

Nobel Conference® 45 Preview

GUSTAVUS ADOLPHUS COLLEGE 
SAINT PETER, MINNESOTA USA

Water is the lifeblood of Earth. It is the livelihood of every living thing. It is what binds us together. Without water, we shall perish from the Earth.



UNCERTAIN RESOURCE

October 6&7, 2009

The Nobel Conference at Gustavus Adolphus College is the first ongoing educational conference in the United States to have the official authorization of The Nobel Foundation, Stockholm.

For nearly half a century, Gustavus Adolphus College has been honored to host Nobel laureates and other distinguished scholars annually. These thought leaders and researchers gather to discuss critical issues of importance to society. This year's Nobel Conference—"H₂O: Uncertain Resource"—will inform and challenge your thinking about worldwide water quality, scarcity, and conservation. We hope that you will join us for this very topical and fascinating conference.

Jack R. Ohle, President
Gustavus Adolphus College

Water is Earth's most valuable resource. Our globe cannot survive without it, and solutions to its quality and availability do not come easily.

We have a shared responsibility to work together to manage the world's water. We must better educate ourselves as to how we all can make a positive impact on the use and conservation of this essential resource.

This year's Nobel Conference, "H₂O: Uncertain Resource," will do just that—educate. The knowledgeable and involved panel members will discuss the world's water issues, individually and collectively, and what approaches and solutions are possible.

Michael Sohlman, Executive Director
The Nobel Foundation, Stockholm

Water is essential to all life and dominates the composition of both our bodies and the surface of Earth. Since the dawn of humankind, harnessing and using water has played a key role in the development and destruction of civilizations. Yet, our supply of water is both finite and vulnerable to contamination. It is a precious resource that exhibits a great deal of spatial and temporal variability and, in many places around the world, it has been degraded by unsustainable land-use or waste-disposal practices. The future of water resources is bound up with other key socioecological issues, including global population growth, migrations to arid regions, increased use of irrigation, industrialization, climate change, and international resource conflicts.

A panel of world-renowned speakers will provide the Nobel Conference audience with an overview of water resources issues. They will help us understand the connections between these issues and everyday life in our country and around the world.

Water has often been a source of inspiration for writers and there is a large and rich collection of literature with its basis in water. In addition to our panel of scientists, we have invited Derek Walcott, winner of the 1992 Nobel Prize in Literature, to offer some thoughts on these connections in a Tuesday evening conversation titled "Water Words."

Please join us in person, or virtually, for Nobel Conference 45. For in-depth information about the conference or the presenters, please visit gustavus.edu/nobelconference.

Mark Bjelland, Chair
Nobel Conference 45

Chuck Niederriter, Director
Nobel Conference

Gustavus Adolphus College and the Nobel Conference

Established in 1862 by Swedish Lutheran immigrants, Gustavus Adolphus College is a private liberal arts college that provides an undergraduate education of recognized excellence for more than 2,500 students.

The Alfred Nobel Hall of Science at the College was named as a memorial to the great Swedish inventor and philanthropist. Following its dedication in 1963, attended by Nobel Foundation officials and 26 Nobel laureates, endorsement of an annual science conference to be held at the College was requested of The Nobel Foundation. Permission was granted and the conference, now in its fifth decade, continues to set a standard for timeliness, intellectual inquiry, and free debate of contemporary issues related to the natural and social sciences.



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Derek Walcott is a world-renowned poet and playwright who received the Nobel Prize for Literature

in 1992. He is the recipient of numerous awards for his poetry and drama, and lectures widely. He is set to serve as distinguished visiting professor in literature and drama at the University of Alberta.

2009 NOBEL CONFERENCE CONTRIBUTORS

The Nobel Conference is made possible through income generated by a Nobel Conference Endowment and the support of annual conference contributors.

The Nobel Conference Endowment has been established with the generous support of core funders Drell and Adeline Bernhardson, historic funders Russell and Rhoda Lund, and additional funders—the Mardag Foundation in memory of Edgar B. Ober, and the UnitedHealth Group.

Gustavus Adolphus College acknowledges key contributions to the 2009 conference from these corporations.



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ON TAP



Not that long ago, on a warm summer's day, you could hunker down by a river's edge just about anywhere in America, scoop water into your cupped hands, and drink it—and it tasted crisp, fresh, and *pristine*. Not that long ago, you could see fish actually jumping from our rivers and our oceans, evidence of the bounty below, as there was above on the land. Not that long ago, you never thought twice about drinking the water flowing from your tap.

