

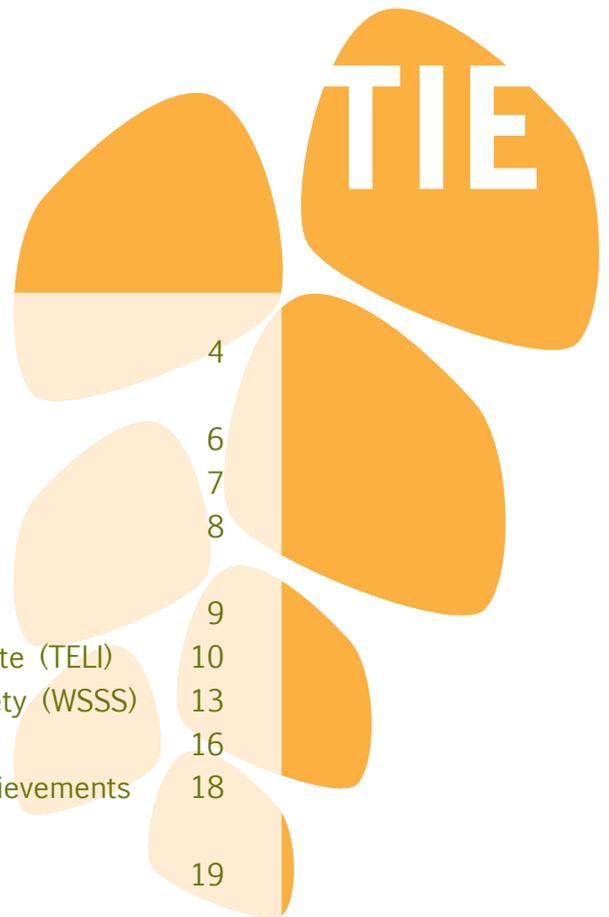


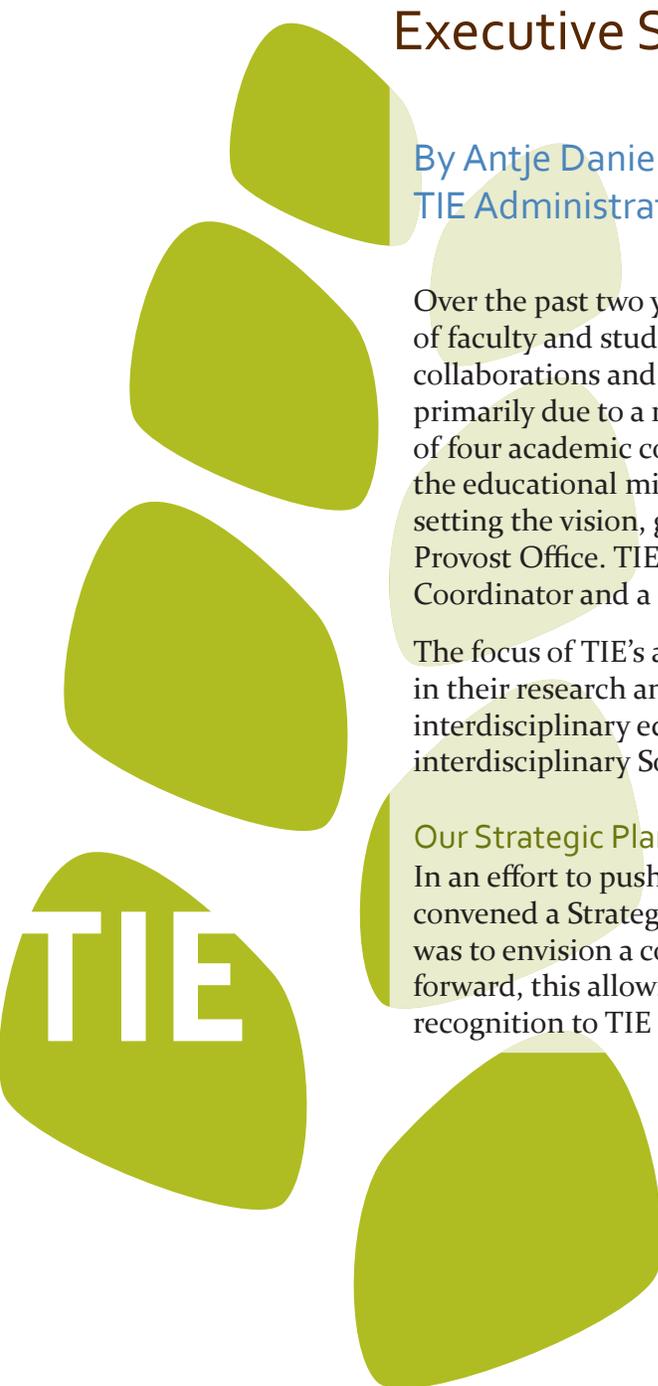
Tufts Institute of the Environment  
2008 - 2010  
Biennial Report  
Central Administration  
Tufts University



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## Executive Summary

By Antje Danielson  
TIE Administrative Director

Over the past two years, TIE's activities have increased and the involvement of faculty and students from across all campuses has led to new research collaborations and expanding educational programs. The increase of activities was primarily due to a reorganization of the TIE's leadership team, which now consists of four academic co-directors, who represent TIE's focused research areas plus the educational mission, and the administrative director, who is responsible for setting the vision, goals, and strategies for TIE's initiatives in conjunction with the Provost Office. TIE's operations are currently carried out by a dedicated Program Coordinator and a number of skilled student interns.

The focus of TIE's activities over the last two years was on supporting students in their research and career development, on improving two of the main interdisciplinary educational programs (WSSS and ENVIS), and on supporting the interdisciplinary Solar Decathlon project.

### Our Strategic Plan

In an effort to push TIE into the future, the TIE co-Directors, staff and interns convened a Strategic Planning retreat on June 2nd, 2010. The purpose of this retreat was to envision a complete overhaul of the TIE vision, mission, and goals. Moving forward, this allows TIE to focus energy in strategic directions, bringing greater recognition to TIE and allowing our programs to expand to their full potential.

Our primary stakeholders are faculty and students, which we supported through the following services:

### Funding

TIE provided research fellowships and travel grants to graduate students. In special cases, we have provided curriculum development funds and research assistantships.

### Professional development

TIE's annual faculty workshop, the Tufts Environmental Literacy Institute, helped faculty include environmental issues into the curriculum.

### Interdisciplinary discourse

TIE facilitated interdisciplinary discourse by sponsoring events, supporting the Environmental Studies Program, and connecting interest groups across the university in the specific realms of environmental research outlined by the co-directors.

### Priority projects

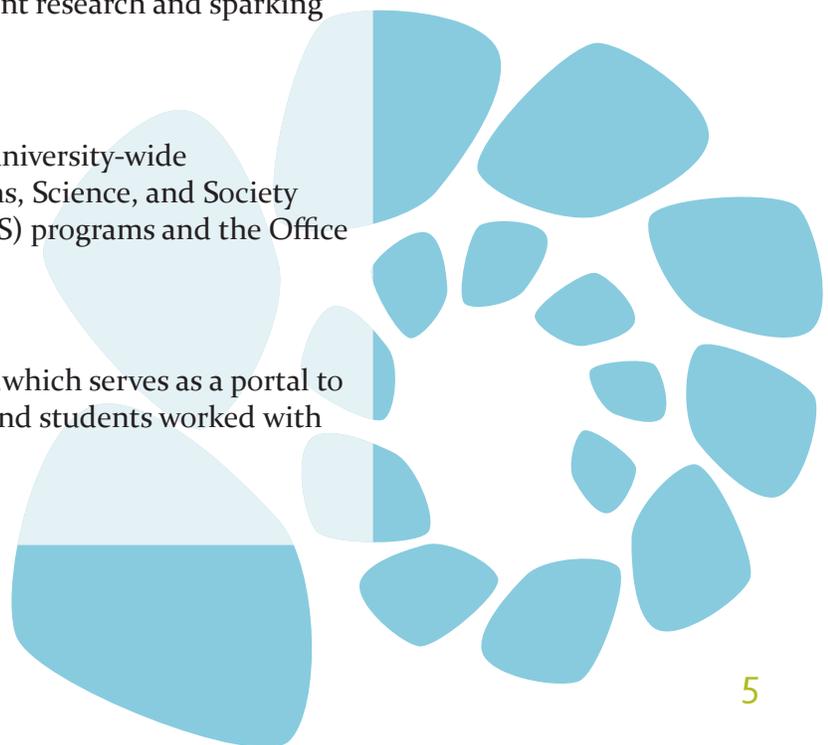
TIE initiated and ran priority projects such as the Solar Decathlon and the Arctic Initiative with the focus on supporting student research and sparking innovation in research.

