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UConn Scientist Plays Key Role in International Marine Census

Dr. Ann Bucklin is Director of Marine Sciences at UConn

On a recent warm October afternoon, I sat in newly constructed conference room, awash with sunlight, backed by a magnificent view of the Long Island Sound, and listened to Ann Bucklin describe her work as the Director of Marine Sciences at the University of Connecticut. Dr. Bucklin has been serving in this role since the fall of 2005. Prior to her tenure at the University of Connecticut, Dr. Bucklin was a professor of zoology at the University of New Hampshire. Dr. Bucklin's research is focused on marine zooplankton, especially their genetic composition. She is now leading the Census of Marine Zooplankton—an ocean realm field project of the Census of Marine Life (CoML)—which will complete a global survey of zooplankton biodiversity by 2010. Her research is part of an international census that began in 2000 and has as its purpose to develop a comprehensive understanding of marine life in terms of what species exist, where they reside and what their populations are. This research is funded largely by the Sloan Foundation, which has as its core mission a celebration of "curiosity-driven research."

Q: Why zooplankton?

A: The true answer about "why zooplankton" is that I was trained in graduate school to be an invertebrate zoologist. Zooplankton are largely invertebrates, and they are just beautiful. To fully appreciate the beauty, you have to see them alive. Not all zooplankton are transparent. Some are really highly colored. They have outrageous morphology to stay afloat, to drift with the currents, to avoid predators. They're highly diverse and just incredible.

(Bucklin, page 2)

News from the National Academies

The following is excerpted from press releases of the National Academies and from Infocus Magazine (www.infocusmagazine.org), a news resource of the National Academies.

◆ Consumers Need Better Guidance for Seafood Choices

A new report by the National Academies' Institute of Medicine reviews the scientific evidence on the benefits and risks of consuming seafood and finds that due to the "fragmented" and confusing nature of the information made available to them, consumers often have misperceptions about both the nutritional value and the health risks associated with fish and shellfish. The report recommends that federal agencies partner with state, local and private groups to develop new, more coherent information tools, testing them with consumers to ensure that they work.

(National Academies, page 8)

CT Science Center Update: Children's Gallery, Construction

The Connecticut Science Center and Pitney Bowes are working together to create an exciting children's gallery that will be a playground of interactive science exhibits for the Center's youngest visitors. The Pitney Bowes Literacy and Education Fund Children's Gallery will feature an interactive display designed in collaboration with Hartford-based photographer and artist Walter Wick, who's famous "I Spy" and "Can you see?" books are treasured by children around the world. The gallery will also include a water play area, a soundscape and a children's reading nook, co-programmed by the Hartford Public Library.

With this generous gift, the Center will develop a broad array of educational offerings, including classroom-based and kit-based programs, after-school programs, professional development and specialized programs for teachers and students in Charter

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Banucci Awarded CT Medal of Technology

Gene Banucci

The 2006 Connecticut Medal of Technology was awarded to Gene Banucci, founder and Chairman of the Board of Danbury-based ATMI, Inc., at the Alliance for Connecticut Technology Award Dinner at the Connecticut Convention Center in Hartford on October 19, 2006. The award, modeled after the national Medal of Technology, was established by the Connecticut General Assembly and is administered by the Board of Governors for Higher Education. It is the state's highest award for technological achievement in fields crucial to economic competitiveness.

Banucci co-founded ATMI in 1986 and has led the manufacturing company ever since. Today, the company employs more than 750 people worldwide. ATMI went public in 1993, and has grown to over $300 million in annualized revenues with a market capitalization exceeding $1 billion. The key technological advance made by ATMI is a revolutionary method of safely storing hazardous gases as solids so they can be safely transported and efficiently used in semiconductor manufacturing. The resulting product, called SDS® (Safe Delivery System), is now used in nearly every semiconductor plant in the world. Semiconductor associations have called it "one of the greatest safety, environmental and productivity innovations in the history of the industry."

Banucci holds a PhD in chemistry, and began his career at General Electric, where his work earned 21 patents. In 1981, he was named Director of Discovery Research at American Cyanamid Company in Stamford and in 1986, he founded ATMI. A founding member of the Connecticut Technology Council, he actively promotes the state's technology-based companies.

Bucklin (continued from page 1)

The reason why I can stay in business is because zooplankton are very important to the ecology of the marine environment. Our ocean ecosystems would not function without zooplankton. They are the intermediaries between commercially-harvested fish and the phytoplankton that are a source of productivity in the ocean. There is a huge need to predict fisheries production and the answer lies in part with understanding the dynamics of zooplankton.

Q: What method of research are you currently using?

A: Zooplankton is collected today much as it was by the *HMS Challenger* expedition in the 1870s. That is, in nets. Today the sampling systems are much more complicated because they are electronically controlled and calibrated to regulate the volume of water and measure the concentration of animals. These systems collect information about the physical and chemical parameters of the ocean. Present day nets are essentially fancier nets with many more bells and whistles.