Things have changed.

What happens is up to each of us.

As we look now to the future of a past that squandered Earth's resources, we know what we have to do.

Gustavus Adolphus College presents seven of the world's environmental or water experts who will tender their findings on the state of the world's water at Nobel Conference 45.

This group of esteemed researchers, scholars, and global leaders will discuss:

The past, present, and possible futures for the world's water resources—from the damming of our rivers and the collateral damage wrought to the unknown impact of climate change;

The contamination of rivers, streams, lakes, and urban reservoirs with everything from pesticides to pharmaceuticals and the resultant rise in oceanic dead zones;

The increasing importance of management matters and governance in the new century—and the hope for the future that lies in solutions known, and technology to be found,

The social ethics and personal principles it will take if we are to change course and allow our children's children to know the way of life to which we have become accustomed.

TUESDAY, OCTOBER 6

- 10:00 am Engineer-economist R. K. Pachauri
- 1:00 pm Marine ecologist Nancy N. Rabalais
- 3:00 pm Water chemist-environmental scientist David L. Sedlak
- 8:15 pm Poet-playwright Derek Walcott

WEDNESDAY, OCTOBER 7

- 10:00 am Environmental scientist Peter H. Gleick
- 1:00 pm Christian environmental ethicist Larry L. Rasmussen
- 3:00 pm Civil engineer Asit K. Biswas
- 6:30 pm (Banquet) Geographer William L. Graf

For information, visit gustavus.edu/events/nobelconference/2009/

**Acknowledging
International Decade for Action: *Water for Life*
2005-2015**





PERISCOPE

A.J.S. Rayl

“Water ties together everything we care about,” says environmental scientist Peter Gleick, president of the Pacific Institute, Oakland, California, renowned for its research on water issues. But, abundant as it is, he says, “we are facing a crisis of running out of sustainably managed water.”

With global population and development on the rise, we’re consuming water like there’s no tomorrow. Humanity already appropriates more than 50 percent of all renewable and accessible freshwater flows, Gleick says. Yet an estimated 1.2 billion people, of the 6.8 billion on the planet, lack access to safe water.

“There are places in the world where people have to walk several miles just to get a bucket of water,” says engineer-economist R. K. Pachauri, chair of the Intergovernmental Panel on Climate Change (IPCC), which shared the Nobel Peace Prize with Vice President Al Gore in 2007. “This is *not fiction*,” he adds. “And another 2.4 billion people lack sanitation facilities.” Combined, that’s half of humanity.

Midway through the United Nations’ International Decade for Action: *Water for Life*, 2005–2015, the Millennium Development goal to “halve the proportion of people without sustainable access to safe drinking water and basic sanitation” is making “[s]ome remarkable progress” in meeting safe water needs, Gleick writes in *The World’s Water 2008-2009*, the biennial “book on water” he’s been authoring since 1998. “We are failing miserably, however, in meeting sanitation needs,” and Africa is still “neglected.”

We have also failed some once rich ecosystems, now overburdened by our use of their waters. There is a threshold, a critical point Gleick and colleagues call “peak ecological water,” where humans use more water than the ecosystem can sustain without significant deterioration and degradation. We may have reached that point in places like the Florida Everglades and the Aral Sea. Despite restoration attempts, these vast wetland ecosystems tragically continue to decline.

“If you follow the money since 1950, you will follow the water,” says Christian environmental ethicist Larry Rasmussen, professor emeritus at the Union Theological Seminary. The route, he says, has taken us to this endpoint of undermining not only the quantity and availability of freshwater supplies, but also the capacity of nature’s economy to thrive and survive. “The global consumer economy is colliding with Earth’s economy,” he says.

There’s also the 600-pound gorilla in the pond: climate change. No one knows exactly how climate change will alter our world, but experts agree it will. They also agree that we already see evidence of such changes on our water resources, especially in drought-ridden Africa, and other thirsty regions like the western United States. The

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Life as we know it cannot exist without water. It's all around us. It's in us. It is essential to almost everything we do. It is essential to every living thing. Where there is water, we have always found life.

predictions are sobering. The average supply of water per person worldwide is expected to drop by one-third over the next 20 years, in part because of climate change, according to the IPCC. And climate change is predicted to cause a 20 percent increase in water scarcity up to 2050.

"The time has come for us to clearly question our pattern of development and see what we need to do modify it," says Pachauri, "to reach a level of sustainability with our natural resources, with our environment, and in terms of the disparity between rich and poor, and to prepare to respond to the impacts of climate change."