### Space and administrative support

TIE provided space and administrative support to university-wide environmental programs such as the Water: Systems, Science, and Society (WSSS) and Environmental Studies Program (ENVS) programs and the Office of Sustainability.

### Outreach

TIE created the new website *environment.tufts.edu*, which serves as a portal to environmental activities at the university. Faculty and students worked with our staff to highlight their research and initiatives.



## Vision and Mission

### Draft Vision

(1) The Tufts Institute of the Environment will be the preferred place of association for Tufts' academic leaders in interdisciplinary environmental research, technology and policy development, and education. (2) This association will elevate Tufts into an international leadership position in strategic research areas. (3) This will attract stellar students, and (4) increase the visibility and thus literacy of environmental issues on campus.

### Revised Mission Statement

The Tufts Institute of the Environment (TIE) is an interdisciplinary university-wide institute that initiates, facilitates, and supports environmental education, research, outreach, and service toward a sustainable future.

### Strategic Directions

1. Strengthen interdisciplinary research initiatives
2. Develop stronger sense of affiliation amongst community members
3. Attract programmatic funding
4. Ensure a high level of environmental literacy for all Tufts students
5. Increase visibility of research within and outside the University

### From the Tufts Environmental Policy:

- “In our education, and research missions, Tufts University will strive to:
- Foster an understanding of and a responsibility for the physical environment;
  - Ensure that individuals are knowledgeable about environmental health issues that affect their discipline;
  - Encourage environmental research;
  - Conduct research and teaching in an environmentally responsible way;
  - Provide a forum for the open flow of information among governments, international organizations, industry, and academia to discuss and study environmental issues and their relationship to other social issues.”

*“We need to know more how universities, nonprofits, even corporations, can translate knowledge into meaningful change in the world beyond them. Within higher education, we need research that addresses how universities and curricula can be restructured to better prepare students to engage in the world. We're putting in place the structure and programs to encourage people to learn and explore. It has taken root throughout Tufts and has sparked the imagination of faculty and students. It will continue to spread like fire, and there is no predicting what it will produce.”*

*- Jamshed Bharucha,  
Provost and Senior Vice President*

## TIE Staff and Directors

### Professional Staff

**Antje Danielson** is the Administrative Director of TIE and the Water: Systems, Science and Society (WSSS) Program. She joined Tufts in May 2008 after serving as Deputy Director for Sustainability at Durham university (UK). Prior to that, she worked with the Harvard Green Campus Initiative. A long-time resident of Cambridge, Antje also co-founded the innovative car-sharing company Zipcar. She holds a Ph.D. in Geology from Free University, Berlin.



**Heather Angstrom** is the Program Coordinator for TIE as well as the WSSS program. She manages the TIE office in Miller Hall at the Medford campus and coordinates events such as the Energy and Climate Forum and the WSSS Symposium. Before coming to Tufts, Heather worked at the Center for Women's Studies at Colgate University. She holds a joint B.A. in Studio Art and Women's Studies, and recently received an M.S. in Health Communications at the Tufts School of Medicine.



### TIE Co-Directors



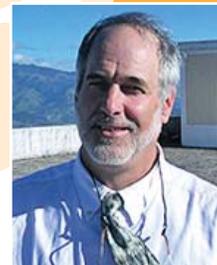
**Education Directorate: Gretchen Kaufman**  
Assistant Professor, Director of the Tufts Center for Conservation Medicine, Cummings School of Veterinary Medicine

**Energy and Climate Directorate: William Moomaw**  
Professor of International Environmental Policy,  
Director of the Center for International Environment and Resource Policy, The Fletcher School



**Health & the Environment Directorate: Elena Naumova**  
Associate Professor, Director of the Tufts Initiative for Forecasting and Modeling of Infectious Disease (InForMID), School of Medicine

**Water Directorate: Richard M. Vogel**  
Professor, Director of the graduate program in Water: Systems, Science, and Society, School of Engineering



## History of TIE

The Tufts Institute of the Environment was created in 1998 to formalize and expand on the missions of the Center for Environmental Management (CEM), founded in 1984, and the Tufts Environmental Program Council (TEPC), which was established in 1994. CEM in partnership with the US Environmental Protection Agency promoted interdisciplinary environment-related research in all of Tufts' schools. TEPC was charged with identifying opportunities for creating interdisciplinary programs. Over the course of this evolution, TIE has integrated the mandates of CEM and TEPC into its mission.

In 2007, the capability of TIE as a critical cross-school academic center was recognized and TIE was designated to report directly to the Office of the Provost and Senior Vice President. With this shift in leadership, TIE acquired the resources and responsibility to foster innovative solutions to environmental problems based on sound research, bringing together the disparate communities of all of Tufts' schools. TIE's programs and outreach have expanded significantly since that time.

The work at TIE is supported by a University-wide commitment to sustainability, citizenship, and excellence in academics as shown by the multiple documents approved by Tufts' leadership over the years. These documents, integral in shaping the long-term vision of TIE, include:

- The Talloires Declaration, 1990
- Tufts University Environmental Policy, 1990
- Tufts Climate Initiative: 5 Year Report – Reflecting on the Past, Looking to the Future, 2004
- Tufts Institute of the Environment Assessment 2005



Then: Tufts students studied Earth Sciences long before the Tufts Institute of the Environment was founded.



Gogi Grewal – WSSS student – testing water quality in the Bahamas. TIE promotes students of all academic backgrounds to study cutting-edge, interdisciplinary environmental research .

## TIE Fellowships

Matriculated graduate students at any of Tufts University's graduate programs and professional schools are eligible to apply for a TIE fellowship to conduct interdisciplinary environmental research. This is an opportunity to support and provide greater visibility for stellar interdisciplinary students and their work. Selected students are listed on the TIE website, invited to present final reports to the Tufts community, and receive funding toward a research stipend and materials.

### TIE Fellows 2008-2009

Karen Alroy (Cummings School of Veterinary Medicine): Herring Gulls, *Larus argentatus*, as Vectors of Pathogenic *Escherichia coli* in Coastal Environments

Jenny Lenkowski (School of Arts and Sciences): Determining the Mechanism of Action by which Atrazine Affects Organ Development in Amphibians

Abby Lindsay (The Fletcher School and the Department of Urban and Environmental Policy and Planning): Advancing Central America's Development Through the Carbon Market: An Assessment of the Barriers and Policy Recommendations to Overcome Them

Brian G. Tavernia (School of Arts and Sciences): Linking Declines in Marsh Birds to Urbanization: An Evaluation of Potential Mechanisms

Yu-shiou Tsai (School of Engineering): Estimation of Climatic and Anthropogenic Influences on Freshwater Availability

### TIE Fellows 2009-2010

Katherine Haman (Cummings School of Veterinary Medicine): Health Assessments and Antibiotic Resistance of Free-Ranging Atlantic Sharpnose (*Rhizoprionodon terraenovae*) and Bonnethead (*Sphyrna tiburo*) Sharks off the Coasts of Florida and Georgia

Laura Hartz (Friedman School of Nutrition Science and Policy): A Timely Evaluation of the Environmental Benefits Index

Antarpreet S. Jutla (School of Engineering): Tracking Cholera Outbreaks Using Remote Sensing

Alexander Keyel (School of Arts and Sciences): Towards Ecological Sustainability: Understanding Habitat Size Requirements for Declining Grassland Birds

Anne Madden (School of Arts and Sciences): Cryptic Vectors, Lurking Pathogens, and Novel Chemistry: Culturable Microbes Associated with Native and Invasive Wasp Species

Shailee Padhan (The Fletcher School): Biofuels and Its Implications on Food Security and Climate Change: A Case Study of Nepal

## Tufts Environmental Literacy Institute (TELI)

The Tufts Environmental Literacy Institute (TELI) is a multi-day faculty development workshop that is intended to enhance faculty environmental literacy, with a goal of assisting participants to incorporate these themes into existing or new courses. The ultimate goal of TELI is to increase the knowledge of environmental themes for all Tufts students and to enable them to effectively engage with the issues that will shape their generation. Emphasis is placed on recruiting faculty participants from a wide range of disciplines in order to foster a climate of interdisciplinary scholarship.

