



CENTER FOR URBAN WATERS

UNIVERSITY *of* WASHINGTON | TACOMA

ANNUAL REPORT

2018-2019

ANNUAL REPORT CONTENTS

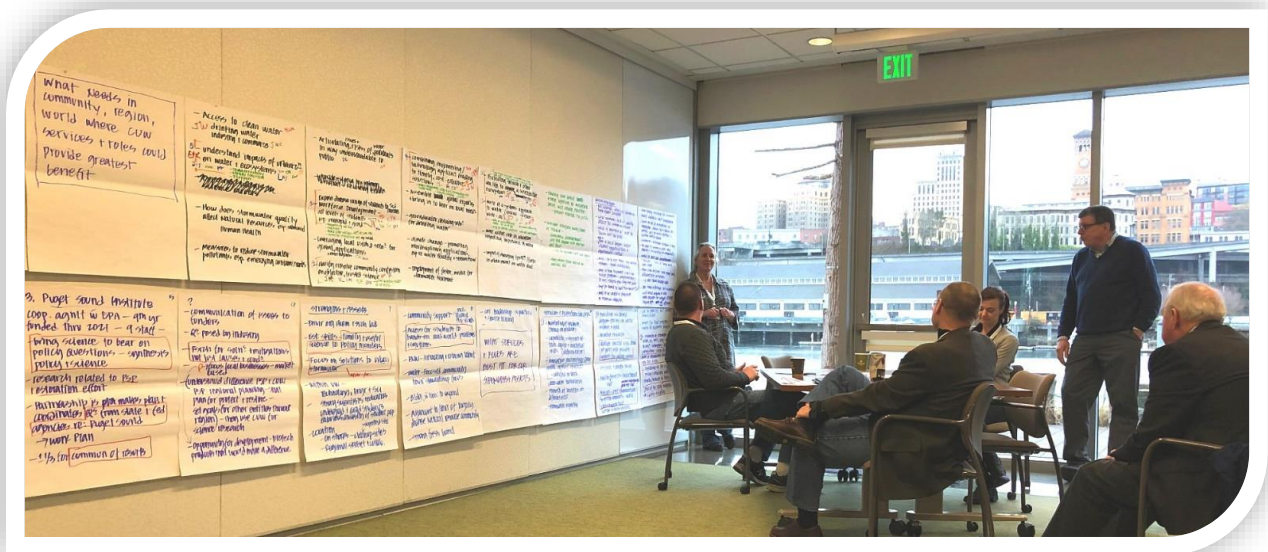
1. 2018 – 19 Activities	1
2. Members & Partnerships	8
3. Goals for 2019-2020	14
4. Financial Report	16
5. Student Involvement	18
6. Grants	21
7. Publications	23
8. Director’s Accomplishments & Goals	25
9. Appendix	28

1. 2018 – 19 ACTIVITIES

URBAN WATERS ADVISORY BOARD

In 2003, the Russell Family Foundation granted funding to conduct a feasibility study, at which time an Urban Waters Board of Directors and a Scientific Advisory Group were established to support operations as a non-profit organization. In March of 2018 the Center for Urban Waters Advisory Board was reenergized as a UW Tacoma Advisory Board. As we approach 10 years of operations, we realize the need for creating a plan for the future. After a year of getting to know our organization and getting comfortable in their roles, Dr. Joel Baker and several advisory board members led us through a thoughtful strategic planning process, incorporating input from Urban Waters staff and outside partners. The plan will be finalized following an upcoming round of staff input is completed. We are confident that our strategic plan will help to carry the Center into our second decade with a strong focus on the values and goals of our organization.

See appendix for Urban Waters Advisory Board roster and Center for Urban Waters draft strategic plan.



The UW Tacoma Urban Waters advisory board held a day-long retreat as part of the strategic planning process.

STUDENTS

Current students and recent graduates are involved in almost every facet of what we do at Urban Waters. While the majority are students enrolled in undergraduate programs at UW Tacoma, we also have participation from students studying on the Seattle campus, as well as outside institutions. We provide flexible opportunities for students to learn and gain valuable experience that will help in their studies as well as in the job market.

Nearly all of the student opportunities here are paid positions, whether that is a position in our annual summer internship program or a research assistant position working with one of our research teams in the lab. While we are confident that these positions give students valuable research experience that may be offered on an unpaid basis at other labs, we acknowledge that all students do not have the privilege to take unpaid positions. We believe this also shows that our students provide significant benefits to our research programs, for which they should be compensated fairly.