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Q: Do you see changes within the species that have genetic capabilities different from zooplankton a hundred years ago?

A: Because of preservation techniques that destroy DNA, we aren't yet able to compare zooplankton today with those that lived a hundred years ago. We see short-term changes in populations that we can detect with gene sequencing. We know that marine animal populations are responding dramatically to changes in the environment. We see shifts in species abundances. For example, in the Antarctic, a species related to jellyfish is much more abundant than it used to be, displacing the krill that are the foundation of that ecosystem. We see more frequent jellyfish blooms in this part of the world. And a red tide—a harmful algal bloom—spread along much of the coast of New England a few years ago. Such biological events are changing in intensity and frequency. We're not quite sure what is causing these changes, but it's very likely due to climate.

Q: What predictions can you make about what you expect to learn from your study?

A: The Holy Grail in marine genetics is to understand how the environment changes the genetic makeup of organisms and populations. Complicated questions are answered by looking at rates and patterns of gene expression—that is, the transcription of DNA into proteins. Gene expression can tell us if the organism is hungry, well fed, or experiencing stress, heat or cold by looking at which genes are "turned on." We are now looking for indicators of environmental impacts on animals from chemical pollution, hypoxia, and nutrient enrichment, for example. These studies will yield bio-indicators that can help us understand the health of the Long Island Sound ecosystem.

Q: What are your goals?

A: I came here last year as department head, and I have a five-year term of service. My preference is that all goes well and I will be appointed for another five-year term. The consolation prize, which is not too bad either, is that I would continue as a tenured full professor in the department. My first goal is to develop a sense of common purpose among the faculty, based upon genuine understanding what they want to do, what they value, and what they think is most important. That is what my first year was about. Luckily, this coincided with a university-wide strategic planning process. My second year is all about implementation. Five years out, I hope the department will remain competitive in big oceanographic programs, some of which are just gaining steam now. I want to see the department maintain and grow their share of coastal ocean observation and biodiversity initiatives. I wish the department to play a significant role in the big questions of the day for oceanography. That means strategic positioning, hiring faculty who will allow us to compete, and getting the word out about all the things that the department does. My role is to support these initiatives, encourage the department to set a course, and help them achieve their goals. I will consider my goals met if we are more than we already are now: an effective center of coastal oceangraphic research and graduate education.

Q: How do you communicate your work to the people of Connecticut?

A: The best and easiest way to get information to the public is through the newspapers. We enjoy good relationships with the *Hartford Courant,* the *New Haven Register* and the *New London Day*. We are producing a slate of communications materials, including an annual report, brochures, and newsletters that talk about who we are and what we do. We keep a list of addresses of friends and supporters. We are making an organized attempt

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Business & Industry

HAMILTON STANDARD TO SUPPLY ORION COMPONENTS. The next NASA manned spacecraft, the Orion crew exploration vehicle to be built by Lockheed Martin Corp., will have more than a dozen component systems made by **Hamilton Sundstrand.** An agreement with Lockheed guarantees the Windsor Locks company an estimated $700 million in business from the program through 2019. The components supplied by Hamilton will include systems to detect and fight fires, control pressure and humidity, remove carbon monoxide, store potable water, and ventilate the cabin.

CBIA GETS MANUFACTURING JOB TRAINING GRANT. The **Connecticut Business and Industry Association** (CBIA) has received a $1.77 million grant from the US Department of Labor to help train Connecticut workers in manufacturing jobs. The grant will be used to establish a certificate program within the state's community college system focusing on lean manufacturing and supply chain management. It will also be used to create advanced machining training using simulation. The focus will be on training incumbent and dislocated workers and college students. CBIA will administer the grant in partnership with a variety of agencies including **The Connecticut Community College System**; the **Eastern Connecticut Workforce Investment Board**; and the **Connecticut Departments of Labor and Economic and Community Development**. The program is expected to begin in January 2007.

SIKORSKY DELIVERS FIRST UH-60M. **Sikorsky Aircraft** delivered the US Army's first production UH-60M Black Hawk helicopter in late July. A new airframe, avionics, and propulsion system are featured in the most modern of the more than 1,500 Black Hawk variants Sikorsky has delivered since 1978. The UM-60M is slated to replace older Black Hawks and form the foundation of the Army's future utility aircraft fleet. A decision by the Pentagon and Army to enter full rate production of 1,200 or more UH-60M Blacks Hawks is scheduled for 2007.