Student interns at TIE work with faculty directors to develop the theme and content for the program. TIE also organizes two follow-up meetings for TELI participants to share their progress and course changes and evaluates and assesses TELI to make improvements for future years. Tufts faculty receive a stipend for participating in the workshop.

### TELI 2009 (May 18-22)

In 2009, the theme was “Climate Change, Climate Justice”. TIE worked closely with Jonathan Kenny from the Chemistry Department and Ann Rappaport from the Department of Urban and Environmental Policy and Planning, who served as Faculty Directors and helped to organize the week’s speakers and content. The four-day workshop included interactions with experts, thoughtful discussions on

global issues, and the opportunity to become more familiar with local sustainability at Tufts.

After a greeting by Tufts President Lawrence Bacow, William Moomaw from the Fletcher School and Sivan Kartha from the Stockholm Environment Institute explained “Climate Change Science and Policy Basics”. Mike Meldonian from Oxfam America discussed “Climate Justice and Gender”, while Peter Walker of Feinstein International Center presented on “Climate Change and Social Disruption”. Eric Chivian from Harvard’s Center for Health and the Global Environment discussed the ways in which human health



Participants visited a wind-to-energy plant as a part of the interdisciplinary learning experience.

depends on biodiversity. Finally, Neva Goodwin from the Global Development and Environment Institute led a discussion to conclude and look to the future.

Sarah Hammond Creighton from the Office of Sustainability discussed what actions Tufts University is taking on its campuses, with an emphasis on how student projects and research can contribute to sustainability at Tufts. This session culminated with a 'green' tour of the Medford campus, highlighting efforts that have been made to create a more sustainable, energy-efficient community.

### TELI 2010 (May 24-28)

In 2010, the theme was expanded to a broad overview of environmental issues. TELI was taught by break-out faculty teams from the School of Arts and Sciences, Tisch College, and the Global Development and Environment Institute (GDAE). The Center for the Enhancement of Learning and Teaching (CELT) provided resources and advice for curriculum and development.

The first day focused on the environment and higher education. Tufts President Lawrence Bacow welcomed participants and Julian Agyeman, Chair of the Department of Urban and Environmental Policy and Planning, discussed 'just' sustainability. Tony Cortese, President of Second Nature, closed the day with a discussion on sustainability in higher education.

A team from the School of Arts and Sciences led Day Two, focusing on gender, race, and environmental justice. Modhumita Roy of Women's Studies and Elizabeth Ammons of the English Department highlighted literature, poetry, and a screening of the film *Darwin's Nightmare* to spark discussion.

On Day Three, GDAE led an exploration of economics and climate change. William Moomaw of the Fletcher School discussed climate science, Brian Roach presented on greening economics, and Sivan Kartha discussed the concept of greenhouse gas development rights. Jonathan Harris concluded the day with a presentation on economics and the environment.



TELI participants indulge in a deep conversation during a sunny day on the Medford campus.

Tisch College highlighted active citizenship and the environment on Day Four. Robert Hollister, Nancy Wilson, and Peter Levine discussed active citizenship and youth engagement, followed by a debate on civic environmentalism. Penn Loh shared his experiences working on community-based environmental action.

### TELI 2009 Workshop Participants

Elizabeth Ammons, English  
Hazel Bright, English  
Luisa Chiesa, Mechanical Engineering  
Chiyo Crawford, English  
Steven Cohen, Public Health and Family Medicine  
Anne de Laire Mulgrew, Romance Languages (Spanish)  
Lisa Neal Gualtieri, Health Communication  
Bruce Hitchner, History  
Shari Litch, Gray Chester College (Tufts alumna)  
Kate Risse, Romance Languages (Spanish)  
Zach Smith, Wright Center for Science Education  
Nino Testa, English  
Tina Woolston, Office of Sustainability  
Kathleen Blanchard, President, Intervale Associates

### TELI 2010 Workshop Participants

Mary Davis, Urban and Environmental Policy and Planning  
Hugh Joseph, Nutrition  
Lisa Troy, Nutrition  
Gretchen Kaufman, Environmental and Population Health  
Vivek Freitas, English  
Elizabeth Lemons, Religion  
Monica White Ndounou, Drama and Dance  
Ian Todd, English  
Barbara Orton, English  
Jackie O'Dell, English  
Ekaterina Naumova, Public Health  
Martha Kelehan, Tisch Library  
Kate Risse, Romance Languages (Spanish)  
Anne de Laire Mulgrew, Romance Languages (Spanish)

## Water: Systems, Science and Society (WSSS)

The Water: Systems, Science, and Society (WSSS) program at Tufts University is a certificate program that provides graduate students with interdisciplinary perspectives and tools to manage water-related problems around the world.

Students participating in the WSSS program enroll in and fulfill the requirements of a graduate degree within one of the participating schools of Tufts University, including the Graduate School of Arts & Sciences, the School of Engineering, the Fletcher School of Law & Diplomacy, the School of Medicine, the Friedman School of Nutrition Science & Policy, and the Cummings School of Veterinary Medicine. This ensures that students gain a strong knowledge based in their chosen degree field as they complete the additional interdisciplinary WSSS requirements.

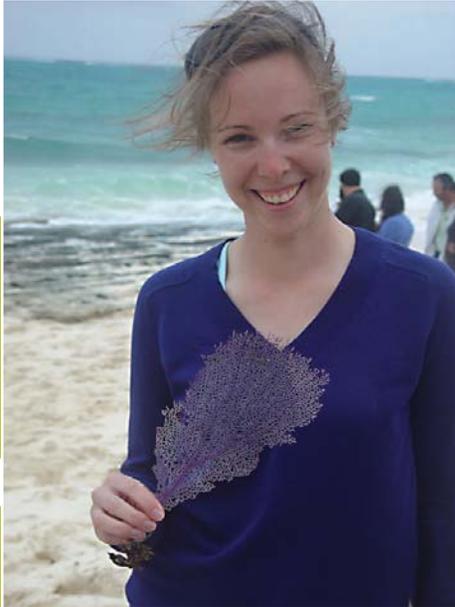
Professor Rich Vogel became director of the WSSS program at the beginning of the 2009 academic year and immediately went about updating the program with fellow steering committee members Rusty Russell and Tim Griffin. This included creating a two-tiered system of the WSSS Practicum (P) and Research (R) tracks for students, intensifying group meetings, and expanding research and advising opportunities for students.

As of September 2009, WSSS is under the administrative purview of the Tufts Institute of the Environment and is housed at the TIE office. Changes were also implemented to the WSSS program to include a choice of two academic options: a practicum-based track and a research-focused track. All WSSS students must take three elective courses from four broad core areas, attend weekly WSSS meetings and participate in the planning and execution of the annual WSSS symposium.

Students in the practicum-based track are required to participate in the WSSS practicum, complete an Interdisciplinary Professional Experience/Internship, and present a poster at the annual WSSS Symposium. Research-focused students must undertake a significant interdisciplinary water resources research project, culminating in a thesis, directed study, or dissertation. They must also submit a refereed journal article and deliver a presentation at the annual WSSS symposium and/or a major national or international conference.



Georgia Kayser's research on drinking water safety in Honduras included a local educational component as well.



The WSSS Practicum is a special opportunity for students, like Holly Elwell, to gain hands-on experience.

