-Cultural Drivers of Water Demand in Student Residential Accommodation - Chad Staddon, University West of England, Bristol, Bristol, UK (co-authors: K. Simpson, D. Toher, F. Jeddere-Fisher)**

**12:00 NOON-1:30 P.M. • LUNCH BREAK • ATRIUM • PORTER SCHOOL OF ENVIRONMENTAL STUDIES BUILDING (SEE PG. 2)**

**12:15 P.M.-5:00 P.M. • FIELD TRIP TO SOREK DESALINATION PLANT (SEE PG. 2)**

**SESSION 4 / PART 1**

**1:30 P.M.-3:00 P.M.**

**SUNDAY ~ SEPTEMBER 10**

**SESSION 4 / PART 1 • ROOM 101**

**A VIRTUAL FIELD TOUR IN THE SEA OF GALILEE AND ITS WATERSHED: THE IMPACT AND CONSEQUENCES OF THE DECREASING NATURAL PRECIPITATION AND INFLOW TO THE LAKE**

**DORON MARKEL**

UNIT HEAD FOR MONITORING AND MANAGEMENT OF LAKE KINNERET AND ITS WATERSHED • ISRAEL WATER AUTHORITY • ROSH PINA, ISRAEL

This session will cover the challenges facing the Sea of Galilee (Lake Kinneret) Watershed and its multiple users. The Sea of Galilee is the largest freshwater lake in the Middle East and is suffering from low inflows due to drought and upstream water utilization.

**3:00 P.M.-3:30 P.M. • AFTERNOON NETWORKING BREAK • SECOND FLOOR NEXT TO CLASSROOMS**

**SESSION 4 / PART 2**

**3:30 P.M.-5:00 P.M.**

**SUNDAY ~ SEPTEMBER 10**

**SESSION 4 / PART 2 • ROOM 101**

**DOCUMENTARY FILM: "BEYOND THE MIRAGE"**

**MODERATOR • SHARON B. MEGDAL**

DIRECTOR • WATER RESOURCES RESEARCH CENTER • UNIVERSITY OF ARIZONA • TUCSON, ARIZONA, USA

"A water crisis has California in headlines across the country, but the untold story is that a water shortage is dogging all of the states in the Colorado River Basin. "Beyond the Mirage: The Future of Water in the West" reveals new technologies and challenges old ideas." (Amazon.com description). The screening of this film will be followed by discussion of the parallels between the wicked water problems of this Middle East region and the Colorado River Basin, which supplies water to approximately 40 million people in the Western United States. As time permits, participants will engage in open dialogue of Wicked Water Problems generally. Parts of the documentary were filmed in Israel in October 2015.