NEANDERTHAL GENOME TO BE SEQUENCED. **454 Life Sciences Corporation**, a majority-owned subsidiary of **CuraGen Corporation** in Branford, is collaborating with scientists at the Max Planck Institute for Evolutionary Anthropology in Germany in a project to sequence the entire Neanderthal genome. The Neanderthal is the closest relative to humans and knowledge of its genetic composition will significantly enhance understanding of human biology. Over the next two years, the Neanderthal sequencing team will reconstruct a draft of the 3 million bases that make up the genome of Neanderthals, using samples from several Neanderthal individuals. The hallmark of 454 Life Sciences' technology is the PicoTiterPlate, which allows a single instrument using patented light emitting sequencing chemistries to produce over 20 million nucleotide bases per five-hour run, more than 60 times the capacity of current macro-scale technology.

BIODIESEL PLANT GETS BOOST. **Governor M. Jodi Rell** joined other state and local officials at a ribbon-cutting ceremony this summer celebrating the launch of **BioPur Inc.**, a locally owned and operated biodiesel fuel plant in Bethlehem that is the first plant of its kind in Connecticut and the largest in southern New England. Biodiesel is a fuel additive made from soybeans that can be used to power diesel engines. A 20% mix of biodiesel to 80% diesel will result in a 12.6% reduction in CO_2 emissions, as well as 18% fewer particulates.

DEFENSE APPROPRIATIONS BENEFIT STATE. The $437 billion defense budget recently passed by Congress contains funding for a number of major defense projects in Connecticut, including $2.5 billion for 102 **Sikorsky Aircraft** Black Hawk helicopters, $2.5 billion for one new Virginia-class nuclear submarine for **Electric Boat,** and $4.8 billion for further development and purchase of the first Joint Strike Fighters powered by **Pratt & Whitney** F135 engines. Other funding includes $2.5 million to **Kaman Aerospace Corp.** of Bloomfield for an unmanned aerial vehicle to supply soldiers in combat and $2.7 million to **Z-Medical Corp.** of Wallingford for high-tech clotting agents used in treating combat wounds.

Communication

FREE WIRELESS FOR HARTFORD. The **City of Hartford** has launched a free municipal wireless network downtown in the Blue Hills neighborhood. About 5,000 homes and 75,000 people, including more than 50,000 commuters who work downtown, will be able to use it. The first phase of the program will last about a year. In addition to free wireless access, the city will offer 900 refurbished, wireless-ready computers for $150 each. **Mayor Eddie Perez** said the idea is to give lower-income families access to information on education, health care and jobs. The mayor's staff estimates that only about 25% of city households have a working computer with Internet access, compared with 70% of suburban homes. The new broadband wireless network was developed with help from IBM. Perez said he hopes to expand wireless access to the entire city within three years. The project will cost an estimated $5.8 million, some of which may be offset by usage fees and advertising.

ELECTRONIC TOWN MEETING HELD. The state used cyberspace to reach citizens across the state in a first-ever Electronic Town Hall Meeting on the quality and availability of mental health services. The two-hour live, interactive, and web-based videoconference was held October 26 to receive citizen input into the five-year, $13.7 million federal/state effort to transform the delivery of mental health services in the state. Citizens could view the webcast, log onto the internet to ask a question, or attend in person at any of seven locations across the state.

STUDENTS TO GET WIRELESS DEVICES. **Quinnipiac University** will be the first institution to provide students with Windows smart phones that prominently feature Rave Wireless communication, community and academic features. Having Rave accessible on the Today Screen for Windows Mobile will improve students' ability to access a wide range of campus information, including emergency broadcast text alerts, course information, group text messaging and polls, campus directory, event calendars, and real-time shuttle bus tracking. Students will be able to access school email and open attachments in Microsoft Office and PDF formats, making it easy to view and edit course materials and assignments while on the go. The program will start in early 2007.

NEWS WEB PAGE FOR MOBILE DEVICES LAUNCHED. New Haven television station **WTNH** has recognized the proliferation

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of handheld web devices such as Blackberries and personal data assistants and has created a new mobile web page to serve the market. Using small files that load quickly on wireless devices, the mobile version of the web page has many of the same features of the regular web page: Connecticut and national news, weather, sports, etc. Three useful features for those on the go are traffic cam pictures along I-95 from Branford to Greenwich, Doppler weather radar maps, and listings of delays and closures. The free service is available at http:/mobilewtnh.com.

Education & Cognition

UCONN STILL TOPS NEW ENGLAND RATING. U.S. News and World Report has, for the 9th year in a row, ranked the **University of Connecticut (UConn)** as the best public university in New England. UConn was ranked 27th best public university in the nation, one spot higher than last year's ranking. The rating is based on a survey of academic reputation, retention and graduation rates, faculty resources, student selectivity, and alumni giving. There are more than 290 public universities in the nation.

STAMFORD GETS $15 MILLION COLLEGE BOUND GRANT. **General Electric (GE)** has announced a $15 million College Bound grant to **Stamford**. The five-year grant will support a comprehensive effort to improve student learning in mathematics and science, close achievement gaps and increase the number of students entering college. The **GE Foundation** created its College Bound program in 1989. The Foundation's new district focus seeks to achieve systemic change and student achievement with a strategy that begins with a collaboration between the superintendent, teachers' association and board of education. Program components include: constituency engagement, management capacity, a rigorous common math and science curriculum, strong professional development and in-depth evaluation.