### WSSS Practicum: Bahamas

The WSSS Practicum is an opportunity for students to work in a small group on the integrated assessment of a water resources case study. The goal of the practicum is to expose students to the techniques and thought processes of an integrated assessment in order to train them as professionals. In both 2009 and 2010, the WSSS Practicum was on Elbow Cay in the Bahamas, off of the island of Abaco. Students studied coastal pollution and worked with a local environmental advocacy group to develop a year-round, volunteer-driven water-testing program. The practicum teams worked closely with the local NGO Friends of the Environment to develop programs that monitor local water quality and educate the public about the importance of clean water in an area almost totally dependent on tourism. The practicum raised awareness of water quality issues on Elbow Cay, launched a resident-directed water-quality testing program, and increased awareness of potential issues that relate to local water quality.

### WSSS Research Track

WSSS students have published at least 35 peer-reviewed articles as of April 2010 and presented posters and presentations at several national and regional conferences, including the National Academy of Engineering regional meeting held at Tufts on March 4, 2010. Student research is organized around six areas where Tufts has well-established programs and strong faculty support, including:

1. Water, Climate and Environmental Change
2. Water and Public Health
3. Water pollution and Remediation Science
4. Watershed Management
5. Water, Food, and Livelihood Security
6. Water and National and International Security

## Workshop on Integrated Water Resources Management

On January 28 and 29, 2010, the WSSS program hosted seven senior water advisors from the Hai River Basin in China for a workshop on Integrated Water Resources Management (IWRM). WSSS faculty and affiliated researchers gave talks on various water topics such as water and health, water economics, data sharing, adaptive management and water planning modeling. Current WSSS students also presented their research projects. The experienced Chinese delegates discussed the difficulties they had confronted in managing the Hai River and exchanged ideas in watershed management with WSSS participants.

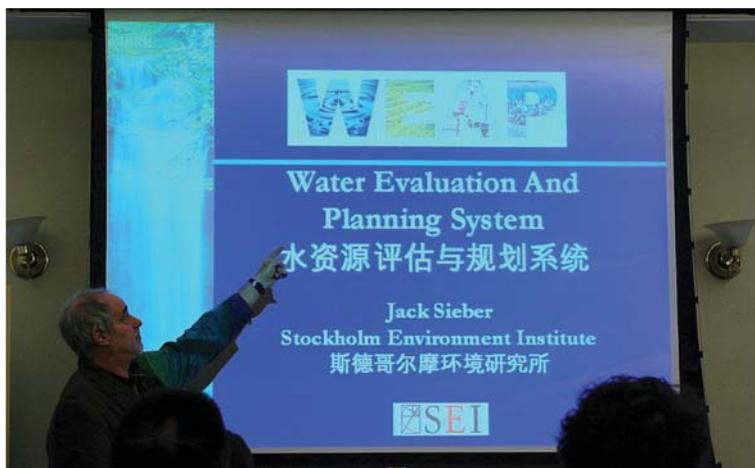
## WSSS Symposium

On May 1, 2010, WSSS hosted a symposium on Tufts' Medford campus to highlight interdisciplinary water-related research in the New England area. The symposium featured conversations between students, researchers, and practitioners from various disciplines on current water-related challenges. The symposium included two keynote speakers, panels on "Climate Change Adaptation" and "Water and Development", and student research presentations. This was the first Symposium dedicated solely to water at Tufts University and is anticipated to be continued in following years.

## WSSS Newsletter

The inaugural WSSS newsletter was published in April 2010, allowing greater communication with students, faculty, and alumni about the program.

*Newsletters and more info about the WSSS program can be found online at [www.tufts.edu/water](http://www.tufts.edu/water).*



Professor Rich Vogel at IWRM workshop, January 2010

## Student Internships @ TIE

TIE has provided internship opportunities for both undergraduate and graduate students on a wide array of projects and programs. In addition to providing general office support, interns have taken leadership roles at TIE, planning and executing the Solar Decathlon, organizing TELI, writing and distributing newsletters, updating the website, creating the Tufts Environmental Alumni (TEA) network, researching environmental initiatives, and planning events.



TIE interns pose for an Earth Day celebration.

*TIE has grown tremendously from working closely with students and is committed to providing impactful work opportunities to students interested in the field of interdisciplinary environmental research, teaching, and service.*

### TIE Interns and Projects 2008 - 2010:

Rian Amiton	Solar Decathlon (policy group)
Doug Carpenter	Event support
Ellen Carter	TIE office support
Joseph Cutrufo	Media work
Dante Demeo	Solar Decathlon (engineering group)
Ayesha Dinshaw	TELI planning and support
David Estabrook	TIE research database support
Mara Gittleman	Environmental Course Guide, ECO liaison
Matthew Gordon	EcoLinkUp management, TIE website updates
Zoe Harris	Energy and Climate Forum support
Samina Hossain	Solar Decathlon (engineering group)
Carrie Jones	Office support, ECO liaison
Georgia Kayser	WSSS support
Lauren Klonsky	Solar Decathlon (engineering group)
Stephen MacLellan	Office support, WSSS website design
Ian MacLellan	Photography



Left: Matt Thoms, TIE intern and Solar Decathlon Engineering Lead, inspects Curio House component. Above: Matt Thoms with Provost Jamshed Bharucha and Associate Provost Vin Manno.

- |                        |  |
|------------------------|--|
| Libby Mahaffy          | TELI evaluation, alumni interviews, event planning |
| Dino Malvone           | Solar Decathlon (policy group)                     |
| Sara Matasci           | Office/Event Support                               |
| Ekaterina Naumova      | InForMID - Arctic Initiative                       |
| Teddy Portney          | Solar Decathlon (engineering group)                |
| Sebastian Reeve        | Solar Decathlon (engineering group)                |
| Daniel Rosen           | Website & Media                                    |
| Megan Samenfeld-Specht | Solar Decathlon (policy group)                     |
| Dallase Scott          | Behavior change research and teaching              |
| Jessica Soule          | TELI planning and support                          |
| Ben Steinberg          | Solar Decathlon (policy group)                     |
| Matthew Thoms          | Solar Decathlon (engineering group)                |
| Kiersten von Trapp     | TEA coordination & TEA newsletters                 |
| Kendall Webster        | WSSS support                                       |
| Rachael Wolber         | STARS research                                     |

## Research Assistants and Their Achievements

Beginning in 2008, TIE has sought to provide students with more guided research experience by providing funds for research assistants you are working for faculty or research scholars. This allows undergraduates and Master's students to gain a more solid understanding of the research process and enables them to make more informed post-graduation decisions. Many TIE alums have gone onto further research, while others have found careers in environmental professions after graduation.

In 2009, we supported two undergraduate Summer Scholars. Arlin Ladou produced the Solar Decathlon documentary film, including expert time-lapse clips and participant interviews. Katie Bond did a research project on Geographic Information Systems (GIS) with Kent Portney. Though Katie did not go on for a senior thesis, Kent Portney and Zachary Cuttler, a former TIE-funded Summer Scholar, published a journal article based on the data collected in the summer of 2009 in *Local Environment: The International Journal of Justice and Sustainability*. The article, entitled "The Local Nonprofit Sector and the Pursuit of Sustainability in American Cities: a Preliminary Exploration", discusses the relationship between the nonprofit sector and the pursuit of sustainability in 13 U.S. cities.

*Mara Gittleman A'09 did the research for her senior thesis related to urban agriculture while at TIE. Her report, "Urban Expansion in Addis Ababa" won her the Citizen Science Award, presented by Citizen Science of SustainUS, an organization that encourages youth to engage in policy discourse, promote scientific approaches, and raise awareness about sustainable development.*

*As part of the award, Gittleman earned the opportunity to present her findings to the United Nation Commission on Sustainable Development on May 8, 2009. Mara was also selected as a Compton Mentor Fellow for 2009.*

*Dallase Scott A'10 was a research assistant in the summer of 2009. She won the Graduate Student award for Outstanding Contributions to Undergraduate Education at Tufts & the Association for the Advancement of Sustainability in Higher Education (AASHE) Award for Student Research on Campus Sustainability for her thesis entitled "Shifting from Saying to Doing: Evaluation of an Environmental Course Designed to Create Environmental Change Agents" (April 2010). She co-taught the inaugural ex-College course of this same title with Tina Woolston, Director of the Office of Sustainability. (See page 29)*

*Matt Thoms E'10, who was a key researcher and project director for the Solar Decathlon, was selected for the Morris K. Udall Scholarship in 2009. The Udall Foundation, named after the late Arizona legislator who served in the U.S. House of Representatives for 30 years, seeks to nurture future environmental leaders from a range of fields, including engineering, science and education. Thoms received a \$5,000 scholarship and attended the Udall Scholars orientation in Tucson, Arizona, where he and other scholars met environmental policymakers and past scholarship recipients.*

## Solar Decathlon

The Solar Decathlon is a competition in which 20 teams of university students competed to design, build, and operate the most attractive, effective, and energy-efficient solar-powered house judged on a 1000 point scale. It is an event open to the public that demonstrates the powerful combination of engineering design, energy efficiency, and the best in green architecture. Teams of students design 800-square-foot houses powered entirely by the sun, striving to use recycled materials and high-tech design elements in new ways. Along the way, the students learn how to manage finances, collaborate across disciplines, promote green policies, and learn – as a team – through experience.