**5:30 P.M.-7:00 P.M. • CONFERENCE GALA RECEPTION • SMOLARZ PLAZA (SEE PG. 2)**



**DAY-AT-A-GLANCE / MONDAY / SEPTEMBER 11, 2017**

**REGISTRATION DESK OPEN / 7:30 A.M.-5:00 P.M. / ATRIUM**

**MORNING NETWORKING BREAK / 7:30 A.M.-10:00 A.M. / ATRIUM**

**CONCURRENT SESSIONS 5 & 6 / 8:30 A.M.-10:00 A.M.**

**SESSION 5  
WATER TREATMENT  
CONTAMINANTS/DRUGS**

**Room 101**

**SESSION 6  
ADDRESSING COMMUNITY  
AND CUSTOMER NEEDS AND VALUES**

**AUDITORIUM**

**MORNING NETWORKING BREAK / 10:00-10:30 A.M. / ATRIUM**

**CONCURRENT SESSIONS 7 & 8 / 10:30 A.M.-12:00 NOON**

**SESSION 7  
WASTEWATER TREATMENT AND  
OTHER TECHNOLOGIES**

**Room 101**

**SESSION 8  
SCALE CONSIDERATIONS FOR  
WATER MANAGEMENT**

**AUDITORIUM**

**12:00 NOON-1:30 P.M. / NETWORKING LUNCH / ATRIUM (SEE PG. 2)**

**12:45 P.M.-1:30 P.M. / ATRIUM / PORTER SCHOOL OF ENVIRONMENTAL STUDIES BUILDING (SEE PG. 2)**

**CONCURRENT SESSIONS 9 & 10 / 1:30 P.M.-3:00 P.M.**

**SESSION 9  
FACTORS AFFECTING OPTIMAL WATER  
USE AND WASTEWATER PROVISION**

**Room 101**

**SESSION 10  
WATER BANKING, RECHARGE,  
AND REUSE**

**AUDITORIUM**

**AFTERNOON NETWORKING BREAK / 3:00 PM-3:30 P.M. / ATRIUM**

**CONCURRENT SESSIONS 11 & 12 / 3:30 P.M.-5:00 P.M.**

**SESSION 11  
MANAGEMENT OF LAKES AND  
OTHER WATER BODIES**

**Room 101**

**SESSION 12  
IMPROVING LAND AND  
WATER MANAGEMENT**

**AUDITORIUM**

**CONFERENCE CLOSING PLENARY SESSION / 5:00 P.M.-7:00 P.M. / AUDITORIUM**

**MODERATOR • SHARON B. MEGDAL • CONFERENCE Co-CHAIR**

**DIRECTOR • WATER RESOURCES RESEARCH CENTER • THE UNIVERSITY OF ARIZONA • TUCSON, ARIZONA**

**SPEAKER • ODED FIXLER**

**RS-DS PROJECT • JOINT CHAIRMAN JAB**

**SENIOR DEPUTY DIRECTOR • MINISTRY OF REGIONAL COOPERATION • TEL AVIV, ISRAEL**

**CLOSING REMARKS • DROR AVISAR • CONFERENCE Co-CHAIR**

**DIRECTOR • WATER RESEARCH CENTER • SCHOOL OF EARTH SCIENCES • FACULTY OF EXACT SCIENCES**

**TEL AVIV UNIVERSITY • TEL AVIV, ISRAEL**

## CONCURRENT SESSIONS 5 & 6

8:30 A.M.-10:00 A.M.

MONDAY ~ SEPTEMBER 11

### SESSION 5 • ROOM 101

#### **WATER TREATMENT: CONTAMINANTS/DRUGS**

**MODERATOR • HADAS MAMANE • TEL AVIV UNIVERSITY • TEL AVIV, ISRAEL**

- 8:30 A.M. The Removal and Breakdown of Chemotherapy Drugs Derived From Hospital Wastewater Using Based Ozone AOP Technology: A Pilot Scale Project at Tel-HaShomer Hospital, Israel - Dror Avisar, Tel Aviv University, Tel Aviv, Israel (co-authors: H. Mamane, H. Chikurel)**
- 8:50 A.M. Application of Nanostructured Solar Photocatalytic Membrane Reactors (PMRs) for Water Treatment - Hadas Mamane, Tel Aviv University, Tel Aviv, Israel (co-authors: I. Horovitz, L. Lozzic, D. Avisar)**
- 9:10 A.M. Removal of Micro-Pollutants From Wastewater RO Concentrate Using AOP - Aviv Kaplan, The Hydrochemistry Research Group, Water Research Center, Tel Aviv University, Tel Aviv, Israel**

### SESSION 6 • AUDITORIUM

#### **ADDRESSING COMMUNITY AND CUSTOMER NEEDS AND VALUES**

**MODERATOR • KIRA RUSSO • GLOBAL WATER POLICY CONSULTING • FLAGSTAFF, ARIZONA, USA**

- 8:30 A.M. The Prospects of Desalination for Export in the Mexico-U.S. Border Region: A Survey of Mexican Opinion - Nicolas Pineda-Pablos, El Colegio de Sonora, Hermosillo, SON, México (co-authors: R.G. Varady, M.O. Wilder, S. Mumme, R. Figueroa-Mimbela, A.A. Zuñiga)**
- 8:50 A.M. Reuse of Grey Water for Non-Domestic Uses in Jordan - Sharon Megdal, The University of Arizona, Tucson, AZ, USA (co-authors: A.M. Ghrair, O.A. Al-Mashaqbeh)**
- 9:10 A.M. The Management of Hydro-Diplomacy - Kira Russo, Global Water Policy Consulting, Flagstaff, AZ, USA (co-author: E. Hibbett)**
- 9:30 A.M. Potential for Water Reuse in Agriculture: A Water-Energy-Food Nexus Approach - Anne Dare, USAID, Washington, D.C., USA (co-authors: R.H. Mohtar, S.H. Lee)**