With all of our technology, living as we do on a planet that is 71 percent water, a renewable resource, it's hard to believe that our access to this vital element could be threatened.

Of all the water on Earth, however, just 3 percent is freshwater, 2 percent or two-thirds of which is frozen in glaciers and snowcaps or locked in deep groundwater, leaving less than 1 percent available for our use. That 1 percent must sustain the billions of people living today, as well as the two billion-plus more to arrive in the next 15 years, all the ecosystems and every living thing, great and small, within each of them. Also, while water is a renewable resource, not *all* water use is renewable. Some water uses are nonrenewable and unsustainable, following "a peak-oil-type curve," as Gleick and colleagues have put forward, complete with a precipitous decline as we are now seeing in ecosystems around the world.

"It used to be we had wide open rivers," says geographer and river scientist William Graf, professor at the University of South Carolina, Columbia. But humankind has taken over and changed the planet's natural landscapes, building dams that, however inadvertently, devastated entire ecosystems, altering the flows and changing the composition of the

water by polluting it with agricultural fertilizers and pesticides, industrial chemicals, and the cocktail of contaminants we flush down the toilet.

Given all the ways we've messed with Mother Nature, it's easy to see how pressure is building on that 1 percent. "We cannot afford to waste the quality of our waters or the quantity of our waters, because there is a limit to water of good quality for human beings, organisms, and ecosystems," says marine ecologist Nancy Rabalais, executive director of the Louisiana Universities Marine Consortium, who has spent two decades studying how pollution of the Mississippi River has led to ecological devastation in the Gulf of Mexico.

Since the planet's hydrology is truly a cycle, the oceans, surface water, and groundwater are all interconnected and interdependent. Water is continuously moving through the cycle, on, above, and below the surface of Earth, often changing states as it travels, from liquid to vapor or ice. Once contaminants enter the hydrologic cycle, they're there until we take them out or until it can over the long term detoxify itself organically. Today, pristine water, in the classic sense, is rare. In fact, only 2 percent of America's rivers still rank as "pristine."

"The era of taking water for granted is over," sums up water chemist David Sedlak, professor at the University of California, Berkeley, known for his research into human steroids and pharmaceuticals in drinking supplies. "Now it's up to us to make the system work in the most sustainable way possible."

Despite all the mistakes and abuse of resources that will no doubt make our descendants blush with embarrassment, we are not doomed, says civil engineer-water manager Asit Biswas, founder of the Third World Centre for Water Management in Atizapan, Mexico. "Each of the problems can be solved economically, politically, and with science and technology."

The only question, absurd as it might seem, is: Do we want to?

It will take cutting-edge science and new technologies, human ingenuity, and a lot of money and commitment, specifically a decades-long commitment, orders of magnitude beyond the 10-second sound bite world in which we live today. And it's going to take something else, something that may be the greatest—and most urgent—challenge for our global village, says Rasmussen. "There will be changes in the next few years on a scale that we haven't seen before and our present ethical frameworks are not adequate for addressing this crisis," he says. "These issues and problems require people



being motivated to do the work. They require changes in the way people see things, changes in values that people hold. In most of human history, change of this sort involves a spiritual or religious or a faith dimension. Knowledge itself doesn't suffice in getting people to muster the political will to change the condition."

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A.J.S. Rayl is a freelance science journalist, writer, and author based in Malibu, California. She has written on assignment for a variety of magazines, including Air & Space, Astronomy, Discover, Reader's Digest, and Smithsonian, as well as online ventures, including The Planetary Society's <http://planetary.org>.

PRESENTERS

R. K. Pachauri

Chair, Intergovernmental Panel on Climate Change, Geneva, Switzerland

An active, internationally known leader in climate change and new energy, Dr. Pachauri

played a major role in laying the groundwork for the 1997 Kyoto Protocol. He has served as the chair of the United Nations'

Intergovernmental Panel on Climate Change (IPCC)

since 2002. In 2007, the IPCC shared the Nobel Peace Prize with former Vice President Al Gore and Pachauri represented the organization at the ceremony. In January 2008, he was personally awarded the second-highest civilian award in India, the Padma Vibhushan.

Pachauri will discuss the impact climate change will have on world water resources, the water crises already setting in for the 1 billion currently without access to freshwater and the 2.4 billion without basic sanitation facilities, the impending threat to peace and security, and the foundations for solution set forth by the IPCC.