In FY 2019 we have trained thirteen undergraduate students through internships and research assistant positions and seven graduate students have conducted their research and held research assistant positions in our labs.

See section 5 for information about the students involved at Urban Waters.

*Urban Waters collaborator **Julie Masura** received the 2018 Research Mentor award for her mentorship of students who presented at the UW Undergraduate Research Symposium on the UW Seattle campus.*

SCHOLARSHIP

We are constantly working to build new and strengthen existing partnerships. We have been working with faculty from across campus to start new collaborations and to build off of existing ideas. We are currently collaborating with faculty from our home school, Interdisciplinary Arts and Sciences, as well as the School of Engineering and Technology, Urban Studies, and Nursing and Healthcare Leadership. In addition, our recent strategic planning session and many of the activities that have come out of it so far have been around growing these collaborations and working to make them more visible to the public. Practicum projects for the most recently graduated cohort in Urban Studies' MA in Community Planning were focused on future development on the Foss Waterway. We look forward to working with the next graduating cohort, as they are expected to have a similar focus in 2020.

Students directly involved in our programs and research have opportunities to co-author peer-reviewed publications. In FY 2019, six undergraduate research assistants were named in Center for Urban Waters publications a total of ten times. We also encourage students to present their research and make an effort to create our own opportunities for them to do so. On August 23rd, 2019 we held our annual Urban Waters Summer Internship Symposium where students who completed Urban Waters summer internships along with Julie Masura's TESC 495 students gave presentations on their summer research and findings. Additional Environmental Science students from a summer course taught by Jeremy Davis participated in a poster session before and after the presentations.

See section 7 for our full list of publications.

Urban Waters scientists Ed Kolodziej and Kathy Peter were featured in a documentary about a Seattle Public Utilities-led restoration project in Thornton Creek, which was shown at the Seattle International Film Festival. The filmmakers were interested in this project because it used new approaches to address real stormwater and water quality problems that we are facing locally. The film is titled "Engineering with Nature".

COMMUNITY

The Center for Urban Waters is engaged in the community through our programs, involvement of our staff with outside organizations, and our advisory board. These relationships provide avenues to introduce people to the benefits of working with UW Tacoma and to create community partnerships. We strive to create partnerships that are mutually beneficial, where Urban Waters scientists can help solve problems that our partners are facing, and we can leverage partnerships for funding and increased community recognition, while providing students with valuable learning opportunities dealing with local, real-world issues.

Our research has a wide reach and often draws interest from the media, we also have extensive reader base with the Puget Sound Institute (PSI) and the Encyclopedia of Puget Sound (EoPS). PSI's quarterly newsletter reaches an audience of over 2,600 subscribers and often features stories about our research. EoPS gains an average of 2,800 new users each week¹ and published 21 in-depth magazine articles and dozens of encyclopedia overviews, reports and blogs in FY 19. In May 2018, a PSI article about Andy James' research on opioid detection in Puget Sound mussel tissue was picked up in the media and reached millions of readers worldwide. Among the dozens of outlets covering the story were KIRO News, the BBC, NPR, NBC, CBS, CNN, The Guardian, The Daily Mail, Newsweek, USA Today and Fortune Magazine. Over the past year, our articles have also been re-printed in other publications such as the Kitsap Sun, Whatcom Watch, Sustain magazine and the Statesman Journal.

Research performed at the Center for Urban Waters in collaboration with NOAA and the Washington Stormwater Center identified tire wear particles as the likely cause of "urban runoff mortality syndrome," a condition that endangers coho salmon runs in the region.

PSI staff participate in the Salish Sea Ecosystem Conference, which "attracts about fifteen hundred participants and has become the premier scientific research and policy gathering in the Pacific Northwest. The presentations and discussions that occur at the Salish Sea Ecosystem Conference are a platform to build shared policies, practices and procedures necessary to guide future actions for protecting and restoring the Salish Sea and its watersheds. The outcome is improved scientific collaboration, data sharing and dynamic discussions and on the state of the Salish Sea ecosystem."² In 2018, five PSI members led sessions at the conference. Materials from the 2018 conference have been downloaded over 32,000 times at over 1,200 institutions through the Western CEDAR open access repository.³

¹ From Google Analytics, based on activity from October 15, 2018 to October 14, 2019

² 2020 Salish Sea Ecosystem Conference: <https://cpb-us-e1.wpmucdn.com/wp.wvu.edu/dist/1/2658/files/2019/05/2020-SSEC-One-Pager.pdf>