**10:00 A.M.-10:30 A.M. • MORNING NETWORKING BREAK • ATRIUM**

## CONCURRENT SESSIONS 7 & 8

10:30 A.M.-12:00 NOON

MONDAY ~ SEPTEMBER 11

### SESSION 7 • ROOM 101

#### **WASTEWATER TREATMENT AND OTHER TECHNOLOGIES**

**MODERATOR • GEORGE WELLS • NORTHWESTERN UNIVERSITY • EVANSTON, ILLINOIS, USA**

- 10:30 A.M. Enhanced N bio-kinetics Driven by Peroxide Addition to Secondary Effluents Bio-Filtration: Linking Function-Structure by N-mass Balance and Metagenomics - Liron Friedman, Tel Aviv University, Tel Aviv, Israel (co-authors: D. Avisara, H. Cikurelc, M. Jekeld, K. Chandran, H. Mamane)**
- 10:50 A.M. Onsite Remediation of Dairy Farm Sewage by Aerated Bioreactor and Halophyte-Zeolite Treatment Wetlands - Ezra Orlofsky, MIGAL Galilee Research Inst., Qiryat Shemona, Israel (co-authors: S. Chernovnikov, A. Cohen, M.I. Litaor)**
- 11:10 A.M. Complete Nutrient Removal, Phosphorus Recovery, and Energy Production Via Microbial N<sub>2</sub>O Generation From Wastewater - George Wells, Northwestern University, Evanston, IL, USA (co-author: H. Gao)**
- 11:30 A.M. Locating Hidden Water Leaks and Condition Assessment of Pipes Using Fixed Remote Monitoring System Based on Acoustic and Pressure Sensors - Oded Fruchtman, Aquarius-Spectrum, Netanya, IL, Israel**

### SESSION 8 • AUDITORIUM

#### **SCALE CONSIDERATIONS FOR WATER MANAGEMENT**

**MODERATOR • JACOB PETERSEN-PERLMAN • WATER RESOURCES RESEARCH CENTER • UNIVERSITY OF ARIZONA • TUCSON, ARIZONA, USA**

- 10:30 A.M. Subsidiarity in International Water Resources Cooperation: A Path Forward? - Jacob Petersen-Perlman, Water Resources Research Center, University of Arizona, Tucson, AZ, USA (co-author: T. Albrecht)**
- 10:50 A.M. The Integrated Watershed Management in Israel - Stumbling Forwards - Jenia Gutman, Soil Conservation & Drainage Division Ministry of Agriculture, Holon, Israel (co-authors: B. Yaacoby, E. Ettinger)**
- 11:10 A.M. An East-West Conveyance to Provide a Cost Effective Solution for Supplying Desalinated Water to Israel, Jordan and the Palestinian Authority – Chris Breeds, SubTerra, Inc., North Bend, WA (co-author: Clive Lipchin)**
- 11:30 A.M. The Cooperative Framework for the U.S.-Mexico Transboundary Aquifer Assessment Program: A Model for Collaborative Transborder Studies - Sharon B. Megdal, The University of Arizona, Tucson, AZ, USA**

**12:00 NOON-1:30 P.M. • LUNCH BREAK • PORTER SCHOOL OF ENVIRONMENTAL STUDIES BUILDING (SEE PG. 2)**

## CONCURRENT SESSIONS 9 & 10

1:30 P.M.-3:00 P.M.

MONDAY ~ SEPTEMBER 11

### SESSION 9 • ROOM 101

#### **FACTORS AFFECTING OPTIMAL WATER USE AND WASTEWATER PROVISION**

**MODERATOR • ELISABETH JENICEK • U.S. ARMY CORPS OF ENGINEERS • CHAMPAIGN, ILLINOIS, USA**

- 1:30 P.M. Do Water Meters Reduce Domestic Consumption? - Chad Staddon, University West of England, Bristol, Bristol, UK**
- 1:50 P.M. Water Intensity to Support Resilient Army Installations - Elisabeth Jenicek and Marc D. Kodack, US Army Corps of Engineers, Champaign, IL, USA; and Office of the Deputy Assistant Secretary for Environment and Sustainability for the US Army, Washington, DC, USA, respectively (co-author: N. Garfinkle)**
- 2:10 P.M. Water, Wastewater, and Energy Solutions for Off-Grid Bedouin, Palestinian, and Jordanian Communities - Clive Lipchin, Arava Institute for Environmental Studies, Kibbutz Ketura, Israel**
- 2:30 P.M. Urban Water and Sewage Management: Efficiency Indices and Optimal Size - Nava Haruvy, Netanya Academic College, Netanya, Israel (co-authors: S. Shalhevet, S.M. Brick)**