"We need to redefine human values; therefore, we may need some changes in lifestyle as well. There has been a relentless pursuit of more and more goods and services without regard to the impacts not only on the environment, but also on human desires and human aspirations. The value has been in producing and consuming more and more. In America and all over the world, in faith organizations, everywhere we need to start looking at some of these basic human values."

Nancy N. Rabalais

Executive Director, Louisiana Universities Marine Consortium, Chauvin



An internationally known marine ecologist, Dr. Rabalais has spent more than two decades studying the Mississippi River and the damage agricultural runoff, excess nitrogen,

and human activity have caused along the way—especially downstream, the result of which has created a “dead zone” in the Gulf of Mexico. She is one of the world’s leading experts on dead zones and has worked tirelessly for the integration of science and policy.

Dr. Rabalais will show how actions far away in a watershed are having direct effects on coastal ecosystems, including noxious and potentially harmful algal blooms, dead zones, threats to coastal fisheries resources, loss of biodiversity and ecosystem services, what actions can be taken to restore a balance, and how individual, societal, and political institutions can bring about effective change.

"There are more and more people trying to reduce their carbon footprint. That is the mantra of the day with regard to global warming. But there's also a nitrogen footprint that has a more immediate effect on our daily lives—in terms of water quality, food availability, sustainable agriculture, and daily subsistence. While our carbon footprint is making a not so immediate, but profound mark on the existence of human life on Earth's ecosystem, the nitrogen footprint is there, lurking in the background, with an equal potential to disturb the balance of a global ecosystem."

David L. Sedlak

Professor, Department of Civil and Environmental Engineering
University of California, Berkeley

A global expert in the chemical contamination of water supplies, Professor Sedlak developed some of the first reliable methods for

measuring steroid hormones in wastewater. His findings became known around the world more than a decade later when other scientists began linking steroids in the water to the feminization of wildlife. Since then he has found and tracked other human-eliminated pharmaceuticals making it through the treatment process and into urban drinking supplies.

Hear Dr. Sedlak talk about the waste stream, how wastewater-derived contaminants, including pharmaceuticals and hormones, end up in our drinking water, how these contaminants impact aquatic environments, the coming issue of upstream communities discharging into the water supply of downstream communities as population density increases and water availability decreases through climate change, and what we need to do to insure water quality.



"Our wastewater treatment systems were developed as a means of disposal. We built sewers to get sewage out of our cities. It was only later that we retrofitted them into

sewage treatment plants and the main purpose of the treatment plants was to get rid of nutrients and organics that depleted the oxygen in the water. We never designed them to remove trace contaminants, like pharmaceuticals or steroids. Now that we are facing this issue of reusing our water, we may need to go back and rethink our whole approach for dealing with waste."

Peter H. Gleick

President, Pacific Institute
Oakland, California

An internationally acclaimed water expert, Dr. Gleick is the author of *The World's Water*, the biennial series that regularly

assesses the state of the resource. He is the recipient of a MacArthur Foundation “genius award” and was elected a



member of the National Academy of Sciences in 2006. He also regularly provides testimony to the United States Congress, and is a frequent expert guest for the national news media. *Wired* magazine in October 2008 named him “one of 15 people” President Obama “should listen to.”

Dr. Gleick will present on the need for new thinking about water resources, the impacts of climate change, the human right to water, and how humanity can change its present wasteful course and move to a “soft path” that meets the basic needs of water for humans and ecosystems.

“There’s a pessimistic scenario that we can see all too clearly if we do nothing and continue down the same path. But there is another path, a soft path. It requires us to rethink our needs, improve efficiency and reduce waste, reinforce our infrastructure, price water appropriately, give communities decision-making power over water, and protect aquatic ecosystems from overuse. We must do far more to help provide safe water and sanitation to developing countries and prepare as best we can for the now unavoidable consequences of climate change. The transition is under way. But we cannot follow both paths. We must move more quickly to address serious unresolved problems.”

Larry L. Rasmussen

Emeritus Professor of Social Ethics
Union Theological Seminary
New York City



One of the world’s foremost Christian environmental ethicists, Larry Rasmussen has mentored a generation of Christians in ecotheology and

“green religion.” He spearheaded the “greening” of the Union Theological Seminary as an institution and rooted his courses and scholarship in the practice of environmental justice with communities and community leaders. He has published more than a dozen books, including the landmark, award-winning *Earth Community*, *Earth Ethics*. He is currently directing a 10-year project, Earth Honoring Christianity, at Ghost Ranch in Abiquiu, New Mexico.