³ Conference Archives: <https://wp.wvu.edu/salishseaconference/past-conferences/>

VISITS FROM NOTABLE GUESTS

March 12, 2018	Representative Derek Kilmer visited for a lab tour and presentations by CUW researchers, including Dr. Kathy Peter, on the work we are doing, including research on identifying the cause of urban runoff mortality syndrome in coho salmon.
August 6, 2018	Urban Waters hosted a luncheon for former secretary of the interior Sally Jewel and Ben Packard to celebrate and bring attention to the newly-formed EarthLab.
October 17, 2018	Representative Derek Kilmer, Ryan Mello , the Executive Director of Pierce Conservation District and Tacoma city council member, Jessica Knickerbocker with the City of Tacoma's Environmental Services Department, and Dr. Joel Baker had a live-streamed discussion about the P3 Act, a bill Kilmer had recently co-introduced with Rep. Denny Heck that would help communities and developers team up to create more green infrastructure.
June 18, 2019	Nagaoka International Corp CEO & Lead engineer visited Urban Waters to assist with the installation of the CHEMILES groundwater treatment system, which they donated to Urban Waters. As a part of their visit, we held a public event thanking them for their gift to the University and to the city of Tacoma. The event was well-attended, with remarks by Mayor Woodard, Urban Waters advisory board chair Jim Waldo, Pierce County Executive Bruce Dammeier, and Executive Vice Chancellor for Academic Affairs Jill Purdy.
September 6, 2019	Japanese Consul General Yoichiro Yamada and Senior Specialist for Cultural Affairs & Public outreach Lynn Shiori Miyauchi visited the Center to learn about the Nagaoka CHEMILES system and discuss the cleanup of the Thea Foss.
September 18, 2019	Troy Alstead , former COO of Starbucks and founder of Ocean5 and EarthLab advisory board member came for an introductory tour of the Center.

See section 2 for more information about our partnerships.



Jessica Knickerbocker, Joel Baker, Derek Kilmer, and Ryan Mello having a livestreamed discussion about the P3 act.

EQUITY

The Center for Urban Waters has been a supporter of the Math-Science-Leadership program since it was founded. We value the opportunity to connect with young students and show them first-hand that the work we do is something they can be a part of. We feel that this is especially important to connect with the students that MSL serves, those that are historically underrepresented in STEM (low-income, minority, female and potential first-generation college students). On April 17, 2019, students and parents involved in the MSL program visited Urban Waters to speak with scientists, learn about career paths, and see some of the mass spectrometry research happening in our labs. They also got a VIP building tour highlighting the sustainable site features of our LEED Platinum facility.

See section 2 for more information about our partnerships.

CULTURE

The work culture at the Center for Urban Waters is founded in our collaborative, interdisciplinary approach to solving community-relevant environmental problems. Productive relationships with our community partners, including local, regional, federal and government natural resource agencies, tribes, and ports, requires strong communication, transparent decision making, and clear roles and responsibilities. As a research center, Urban Waters must thrive in the hyper-competitive peer-reviewed funding climate and must be willing to lead with new ideas.

The excellent workplace culture at the Center for Urban Waters is exemplified by our high employee retention rates. There has not been a single employee action taken nor have we failed to cover our expenses during 10 years of operations.