### SESSION 10 • AUDITORIUM

#### **WATER BANKING, RECHARGE, AND REUSE**

**MODERATOR • JENNIFER BROWN • CENTRAL ARIZONA PROJECT • PHOENIX, ARIZONA, USA**

- 1:30 P.M. Arizona Water Banking Authority - Its impact in Supplementing Water Supplies in Arizona - Mark Taylor, Westland Resources, Tucson, AZ, USA**
- 1:50 P.M. Effective Water Banking--The Kern County Experience - Richard Luthy, Stanford University, Stanford, CA, USA (co-authors: C.M. Stip, S.R. Dahan, R. Abdulnour)**
- 2:10 P.M. Case Study in the Development and Implementation of a Successful Groundwater Management Plan for a Large Groundwater Basin: Chino Basin Optimum Basin Management Program - Mark Wildermuth, Wildermuth Environmental, Lake Forest, CA, USA**
- 2:30 P.M. Reclaiming Wastewater to Promote Water Resources Resilience - Rafael E. Frias III, Black & Veatch Corp., Coral Springs, FL, USA**

**3:00 P.M.-3:30 P.M. • AFTERNOON NETWORKING BREAK • ATRIUM**

## CONCURRENT SESSIONS 11 & 12

3:30 P.M.-5:00 P.M.

MONDAY ~ SEPTEMBER 11

### SESSION 11 • ROOM 101

#### **MANAGEMENT OF LAKES AND OTHER WATER BODIES**

**MODERATOR • RAFAEL E. FRIAS III • PRESIDENT, AWRA • BLACK & VEATCH CORP. • CORAL SPRINGS, FLORIDA, USA**

- 3:30 P.M. Preserving Lake Kinneret as a Strategic Water Source Considering the Climate Change - Doron Markel, Israel Water Authority, Rosh Pina, Israel**
- 3:50 P.M. The Next Generation of Evaporation Pans - Jake Collison, University of New Mexico, Albuquerque, NM, USA (co-author: D. Llewellyn)**
- 4:10 P.M. Trophic State Evaluations for Selected Lakes in Yellowstone National Park, USA - Woodruff Miller, Brigham Young University, Provo, UT, USA**

### SESSION 12 • AUDITORIUM

#### **IMPROVING LAND AND WATER MANAGEMENT**

**MODERATOR • MARK WILDERMUTH • WILDERMUTH ENVIRONMENTAL • LAKE FOREST, CALIFORNIA, USA**

- 3:30 P.M. Improving Rangeland Management Models With Ecohydrologic Connectivity - Benjamin Turner, Texas A&M University-Kingsville, Kingsville, TX, USA (co-author: S. Nelson)**
- 3:50 P.M. 2013 Chino Basin Recharge Master Plan Implementation - Mark Wildermuth, Wildermuth Environmental, Lake Forest, CA, USA**
- 4:10 P.M. Wastewater Treatment at the Yad Hana Emergency Water Treatment Facility on the Nablus Stream - Humberto Yaakov, Yad Hana Water Treatment Facility, Emek Hefer Development Corporation, Ltd., Emek Hefer Region, Israel**
- 4:30 P.M. The Not-So-Mighty-Anymore Jordan River; EcoPeace Regional Master Plan Offers Solutions - Mira Edelstein, Ecopeace Middle East, Tel Aviv, Israel**

**CONFERENCE CLOSING PLENARY SESSION • THE RED SEA-DEAD SEA PROJECT**

**MONDAY • SEPTEMBER 11 • 5:00 P.M.-7:00 P.M. • AUDITORIUM**

**MODERATOR  
SHARON B. MEGDAL • CONFERENCE CO-CHAIR**



Director • Water Resources Research Center  
University of Arizona • College of Agriculture and Life Sciences  
Tucson, Arizona, USA

**SPEAKER  
ODED FIXLER**



RS-DS Project • Joint Chairman JAB  
Senior Deputy Director  
Ministry of Regional Cooperation  
Tel Aviv, Israel

**CLOSING REMARKS  
DROR AVISAR • CONFERENCE CO-CHAIR**



Director • Water Research Center  
School of Earth Sciences • Faculty of Exact Sciences  
Tel Aviv University • Tel Aviv, Israel

**The conference will close with a discussion of what is truly an example of a cutting-edge approach. Come hear about the implementation of the multi-faceted and collaborative Red Sea-Dead Sea Project, which is centered on the construction of a desalination plant in Jordan.**

## **DIRECTORY OF PRESENTERS**

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