Dr. Rasmussen will talk on the social ethics of water, including water democracy and water justice and other questions climate change will present, the coming collision between the global corporate consumer economy and the Earth’s economy, and the state of our ethical framework to handle the water crises.

“We really must treat the planet as our commons and nurture human good and the good of others that share in the commons. There was a time that it wasn’t popular to talk about Earth as a community, but now there is such positive resonance with it. I haven’t figured out whether it’s because, like E.O. Wilson says, our biophilia is hardwired and we have a sense. It may be dulled and dumbed down, but we have a sense that we belong to a community that’s much larger than ourselves, that was here before we arrived and will be here after we leave. We’re kind of born to belonging.”

Asit K. Biswas

President, Third World Centre for
Water Management, Atizapan, Mexico

One of the world’s leading authorities on water and environmental management, Asit Biswas has earned renown over the years as an



out-of-the-box thinker. An adviser to six heads of United Nations agencies and 18 governments, he regularly travels between three continents spreading his ideas and sharing his knowledge. He received the 2006 Stockholm Water Prize for his “outstanding contributions” in solving the world water problems.

Biswas will present on the critical role of and crisis in management and governance of water, the many myths floating around, and how at least three developing countries have superceded American cities, including environmentally-conscious Los Angeles, with their water management, treatment, and delivery systems.

“There are a lot of psychological hang-ups that have to go in the next few years. In the United States, the hang-up is about recycled water. We all drink reused water. We recycle it, treat it, then

dump it into the reservoir and it gets mixed up. Nobody knows. This happens everywhere, even in the United States. In Singapore, they have tried blind tests with recycled water and bottled water. Surprisingly, the majority seem to like recycled water. But if you take recycled water per se, which is much easier and it’s a good resource, once people realize, especially in the United States, that it is recycled water, they don’t want to drink it. It’s just psychological.”

William L. Graf

Chair, Department of Geography
University of South Carolina, Columbia



One of the preeminent river scientists in the world, Professor Graf has studied rivers in every region of the

country from the California and Colorado to the Missouri and the waters of the Florida Everglades. In addition to his research and teaching, he is active at the intersection of science and policy, serving as an adviser in the reoperation or “un-damming” of rivers, and his research has been central to local and national policy.

Dr. Graf will give an overview of the state of the rivers in the United States, how human society has changed them and their landscapes with devastating consequences for many valued species of wildlife that are now threatened or endangered, and how it is possible to reverse these unintended consequences and restore our rivers and their wildlife for future generations by operating large dams for environmental quality.

“We have to convince politicians and business that the rivers are more than just water. Rivers are complex operating systems with historical value and habitat value and aesthetic value. The water is part of the system. To fix these complex systems, we must first “get the water right.”



Contact Information

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Gustavus Graduate yes no

Conference Mail List Status continue remove add

Conference Tickets

Individual Nonreserved Seating

No. @ \$60 per person = \$

Individual Reserved Main Floor Seating (limited)

No. @ \$100 per person = \$

Student Delegations (20 tickets per delegation)

No. @ \$80 per delegation = \$

Name of Delegation (high school/college/university)

Dining Tickets

Three Crowns Salad/Sandwich Buffet - Tuesday, October 6

No. @ \$10 per person = \$

Three Crowns Salad/Sandwich Buffet - Wednesday, October 7

No. @ \$10 per person = \$

Nobel Conference Banquet* - Wednesday, October 7

No. @ \$30 per person = \$

Certification of Attendance

Certificates of attendance will be issued.**

No. @ \$25 per person = \$

* Separate ticket required.

** Individual conference ticket also required.

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TICKET ORDER

Order online with MasterCard or VISA at gustavus.edu/nobelconference or mail completed order form with payment in full, payable to Gustavus Adolphus College, for all lecture and meal reservations. Tickets for lectures are good for the two-day conference. Seating in Lund Arena is limited to 3,000. Overflow seating will be in selected video-equipped rooms. Nobel Conference tickets are nonrefundable. *A separate ticket is required for the Nobel Conference Banquet on Wednesday evening.*

MAILING ADDRESS

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Tickets will be mailed after August 15, 2009. Tickets ordered too late for mail delivery will be held at the Nobel Conference registration desk in Lund Center. For more information, contact the Office of Marketing and Communication, telephone 507.933.7520, fax 507-933-6147, or e-mail marketing@gustavus.edu.

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