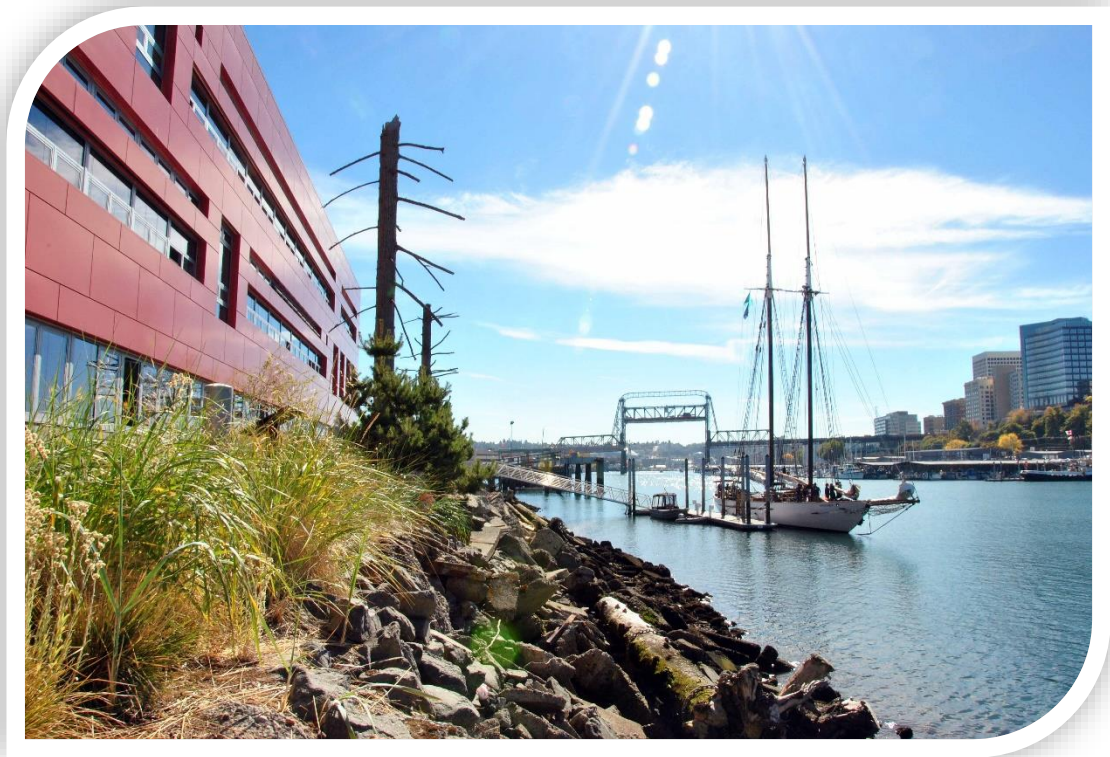
UWT Global Honors students visited Urban Waters for a VIP tour with Joel Baker on October 29, 2018.



GROWTH

The Center for Urban Waters has enjoyed exception growth during our first ten years of operations, including:

- Growing the number of independent Principal Investigators from one (J. Baker) in 2010 to 5-6 currently. This growth has dramatically increased the diversity of our research interests and capabilities, fostering highly competitive interdisciplinary work.
- Growing extramural research support approximately ten-fold since 2010 to a fairly stable annual research expenditure level close to \$2M/year.
- Increasing the opportunities for UW Tacoma students to participate in undergraduate research and to work as paid laboratory technicians.
- Increasing contributions to operations costs (rent and utilities) from external grant sources more than five-fold during the past three fiscal years.
- Growing the impact of Urban Waters research by increasing the number and impact of peer-reviewed publications, with 17 papers authored by Urban Waters scientists and students in FY19.



2. MEMBERS & PARTNERSHIPS

FACULTY AND STAFF

PRINCIPAL INVESTIGATORS

Name	Area of Focus
Joel Baker, Ph.D.	Environmental chemistry and engineering
Ed Kolodziej, Ph.D.	Environmental chemistry and engineering
David Hirschberg, Ph.D.	Biotechnology/Synthetic Biology
Tessa Francis, Ph.D.	Estuarine ecology and modeling
C. Andrew James, Ph.D., P.E.	Water quality engineering
Nicholas Georgiadis, Ph.D.	Ecosystem recovery science

POSTDOCTORAL RESEARCH SCIENTISTS

Name	Area of Focus
Kathy Peter, Ph.D.	Environmental chemistry
Zhenyu Tian, Ph.D.	Environmental chemistry

CORE STAFF

Name	Position
Alex Gipe, M.S.	Lab manager
Hayley Mathews	Program coordinator
Kris Symer, M.S.	Web computing specialist
Dwaine Trummert	Senior developer

WA STORMWATER CENTER/TAPE PROGRAM

Name	Position
Carla Milesi	Emerging stormwater technologies coordinator

PUGET SOUND INSTITUTE

Name	Position
Jeff Rice, M.A., M.F.A.	Managing Editor
Aimee Kinney, M.M.A.	Research Scientist, Coastal law and policy
Tanya Roberts, M.A.	Research Scientist, Ecosystem recovery science
Christopher Dunagan	Senior Writer
Sylvia Kantor, M.S.	Page Design and Production Specialist & Writer
Christopher Wally Wright, M.P.A.	Research Scientist