In 2007, Tufts University formed a consortium with the Boston Architectural College to compete in the 2009 Solar Decathlon as “Team Boston”. The team balanced environmental considerations with economic and social needs to develop a house that can be immediately reproduced for the average American. Due to this vision and preliminary work, “Team Boston” garnered an initial endorsement from Mayor Thomas Menino in September 2008.



Curio House at the Washington Mall. Photo by Stacey Fisk.

For two years, many Tufts students, faculty, and staff at TIE were planning, researching, collaborating, and completing the project, which would become dubbed the “Curio House”. Professor Moomaw was crucial in the planning and policy research side of the project and Professor Chris Swan was a dedicated advisor for the engineering team. Associate Provost Vin Manno provided institutional support as well as hands-on projects with engineering students. The house was built on Tufts grounds in Medford.

In October 2009, the team transported their solar house to the competition site on the National Mall in Washington D.C. and rebuilt it for the competition. The team then competed in ten contests designed to assess the house’s strengths and weaknesses in a variety of categories such as architecture, engineering, water systems, energy metering, communications, and market viability.

## Major Initiatives

Although they placed 15th in the competition, our students were proud to be the only team that was entirely student-run and student-managed. Over the course of two years, nearly 100 graduate and undergraduate students from across the university helped to plan, design, and construct the Curio House. The Cape Cod Housing Assistance Corporation purchased the house after the competition as a permanent example of sustainable green architecture for the future of Massachusetts. It is the first in a series of sustainable houses built to provide green job training for new workers. The project was a special opportunity for the many Tufts graduates who helped build the Curio House.

At Tufts, TIE was the host of the project, as the financial oversight entity and facilitator of institutional support. The project posed a number of challenges including partnering with another very different institution, guiding a student-led project through completion, and running an expensive project in an economically deteriorating climate. The Solar Decathlon garnered a lot of publicity, with

articles published in many Tufts University communications and local news outlets. TIE staff worked closely with Tufts Advancement, the



Left: Conceptual design.  
Below: Constructing the Curio House on the National Mall in Washington, D.C.



Communications Office, the Experimental College, the Alumni Office, the Community Relations Office, the Construction Department, and the Facilities Department to make this initiative a success.

### Solar Decathlon Fundraising at Tufts

<b>In-kind donations</b>	<b>\$130,609</b>
Cash donations	\$16,363
National Renewable Energy Laboratory (NREL) federal grant (PI: Dr. William Moomaw)	\$30,000
Proceeds from sale of house (To Cape Cod's Housing Assistance Corporation)	\$44,989
<b>Total income</b>	<b>\$91,353</b>

### Events

#### Solar Decathlon Groundbreaking (April 22, 2009)

An official kick-off of the construction phase of the Solar Decathlon project with speakers William Moomaw, Mayor McGlynn of the City of Medford, and Dean Jeff Stein of the Boston Architectural College.

#### Alumni Workday and Cookout (July 25, 2009)

Tufts alumni and students volunteered to help with construction at the Team Boston Curio House site, followed by a reception and tours of the house and integrated systems.

#### Ribbon Cutting Celebration (September 17, 2009)

A ribbon cutting to celebrate two years of planning, designing, fundraising, and building of the Curio House.

*More info about the Curio House can be found at the official website: [www.livecurio.us](http://www.livecurio.us).*

*The Solar Decathlon is a program of the US Department of Energy, more info at their website: [www.solardecathlon.gov](http://www.solardecathlon.gov).*

# Arctic Initiative: Climate Change & Public Health

In collaboration with the Initiative for the Forecasting and Modeling of Infectious Disease (InForMID) and the Cummings School of Veterinary Medicine, TIE hosted a two-day workshop on issues of climate change and public health in the Arctic. The workshop aimed to bring together researchers from a wide range of disciplines eager to engage in discussion on the current and projected impacts of climate change on the environment and public health, with particular focus on extremely vulnerable Arctic communities.

Among the invited speakers was Dr. Melanie Fitzpatrick, a climate scientist and expert in global warming from the Union of Concerned Scientists, who spoke on the projected global impacts of climate change based on thirty years of data. At the local level, Dr. Ellen Douglas discussed research relating to climate change and precipitation in New England. Speakers from Finland and Russia added international perspectives to the workshop. Dr. Boris Revich of the Laboratory of Environmental Health at the Institute of Forecasting in Moscow discussed

environmental and health impacts from a recent increase in heat waves across Russia and Siberia and disease outbreaks associated with migrating tick populations. Dr. Jouni Jaakkola from the Department of Public Health at the University of Helsinki shared findings from ongoing research in sustainable housing in the Arctic.

Representatives from InForMID at the Tufts School of Medicine presented their findings related to access to Medicare in the Alaskan elderly population. Dr. Gretchen Kaufman, Director of the Tufts Center for Conservation Medicine, and Dr. Cheryl Rosa V'97, the Deputy Director of the US Arctic Research Commission, addressed the complex political and social challenges that climate change poses for Alaskan communities. Dr. Brian Roach, from the Global Development and Environmental Institute (GDAE) at Tufts, highlighted the need for responsible economic development as a cohesive product of integrated research and environmental policy development.

This workshop laid the groundwork for an international collaboration between TIE/InForMID at Tufts and Russian and Finnish researchers in the area of public health and infectious disease. TIE plans to develop future opportunities to engage interdisciplinary teams of experts in discussions that will promote research collaborations and international cooperation in the areas of public health, wildlife and environmental health, and equitable economic development in the Arctic region.



Top: Arctic Ice is defrosting at an unprecedented rate. Bottom: Dr. Danielson & Dr. Jaakkola with a map of the Arctic.

## University Seminar

The University Seminar is a program initiated by the Office of the Provost to:

“further Tufts’ goal to prepare leaders with a rich and textured understanding of the world in all its complexity and diversity. The major aims of the University Seminar are to enhance the interface between research and teaching, to develop next research questions through trans-disciplinary approaches to a global issue, and to develop innovative teaching and learning methods that can be applied to the larger Tufts community and its existing and emerging programs.”

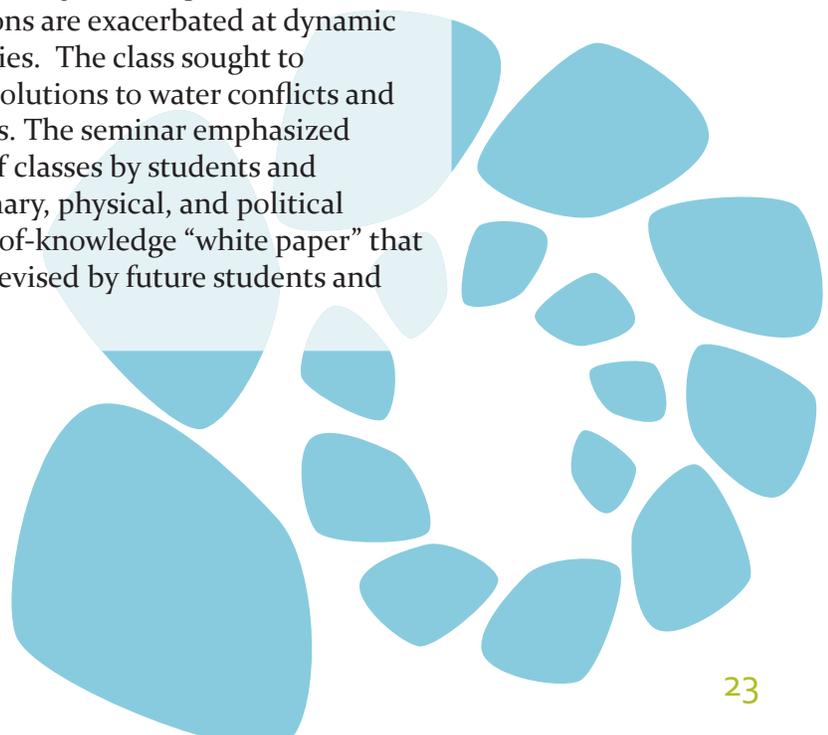


Three TIE Co-Directors have taught University Seminars, leading to further research projects for affiliated faculty and students involved in the courses.