YALE COURSES TO GO ONLINE. **Yale University** is producing digital videos of selected undergraduate courses that it will make available for free on the Internet. The Open Educational Resources Video Lecture Project has received $755,000 from the William and Flora Hewlett Foundation for an 18-month pilot phase. The project will create multidimensional packages—including full transcripts in several languages, syllabi, and other course materials—for seven courses, and will design a web site to be launched in the fall of 2007. **Diana E. Kleiner, Dunham Professor of the History of Art and Classics**, is directing the project.

UNH TO TURN UP HEAT ON COLD CASES. A new National Cold Case Center has been created at the **University of New Haven** in West Haven. Funded by a $500,000 grant from the National Institute of Justice, the center will provide free training on investigative techniques and new technology to law enforcement officers. Forensic scientist and CASE member **Henry Lee** will teach many of the courses, which will begin in January 2007 at the Henry C. Lee Institute of Forensic Science at the university. The center also plans to train investigators on data mining using a variety of databases to glean information helpful to solving crimes.

MORE SCHOOLS CONNECTED TO INTERNET. **Governor M. Jodi Rell** announced $5 million in funding to continue linking Connecticut schools and libraries to the Internet. The initiative, known as the **Connecticut Education Network (CEN)**, aims to link all of Connecticut's public school districts, institutions of higher education and libraries to one another with a state-of-the-art information technology infrastructure. It is the first state research and education network in the United States to provide fiber-optic connectivity to every school district and higher education campus. The project is run out of the state's **Department of Information Technology** with key staffing and design support provided by the **University of Connecticut.**

Energy

COAST GUARD REPORTS ON LNG PLANT. The **US Coast Guard Captain for the Port of Long Island Sound** has issued a report on the **Broadwater Energy** floating storage and regasification unit (FRSU) for liquefied natural gas (LNG) proposed for Long Island Sound. Based on the year-long assessment, the Coast Guard has determined that "additional measures would be necessary to responsibly manage the safety and security risks associated with the project." The report states "These management strategies include both measures designed to reduce risk by reducing potential that an accident or terrorist attack may be attempted as well as measures designed to reduce the potential consequences if there was a large release of LNG from either the proposed FSRU or an LNG tanker." The report also notes "the remote location also creates some challenges since it would require that a law enforcement presence be projected to the center of Long Island Sound." The unit would be 1,215 feet long and 200 feet wide and would have 8 liquefied natural gas tanks, each having a volume of 44,850 cubic meters. As proposed, there would be two to three LNG tankers making delivery of LNG per week to the facility.

DEP MUST RESTUDY PIPELINE FOR LONG ISLAND SOUND. The US 2nd Circuit Court of Appeals has ruled that the **Connecticut Department of Environmental Protection (DEP)** did not furnish enough evidence to back up its claims that the Islander East pipeline under Long Island Sound from Branford to the east shore of Long Island would harm the Sound and damage shellfish habitat. The court refused to grant immediate approval of the pipeline; instead, the DEP was given two and half months to complete a new environmental review. The pipeline has already received approvals from New York, the US Department of Commerce, and the Federal Energy Regulatory Commission.

WALLINGFORD BUILDING TO SAVE ENERGY. The **Mortgage Lenders Network** is incorporating a variety of energy-saving equipment and techniques in a training center being built in Wallingford. The **Founders Cottage** will be part of a new headquarters complex. A windmill will generate electricity, solar panels will make up part of the roof and an adjacent barn, and roofing materials made from recycled tires will be used. The energy-efficient building will look like a New England farmhouse.

Environment

BAD WATER COSTS TOWN OF MONTVILLE MILLIONS. **Judge Holly B. Fitzsimmons of US District Court** in Bridgeport accepted a federal jury's $10 million verdict against the **Town of Montville** and ordered it to pay an additional $3.5 million in legal fees and interest to **Rand-Whitney Containerboard,** which successfully argued that the public water the town sends the company is of poorer quality than promised. The company said inferior water quality degrades paper products. The suit was filed 10 years ago.