### Water and Diplomacy

“Water and Diplomacy: Integration of Science, Engineering, and Negotiations” was taught by William Moomaw, TIE Co-Director and Professor at the Fletcher School, in collaboration with Shafiqul Islam, Professor of Civil and Environmental Engineering and the Associate Dean of Research at the School of Engineering.

Water resources are increasingly over-used, water quality is sub-optimal, and ecological integrity is excessively taxed. Such tensions are exacerbated at dynamic political, physical, cultural, and economic boundaries. The class sought to combine multiple perspectives in order to explore solutions to water conflicts and the negotiations required to achieve those solutions. The seminar emphasized collaborative learning opportunities, co-teaching of classes by students and faculty, and integrative activities that span disciplinary, physical, and political boundaries. Students collectively produced a state-of-knowledge “white paper” that was disseminated to a global audience and will be revised by future students and faculty.





The One Health seminar teamed up with SEANET – Seabird Ecological Assessment Network – for Revere Beach data collection.

### One Health

“One Health: Interdisciplinary Approaches to People, Animals and the Environment” was taught by two TIE Co-Directors - Gretchen Kaufman and Elena Naumova – with Joann M. Lindenmayer, Associate Professor of Public Health in the Department of Environmental and Population Health at the Cummings School and J. Michael Reed, Professor of Biology.

New diseases are emerging from unique configurations of humans, their domestic animals and wildlife; significant new pressures on once robust and resilient ecosystems are compromising their integrity; and synthetic compounds and engineered organisms, recently introduced to the natural world, are spreading unpredictably around the globe. With faculty from three campuses at Tufts, including the Cummings School of Veterinary Medicine, the School of Medicine, and the School of Arts and Sciences, this Seminar examined how to better understand the complex nature of problems associated with human, animal, and ecosystem health. Students examined and represented their discipline’s perspective and tools to other group members; learned and incorporated other disciplines into their own thinking; and collaborated with others on the development of innovative, synthesized solutions.

## Climate Change Climate Justice (CCCJ)

The Tufts University Climate Change, Climate Justice Initiative is an ad hoc committee that aims to connect environmental movements to social justice movements. CCCJ supports climate change and climate justice education, research, and activism on local, national, and global levels. It brings groups within and outside of the university together in order to address local and global community needs, and aspires to incorporate a social justice lens into climate change initiatives throughout the university, as well as to increase the diversity of those who are actively engaged in climate change research, policy making, and activism.

### Working Group Members:

Antje Danielson, Program Manager, Tufts Institute of the Environment

Dale Bryan, Assistant Director, Peace & Justice Studies

Denise Phillips, Coordinator of Programs and Special Projects, Africana Center

Heather Angstrom, Program Coordinator, Tufts Institute of the Environment

Jonathan Kenny, Professor of Chemistry and Co-Director, Tufts Environmental Literacy Institute

Julian Agyeman, Professor and Chair, Department of Urban and Environmental Policy and Planning

Kirk Lange, Assistant Director, International Relations

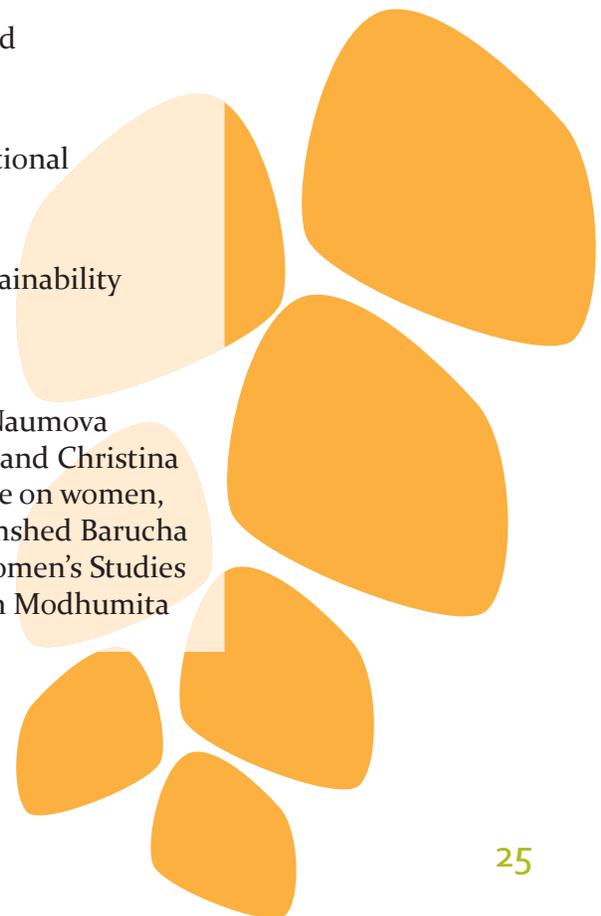
Mieke van der Wansem, Associate Director, Center for International Environment and Resource Policy

Modhumita Roy, Associate Professor, English

Tina Woolston, Sustainability Program Director, Office of Sustainability

### Climate Change, Women, and Health (March 3, 2009)

This International Women's Day Symposium panel included Elena Naumova (moderator), Astier Almedom, Elizabeth Ammons, Honorine Ward, and Christina Economos speaking on the disproportionate effects of climate change on women, particularly in the areas of public health and economics. Provost Jamshed Barucha made the closing remarks. This event was co-sponsored with the Women's Studies program and the English department, with significant guidance from Modhumita Roy.



# Partnerships and Affiliated Programs

TIE has provided resources for collaborations within Tufts, in an effort to promote a greater understanding of the environment within academic courses and extracurricular activities. TIE has maintained partnerships with several related offices and institutions with the strategy of creating broader interdisciplinary understanding of environmental issues. TIE's partners include:

- Office of Sustainability (OOS)
- Center for International Environment and Resource Policy (CIERP)
- Stockholm Environment Institute (SEI-US)
- Institute for Global Leadership (IGL)
- Global Development and Environment Institute (GDAE)
- Mystic River Watershed Association
- Council for Environmental Deans & Directors (Executive Committee)
- National Council for Science & the Environment (Member)

In addition to these partnerships, TIE exerted significant effort on the following initiatives:

### Tufts Environmental Alumni (TEA)

TIE worked with the Tufts University Alumni Association to create a new alumni group, Tufts Environmental Alumni (TEA), early in 2009. As an independent group, TEA coordinated events for alumni, including a graduation brunch, a film screening and a tour of the Solar Decathlon project; sent out a quarterly newsletter produced in conjunction with TIE; and assembled planning meetings for this budding group.

*The Tufts Environmental Alumni association (TEA) seeks to unite Tufts University alumni around the world who share a common interest in environmental issues and policies. The association will provide its members with information resources, a venue to share their combined learning and life experience, a forum for discussion and debate, and educational and service opportunities. The association will connect with the University as part of a greater effort to maintain and enhance Tufts' leadership role in environmental affairs.*

*-Office of Alumni Relations*

### Environmental Studies Program (ENVS)

TIE has become more involved with the Environmental Studies Program in the past few years, providing a home for the program, employing Environmental Studies majors as interns, and hiring a new director. TIE aims to be a resource for students to discover opportunities in learning, cooperation and career development. TIE offers its facilities to students and teachers for classes and meetings, and regularly organizes events. The Environmental Studies newsletter is sent out from TIE every week to those students in the major or involved in other environmental activities. TIE has also facilitated eliciting and integrating students' input on their ideas and visions for the major. This has included course development support, research on the strengths and weaknesses of other universities' programs and creating an environmental course guide. Greater developments are expected in coming years.

### Ex-College Course Development & Environmental Education

With the Office of Sustainability, TIE supported the course development and a graduate teaching assistant for an Experimental College course taught by Tina Woolston, Director of Sustainability at Tufts, entitled "Environmental Action: Shifting from Saying to Doing" from the Summer of 2009 through the second iteration of the course in Spring 2010. For more about teaching assistant Dallase Scott, please see page 18.

#### Course description:

"In this course students examine the causes of behavior and the impact of human behavior on the environment. They learn practical skills in communication, debate, social marketing, and event planning along with knowledge of current environmental issues, psychology and marketing. As students examine their and their peers' behavior they learn how to create behavior change, and then translate that knowledge into the creation of an environmental behavior change campaign on campus. Students leave the course empowered to create change in the world around them, with many of them continuing on to become advocates and leaders within the Tufts community and beyond."



Tina Woolston, Dallase Scott, and the Spring 2010 Environmental Action Ex-College course students.

### Sustainability Tracking Assessment & Rating System (STARS)

STARS is a program of the Association for the Advancement of Sustainability in Higher Education (AASHE). It is a transparent self-reporting framework for colleges and universities to gauge relative progress toward sustainability. It enables universities to make meaningful comparisons over time and across institutions using a common set of measurements in the categories: Education & Research; Operations; and Planning, Administration & Engagement. There is also an Innovation category to recognize pioneering practices that aren't covered by other STARS credits. This project was initiated between TIE and the Office of Sustainability during the spring of 2010.

### Tufts Climate Initiative

In 2008, TIE provided program support for the Tufts Climate Initiative that works to create positive changes toward campus sustainability within departments, operations, and staff behavior.

### Tufts Recycles!

TIE has also shared office space and research resources with Tufts Recycling and strives to make all our events and co-sponsored events zero-waste and environmentally-conscious.



TIE and Tufts Recycles! welcome incoming students each semester with some useful, recycled dorm supplies.

## Co-Sponsored Events

True to its interdisciplinary nature, TIE sponsored many events with a wide array of academic programs and student groups at Tufts. A selection of notable events is listed below:

### Energy and Climate Forum, 2006 - ongoing

Launched in Fall 2006, the Energy and Climate Forum was conceived as a means of gauging interest in the topics of climate and energy, an area identified as being particularly promising for development as a cross-university effort. Sponsored by the Department of Economics, TIE, and the Center for International Environmental and Resource Policy (CIERP), the forum consisted of monthly seminars featuring both internal and external speakers addressing critical issues surrounding energy and climate.

### Tufts Energy Conference, 2009 & 2010

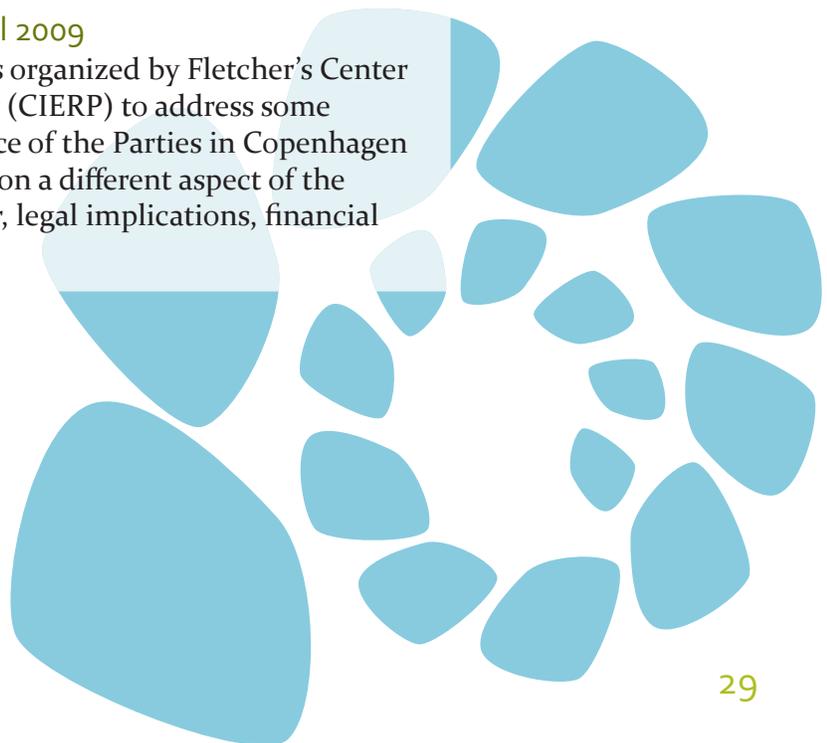
TEC is an annual student-run conference featuring panels of business leaders and policy experts as well as networking events. The conference typically examines the environmental, security, and economic facets of the global energy crisis.

The 2009 Tufts Energy Conference was titled “Global Green Infrastructure: Powering the 21st Century”.

The 2010 Tufts Energy Conference was titled “The Evolution of Energy”.

### Converging on Copenhagen Speaker Series, Fall 2009

The Converging on Copenhagen Speaker Series was organized by Fletcher’s Center for International Environment and Resource Policy (CIERP) to address some critical issues that would arise at the 15th Conference of the Parties in Copenhagen in December 2009. Each of the speakers presented on a different aspect of the climate negotiations, including technology transfer, legal implications, financial difficulties, and north-south equity issues.



## Partnerships and Affiliated Programs



Power Shift 2009 in Washington, DC.

### Power Shift, February 27 - March 2, 2009

TIE supported a delegation of 20 Tufts students to attend Power Shift 2009 – a monumental four-day conference in Washington, DC that united 12,000 students and young adults from across the nation. The event was purposed to engage students in the climate change movement and highlight the importance of creating sound, responsible policies focusing on clean energy and green jobs.

### “Crude: The Real Price of Oil” Film Screening, April 14, 2010

This documentary film illustrated issues of environmental justice, with a focus on the pollution of the Amazon rainforest. The screening was organized by the Department of Political Science, the Department of Anthropology, and the International Relations program, and was followed by a question-and-answer session with Tufts professors from each program.

### Center for the Humanities at Tufts (CHAT) Speakers, 2009 - 2010

Jonah Rosen (March 31 - April 1, 2009) spoke on Literature, History and the Environment and Jamaica Kinkaid (April 15, 2010) spoke on *My Garden*. Both speakers, world-renowned for their writing, gave deep insight into the environmental themes widespread in their personal work as well as literature on a broader level.

## Outreach

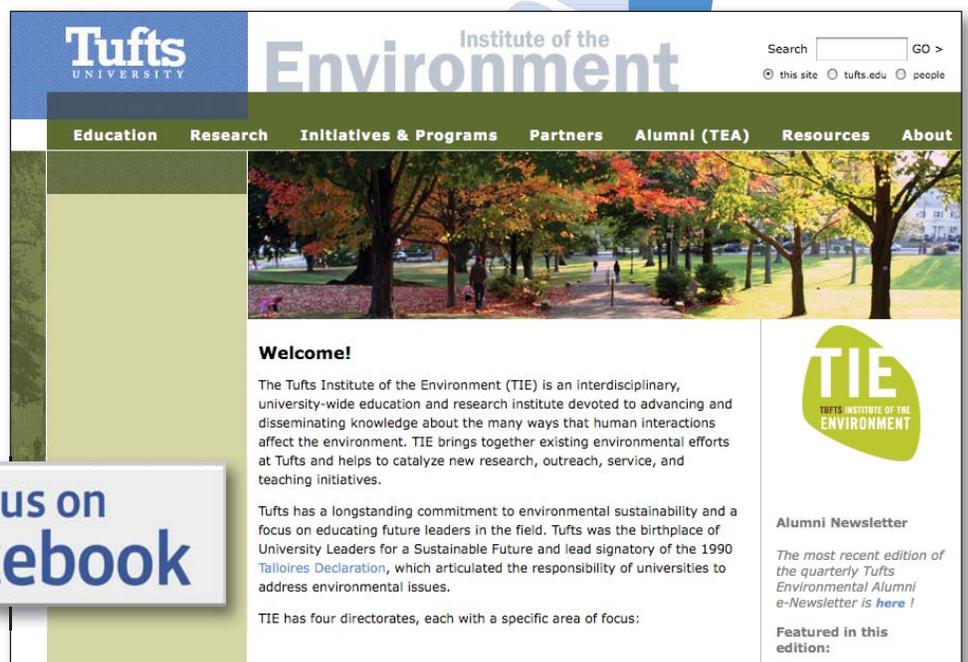
Tufts' environmental programs are diverse and spread widely across the myriad departments, ten colleges, and three campuses of Tufts University. Communication has been one of the most vital issues that TIE has addressed in the past two years. The goal of our communication strategy has been to make TIE the focal point for environmental research and education as the inclusive portal for Tufts' environmental efforts. We aim to inform students and faculty about TIE's services in research, internships, and teaching opportunities; facilitate cross-program cooperation and synergies; and provide to the public an overview of the impressive environmental research and teaching initiatives available at Tufts. TIE staff have also copy-edited written materials and helped with developing outreach strategies for several affiliated programs.