MOOSE CROSSING. The state **Department of Environmental Protection (DEP)** has urged drivers in northwestern Connecticut

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to use caution after car accidents involving moose in August in Goshen and in September in Barkhamsted. In both cases, the moose were killed. Since 1995, the DEP has documented 13 accidents involving moose on state roadways. The DEP Wildlife Division plans to participate in a regional research project to study the growth, distribution and movements of moose in southern New England. Beginning this winter, moose will be captured and fitted with radio collars that can be tracked by satellite, said DEP wildlife biologist **Howard Kilpatrick.**

DEP PRESENTS HAMDEN WASTE SITE CLEANUP PLAN. The **Connecticut Department of Environmental Protection (DEP)** has proposed a plan to clean up **Hamden's Newhall** neighborhood that recommends removing and replacing waste fill on 236 residential properties and placing environmentally secure "caps" on publicly-owned land at the former Hamden Middle School and two town parks. The plan addresses issues posed by the presence of waste fill in a section of the Newhall area defined in a 2003 Consent Order (CO). The CO was agreed to by the **Town of Hamden, the South Central Regional Water Authority, Olin Corporation**, and the **State of Connecticut Board of Education** and approved by DEP. This area of Newhall historically consisted of wetlands and low-lying areas that were filled with industrial and household wastes from the late 1800s through the mid 1900s.

LONG ISLAND SOUND MEMORANDA SIGNED. Administrators of the two US Environmental Protection Agency (EPA) regions with jurisdiction over **Long Island Sound** and the environmental commissioners of New York and Connecticut adopted a stewardship initiative focused on areas of the Sound with significant ecological and recreational value, and authorized a fund that will disburse $6 million for research and restoration. The officials also signed a Memorandum of Understanding to restore, by 2011, 300 acres of coastal habitats and 50 river miles of fish passages to spawning sites. Also signed was a directive calling for an evaluation of the management plan for hypoxia to assure that the states and federal government are on target to meet water quality standards for sufficient levels of dissolved oxygen in the Sound.

"GREEN" LIGHT FOR WINDSOR SITE. The US Department of Energy S1C Prototype Reactor site in **Windsor** has been released for unrestricted future use, and is now suitable for any use from economic development to recreation. A ceremony at the site off Prospect Hill Road concluded 12 years of facility dismantlement and environmental characterization and restoration associated with returning the site to "green" condition. Over 140,000 environmental sample results from the 11-acre site were analyzed. Throughout the Cold War, the plant at the site supported the submarines and surface ships of the US Navy's nuclear fleet by testing new equipment and training Navy propulsion plant operators.

Food & Agriculture

GRASS-FED BEEF A NEW ENTERPRISE. **Laurel Ridge Farm**, a 711-acre farm in Litchfield, has embarked on a new venture of raising grass-fed beef. **John Morosani** and his wife Joan converted a windmill on their property into a retail store with the help of a $35,500 grant from the **Connecticut Department of Agriculture.** The Black angus herd roams the fields and eats grass that would have been cut. The meat contains less fat than meat from cattle that consume corn and soy feeds.

MOSQUITO-BORNE ENCEPHALITIS VIRUS FOUND IN FAIRFIELD. **Philip M. Armstrong** and **CASE** member **Theodore G. Andreadis** of **The Connecticut Agricultural Experiment Station** in New Haven have documented the first isolation in New England of La Crosse virus, a leading cause of mosquito-borne encephalitis in children. It was isolated from the eastern tree-hole mosquito, *Ochlerotatus triseriatus*, in Fairfield. A comparison with other samples of the virus shows that it is distinctly different from the others, so "it would appear to have been here for a while and gone undetected," Andreadis said.

COYOTE BITES REPORTED. Two incidents of coyotes biting humans and a positive finding of rabies in a coyote killed by a man with a logging tool in **Washington** have focused attention on coyotes. A jogger in a section of Washington where the coyote was killed had been bitten the day before, but it could not be certain if the same animal was involved in both incidents. In the other incident, a Queens, NY woman was bitten at a I-95 rest stop in **Branford.** There are an estimated 3,000-5,000 coyotes in Connecticut. Since 1991 there have been only four documented cases of rabies in coyotes in Connecticut. During the same period, there were 4,250 reported rabies cases in raccoons and 1,084 cases in skunks.

2006 MOSQUITO SURVEILLANCE RESULTS. During the 2006 mosquito season, **The Connecticut Agricultural Experiment Station** collected and identified 197,793 mosquitoes. According to **CASE** member **Theodore Andreadis**, chief medical entomologist, 216 of 12,661 pools of mosquitoes from 23 towns tested positive for West Nile virus. Seven species were identified as carrying the virus. There were nine human cases, one fatal. Eastern equine encephalitis was found in pools of mosquitoes from Woodbridge and Stonington and the Jamestown Canyon virus, a member of the California serogroup of arboviruses, was found 21 times. More than 25 scientists and support staff conduct the surveillance program annually. Full results are available at www.caes.state.ct.us/MosquitoTesting/2006Testing/Mosquitocumulative2006.htm.

Health

GENE LINKED TO INFLAMMATORY BOWEL DISEASE. A consortium of researchers reported in online *Science Express* that alterations in the receptor for a known inflammatory response pathway are strongly associated with Crohn's disease and ulcerative colitis (IBD). According to senior author **Judy H. Cho**, associate professor in the **Departments of Medicine and Genetics at Yale School of Medicine**, the team found that mutations in a receptor gene associated with the interleukin-23 (IL-23) pathway are linked to Crohn's disease. The IL-23 pathway is known to target organ-specific inflammatory responses. "This finding is particularly intriguing because we appear to have identified a gene variant that protects against development of IBD," said Cho, who also directs the **Inflammatory Bowel Disease Center at Yale**. Crohn's disease and ulcerative colitis, collectively called inflammatory bowel disease (IBD), are chronic disorders that cause abdominal pain, diarrhea and gastrointestinal bleeding; they affect over one million Americans.

CLOT BUSTERS BEFORE TRANSFER SAVES LIVES. Researchers at the **University of Connecticut** and **Hartford Hospital** have found that administering a low dose of a clot-busting drug before transferring heart attack patients from smaller, community hospitals to larger medical centers for balloon angioplasty treatment reduced in-hospital cardiac deaths by 61.3%. The recently published study reports that the treatment combination would be more effective and less costly about 95% of the time.

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HORMONE LINKED TO FOOD CRAVINGS. Researchers at the **Yale School of Medicine** have linked ghrelin, a hormone produced in the stomach, with the reward circuitry of the ventral tegmental area (VTA) of the brain that regulates food cravings. Lead author **Tamas Horvath**, chair of the **Section of Comparative Medicine at Yale School of Medicine** and professor of comparative medicine, neurobiology and obstetrics, gynecology & reproductive sciences, and colleagues found that ghrelin could signal directly in the VTA region and activate dopamine neuronal activity, which controls reward-associated behavior to promote interest in food as a reward. Horvath said future studies will explore the relationships between ghrelin and cocaine addiction.

UCONN HUMAN RESEARCH PROTECTION PROGRAM GETS ENHANCED ACCREDITATION. The **University of Connecticut Health Center's** human research participants protection program has been awarded qualified accreditation by the Association for the Accreditation of Human Research Protection Programs, Inc. (AAHRPP). The Association is a nonprofit entity that works with organizations that conduct human research to raise the level of protection for research participants. AAHRPP standards exceed federal regulation in two ways: the protections for research participants that the federal government requires only for federally sponsored or regulated research are extended to all research and AAHRPP requires additional protections, such as conflict of interest rules and community education.

AVIAN FLU WEBSITE LAUNCHED. Governor M. Jodi Rell officially launched www.ct.gov/ctfluwatch, a new website dedicated to helping Connecticut prepare for the possibility of avian and pandemic influenza. **CTFluWatch** includes important information and preparedness tools for the public, government and schools, health care providers, and the business community. There are links to the **Connecticut Influenza Pandemic Plan**, the federal website www.pandemicflu.gov, and information from other state agencies. The website includes an online system, developed by the state **Department of Information Technology,** to report sightings of dead wild birds.

High Technology

NEW NANOSCIENCE AND QUANTUM ENGINEERING CENTER. Yale University has created the **Yale Institute for Nanoscience and Quantum Engineering**. An initial investment of $5.5 million will bolster the Institute's infrastructure and initiate seed projects, adding to the more than $100 million of funding already dedicated to these areas of investigation. The Institute will unite six existing areas including molecular electronics, quantum information processing, chemistry of soft materials, nanoparticles, photonics, and nanoscale biomedical engineering.

FIGHTING CRIME WITH NEW TECHNOLOGY. The **Connecticut State Police** have established a **Computer Crime and Electronic Evidence Laboratory** at the **Forensic Science Laboratory** in Meriden, which will comprise the **Computer Crime Unit,** the **Forensic Photography Unit** and the **Image Enhancement Unit.** The Computer Crime Unit, which started as the **Connecticut Internet Crimes Against Children Task Force**, will expand its focus, taking advantage of developing technology to engage in more proactive investigations into online child exploitation, enticement cases, and investigation of online networks. The Forensic Photography Unit will have the capability to receive digital images directly from a crime scene. These images can then be processed and returned to the investigator in the field within minutes for dissemination; they can also be electronically forwarded to the newly formed Image Enhancement Unit for enlarging, for clarifying, enriching, or other enhancements.

SMART NANO PARTICLES TO DELIVER VACCINES. A team of cell biologists and biomedical engineers at **Yale University** has received a $1 million grant from the National Science Foundation to develop smart nanoparticles for delivery of vaccines. Led by **Tarek Famhy,** assistant professor of biomedical engineering, the team will develop a new class of nanomaterials with properties that mimic biological vectors like bacteria and viruses.

SPEEDING RESEARCH FROM LABORATORY TO PATIENTS. As part of a major national initiative to speed research from the laboratory bench to patients, the **Yale School of Medicine** has received a $57.3 million Clinical and Translational Science Award from the National Institutes of Health. The funding includes $31.5 million in new resources that will strengthen clinical research at Yale and $25.8 million to continue existing programs in education and the activities of the **General Clinical Research Center** at **Yale-New Haven Hospital**. Key participants include the **Yale School of Nursing**, the **Department of Epidemiology & Public Health**, the **Department of Biomedical Engineering**, and the **Combined Program in the Biological and Biomedical Sciences**. The goal is to transform how biomedical researchers move laboratory discoveries into human studies, ultimately enabling faster and more efficient development of new therapies.