### Website

In 2008, the website was revamped in order to provide the Tufts environmental community with a simple and accessible entryway to TIE and its initiatives. This process included branding and developing the TIE logo and colors. It was a huge effort to pull together as many environmental programs on campus as possible onto one website. Content is regularly updated by TIE staff and interns with current events, research projects, and resources.

### Social Marketing

TIE's Facebook page mainly reaches out to current undergraduate and graduate students. The page contains information on upcoming events and environmental news at Tufts. In addition to regular updates, TEA's Facebook page assists in the progress of collaboratively forming the new TEA chapter.



### TEA Newsletter

Beginning with an inaugural issue in May 2009, TIE has created a thrice-annual newsletter called “TEA @ TIE” to keep alumni updated and engaged with the university. Each newsletter contains alumni profiles, descriptions of recent and upcoming events, and news related to the environmental community at Tufts, and is distributed to more than 3,000 alumni. The articles are written and compiled by Tufts students and sent out to alumni electronically at the beginning and end of each semester.

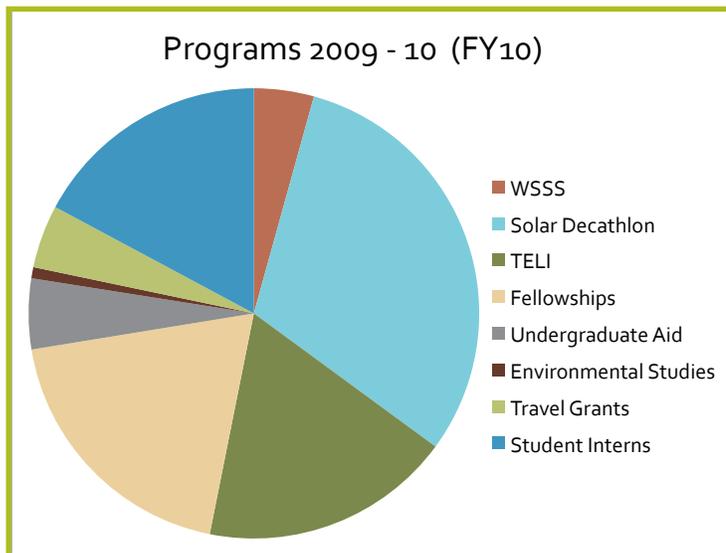
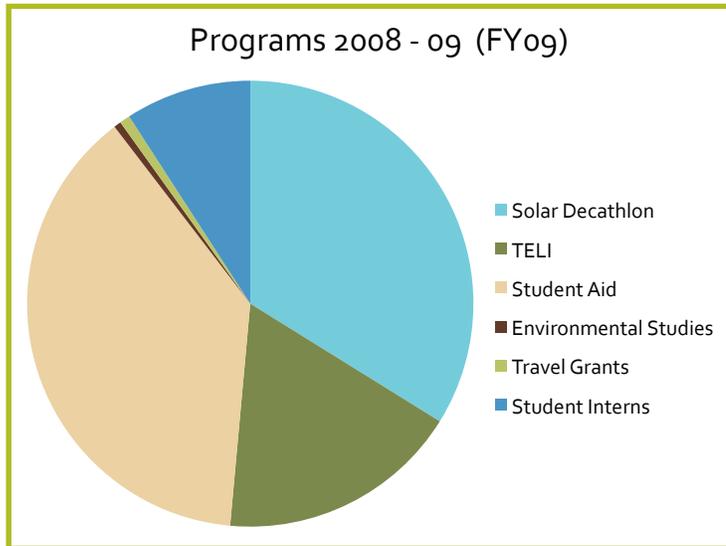
### WSSS Newsletter

TIE helped to publish the first Water: Systems, Science, and Society newsletter in April 2010. The WSSS newsletter was established in order to broadcast information about this evolving program – primarily research and program updates – and to promote recent developments of students, faculty, and alumni. The first WSSS newsletter included an Alumna Profile, information on events, WSSS in the News, and a list of recent WSSS student and alumni publications.

### Environmental Studies Newsletter

TIE also managed an Environmental Studies e-Newsletter for undergraduate students in the Tufts community interested in environmental issues. The Environmental Studies e-newsletter was sent every two weeks to students and included announcements, upcoming events both on- and off-campus, and a comprehensive listing of internships, jobs, and grants in the environmental field.

# Programmatic Funding Summary



Note: The WSSS program receives additional funds from the Provost's Office. In FY 2008-2009, WSSS was not accounted in TIE budget. In FY 2008 -2009, undergraduate research and TIE fellowships were accounted for under the "Student Aid" category together. Operating expenses, co-sponsorships, and compensation for TIE staff and faculty are not included.

## Comments and Acknowledgments

### Comments on this Report?

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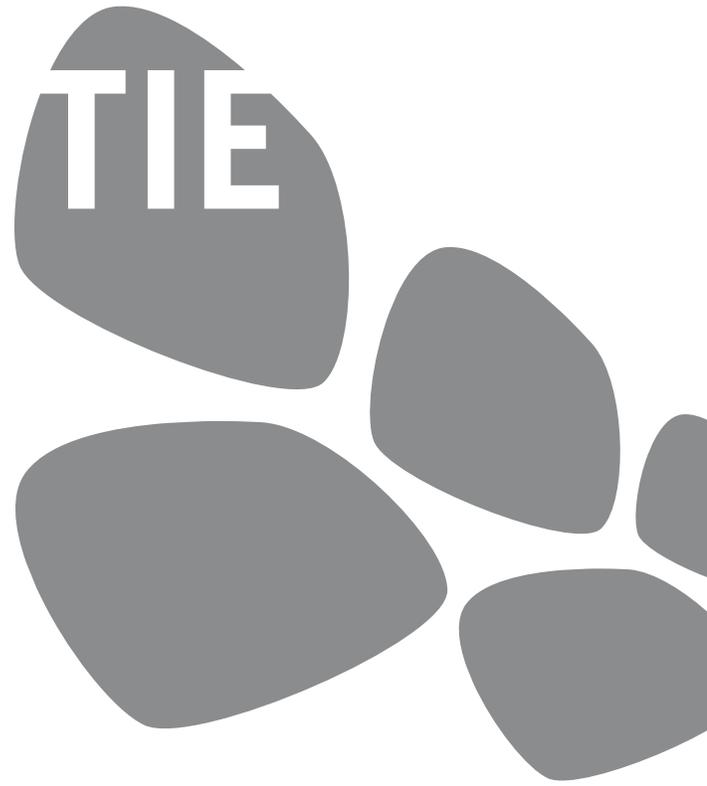
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Graphic design by graduate student Ana Rosner.

Photos by Ian MacLellan, Ayesha Dinshaw, Rusty Russell, Heather Angstrom, Stacey Fisk, Allison Fisk, Nora Chovanec, and Kiersten von Trapp.

Photo, page 8: "In mineralogy lab, n.d. (Permanent URL: <http://hdl.handle.net/10427/4477>), image from the Melville Munro Collection, Digital Collections and Archives, Tufts University."

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