Transportation

AIRPORT GROWTH REPORT RELEASED. The **Connecticut Department of Transportation** has released the final Connecticut Statewide Airport System Plan (CSASP). This report is the framework for detailed airport master planning. The plan forecasts that for Connecticut's public use airports, aircraft operations will increase by approximately 42% by the year 2025 (2% per year) and the number of aircraft based at Connecticut public airports will increase by approximately 15% (0.7% per year). The CSASP forecast shows that Connecticut's aviation system will be able to accommodate this increase with proper planning. The plan is available for viewing online under Plans, Projects & Studies at www.ct.gov/dot.

MASS TRANSPORTATION PROJECTS IN TRANSPORTATION BILL. The $2.3 billion transportation bill signed by **Governor M. Jodi Rell** includes $52 million for a New Britain-Hartford busway and $146 million for new rail service from New Haven to Hartford to Springfield. The busway would start in downtown New Britain, run through Newington and West Hartford, and end near Union Station in Hartford. A feasibility study has been completed and an environmental document will be prepared over the next 18 months for review by state and federal regulatory agencies.

NEW HAVEN RAIL YARD GETS ENHANCED SECURITY. A $2.9 million project is underway to improve security at the rail yard on Union Avenue in **New Haven**. Enhancements include a new guard building at the main entrance, video surveillance, and perimeter fencing and lighting. The yard is a service hub for Amtrak, Metro-North and Shore Line East. The bulk of the funding is from the US Department of Homeland Security and the state.

— Compiled and edited by Paul Gough

to find our alumni—especially PhD and Masters students—and get them back in touch.

Q: What impact do you expect your work to have on the state of Connecticut?

A: I think the university has a responsibility to serve the citizens of the state directly by educating their children. This is a very straightforward service we provide, and we do an innovative and successful job. From there it gets a little less straightforward. Another one of our responsibilities is simply to be wonderful at what we do and to continue to bring recognition for research excellence to the university. The reputation of universities like UConn rests on our research expertise and our ability to attract top-notch graduate and undergraduate students. Building a research enterprise that is successful, well-funded, and highly regarded is one of the charges that I take seriously.

Q: What do you think your research will yield that will be important to people whose livelihood depends on the health of Long Island Sound?

A: Zooplankton are excellent indicators of whether the ecosystem is healthy. When species numbers decline, and when the number of individuals of those species decline, that's an early warning of problems that will reach throughout the ecosystem—including the commercial fisheries. We need to understand what determines zooplankton survival, productivity, and species diversity. If we can record these characteristics over time, we will be able to see changes occurring in the world's oceans. For example, in our part of the northwest Atlantic, we have noticed significant drops in zooplankton species and populations that are associated with changes in fisheries. Ocean ecosystems cannot be dissected species by species. We need to understand the entire system in order eventually to be able to predict it.

Q: How will your research be useful in terms of policy?

A: My research is part of the big picture that contributes to an understanding of ocean ecosystems. This is already a foundation of ocean policy. The national legislation that governs fisheries management is called the Magnuson-Stevens Fishery Conservation and Management Act and it is up for reauthorization. The new version of that bill calls out the need for ecosystem based management. It is ready to be enacted to ensure that the United States manages fisheries based on ecosystems, not on single species. So the day is already upon us when the zooplankton studies are going to be taken into consideration for fisheries management.

The department has a research focus on the Long Island Sound ecosystem—more so than any other higher education institution. We collect real-time data to measure the impacts of low oxygen concentrations, and we participated in studies of the 1990s lobster die off. The department has always responded enthusiastically and competitively to real-world problems in coastal ocean environments, especially the one on our doorstep!

Q: How has your research helped industries that operate on the Sound?

A: As a group, the department is contributing to improved awareness of how the Sound ecosystem works—both naturally and how it accommodates the activities of man. A number of faculty of the department are involved in a study which seeks to place people in the Sound ecosystem and understand how we can behave most adaptively to maintain a healthy ecosystem. The department also does quite a bit with maritime industries in southeastern Connecticut. I found it surprising that Connecticut has more maritime industries, not located on the coast or in the southeast exclusively, than any other New England state. We welcome them as partners and seek to learn what they need and how we can help them.

Q: Has your research yielded results that indicate very specific conservation measures that should be immediately put into effect?

A: There was a recent cruise to the abyssal regions of the Sargasso Sea in the North Atlantic, sampling almost two miles down. We know already that we have polluted waters that deep with plastic and organic pollutants. There is no part of the global ocean that man has not impacted, largely negatively. The top predators have changed: sharks are rare, whales are endangered, and commercial fish are depleted. My goal is to report on the species that exist today, as a baseline for the future. We're seeing shifts in species' geographic ranges and abundances. It is not inconceivable that zooplankton can be at risk for extinction. The real goal of the census of marine zooplankton is global coverage by 2010. Remarkably, working with twenty colleagues from sixteen different countries, all of whom are leading major field efforts throughout their regions, we are going to come pretty close to reaching our goal.

Q: Is it a hard sell to convince the public and politicians that this is important research that warrants immediate attention?

A: Marine biodiversity is one of those topics where the public at large does not have a sense of urgency. However, many oceanographers do have a sense of urgency, because we know how dramatically we are changing ocean ecosystems. We are hopeful for major infusions of ocean research funding, but politicians and Congress have so many pressing and scary threats to consider. That is where private funding comes into play. The Sloan Foundation in particular has visionary program managers who can understand the contribution that programs like ours can make for the future. I'm extremely glad to be a part of a program that is able to focus on a horizon that only seems far away. Unless we act now, the opportunity for such studies will not be available in the future.

Q: Is there anything that has surprised you?

A: This is the first time I have been a department head. I have found the faculty to be committed to self-governance, very hard working, and quite collegial. I was extremely relieved because I know of departments that have a difficult time making decisions, setting a course, and just doing the simple things a department must do. I enjoy my job and look forward to implementing the shared vision that I discovered among the faculty. I think we have an excellent chance of making this shared vision come true. —***Wendy Millstein is a freelance science writer based in Simsbury.***

Center (continued from page 1)

schools. These programs will serve to enhance and reinforce the science education that will be offered at the Science Center. Where possible, funding will be made available to underwrite the cost of class trips to the Center for schools in low-income communities. With the announcement of the $1 million donation from Pitney Bowes, the Center has reached 95% of its campaign goal, with under $10 million still to raise.

This winter, the Connecticut Science Center plans to finalize construction of its three-level parking garage, which will also serve as the base of the building. In August, the Center began pouring concrete for the first floor of the parking garage and is now in the process of completing the ramp to the third level. You can view real-time video of the construction of the project and see plans for the Pitney Bowes Literacy and Education Fund Children's Gallery, as well as other information about the Center, online at www.CTScienceCenter.org.

Although the report finds much of the evidence on seafood's health benefits and risks is preliminary or insufficient, the committee supports current dietary guidelines and seafood advisories.

[http://www.nap.edu/catalog/11762.html]

◆ Possible Link Between Military Service and ALS

A limited body of evidence suggests an association between military service and later development of amyotrophic lateral sclerosis (ALS), commonly known as Lou Gehrig's disease, a rare but fatal neurodegenerative disorder, according to a new report from the Institute of Medicine. Because only five studies have been conducted on the relationship between military service and ALS, the committee urges more high-quality studies to confirm this link. Research also should explore what might be causing ALS among veterans—whether it could be chemicals, involvement in traumatic events, intensive physical activity, or other substances or activities that might be encountered during military service.

ALS affects roughly 0.01% of the US population—or 20,000 to 30,000 people—at any given time. People with the rare disorder experience a progressive breakdown of nerve cells that control the muscles, which eventually results in paralysis and usually death.

[http://newton.nap.edu/catalog/11757.html]

◆ Some North American Pollinators Declining

Long-term population trends for some North American pollinators —bees, birds, bats, and other animals and insects that spread pollen so plant fertilization can occur—are "demonstrably downward," says a new report from the National Research Council. Because there is little or no population data for many pollinators, the report urges for stepped-up efforts to monitor these creatures and improve understanding of their basic ecology. Noting that there is much more data on pollinators in Europe, where researchers have definitively documented declines and even extinctions, the report found there was sufficient evidence to conclude that some North American species are in decline, especially the honeybee.

To better track wild pollinators in North America, the report urges the United States should collaborate with Canada and Mexico to form a network of long-term monitoring projects. A rapid, one-time survey should be conducted as soon as possible to establish baseline data to which future assessments can be compared. USDA also should support research to improve the quick identification of pollinator species, which is very difficult in the field.

[http://www.nap.edu/catalog/11761.html]

◆ Foreign Technologies Could Help US Army Facilitate Destruction of Buried Chemical Weapons

To facilitate destruction of buried chemical warfare materiel, the US Army should consider adopting a faster and more efficient technology—such as one of those currently used in Europe or Japan—to complement the ones it currently uses, says a new report from the National Research Council. The new technique would be used primarily to destroy whole chemical munitions from large burial sites, the report notes. The report looks at technologies that can destroy entire munitions such as rockets, land mines, mortars, and projectiles as well as those that can handle only chemical agents, such as nerve and blister agents.

[http://www.nap.edu/catalog/11777.html]

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