UW TACOMA FACULTY COLLABORATORS

NAME	UWT DEPARTMENT	CONTRIBUTIONS/COLLABORATIONS
Julie Masura, M.S.	SIAS/SAM	Conducts microplastics research and teaches TESC 495 Environmental Research Experience at the Center for Urban Waters, involving undergraduate and graduate students
Joyce Dinglasan-Panlilio, Ph.D.	SIAS/SAM	Conducts PFAS research and mentors undergraduates at the Center for Urban Waters labs
Cheryl Greengrove, Ph.D.	SIAS/SAM	Brings oceanography students to the Center for field work
Robin Evans-Agnew, Ph.D.	School of Nursing &HCL	Collaborates with Dr. Joel Baker on projects related to air quality and on "Voices Unbound"
Tom Koontz, Ph.D.	SIAS/SAM	Summer intern mentor and research collaborator
Chris Schell, Ph.D.	SIAS/SAM	Research collaborator
Anne Clark Bartlett, Ph.D.	SIAS	Urban Waters advisory board ex-officio member
Raj Katti, Ph.D.	SET	Urban Waters advisory board ex-officio member
Bonnie J. Becker, Ph.D.	SIAS/SAM	Urban Waters advisory board ex-officio member, summer internship mentor and research collaborator

AFFILIATE FACULTY FROM OUTSIDE UW TACOMA

NAME	INSTITUTION	CONTRIBUTIONS/EXPERTISE
Nicole Faghin, J.D.	Washington Sea Grant	Regional shoreline and land use expert
Dan Burgard, Ph.D.	University of Puget Sound, Chemistry Department	Environmental forensic chemist
Mark Mangel, Ph.D.	UC Santa Cruz, School of Engineering	Mathematical ecologist, works with Puget Sound Institute
Andre Punt, Ph.D.	University of Washington, School of Aquatic and Fishery Sciences	Collaborator on Ocean Modelling Forum

PARTNERSHIPS & COLLABORATIONS

City of Tacoma

Being co-located at the Center for Urban Waters along with the City of Tacoma's Environmental Services department allows us to take advantage of opportunities to collaborate on research and community engagement efforts. Dr. Baker is currently working with Jim Parvey, City of Tacoma's Chief Sustainability Officer and Urban Waters advisory board member, on a project to purchase and install air quality monitors around Tacoma, which will grow an existing network. UW Tacoma SET student Richard Brun is working with them on the technical aspects of calibrating the sensors and connecting them to an online data repository so they can be viewed online in real-time. Tacoma Deputy Mayor and Urban Waters advisory board member Conor McCarthy has been a strong supporter of this project, helping to secure funding from the city council.

Port of Tacoma

Our established relationship with the Port of Tacoma has led to many collaborations over the past 9 years. Dr. Baker meets regularly with Port environmental leadership to brainstorm solutions to pressing problems and to identify possible research projects. As community leaders, Port of Tacoma Commissioners provide valuable insights and critical advice to our programs. The Port of Tacoma played a lead role in welcoming the CEO of Nagaoka Industries to Tacoma and Urban Waters in 2019. Dr. Baker has recently been appointed to the Stakeholder's Advisory Board for the Tacoma Tidelands Subarea Planning exercise.

Puyallup Tribe of Indians

Fisheries staff from the Puyallup Tribe of Indians met with us to discuss their environmental research-related concerns and interests so that we could identify ways that the Center for Urban Waters could support their work. We were joined by Russ Ladley, resource protection manager, Char Naylor, water quality manager and Chad Wright, Urban Waters advisory board member and CEO of Marine View Ventures. We discussed possible collaborations and partnerships such as sharing existing data, helping with research design, evaluating technical reports, organizing design challenges, etc. This meeting was attended by CUW staff and board members, SIAS leadership and faculty, and School of Urban Studies leadership. We expect that several projects and collaborations will result from this meeting.

(Full list of participants: Russ Ladley, Char Naylor, Chad Wright, Ali Modarres, Joel Baker, Hayley Mathews, Cheryl Greengrove, Anne Bartlett, Jim Gavel, Nicholas Georgiadis, Jeff Rice, Ed Kolodziej, Jim Waldo, Lisa Isozaki, Julie Masura)

Puget Sound Partnership

We work extensively with the Puget Sound Partnership through the Puget Sound Institute (PSI), a program within the Center for Urban Waters. PSI is designed to be an effective pathway to link the considerable environmental expertise housed at the University of Washington and elsewhere to the Puget Sound Partnership. While centered at UW, the Puget Sound Institute seeks broad participation from scientists worldwide, including those from academia, government, NGO's and the private sector, insuring the best possible technical products and the most interesting and useful discussions. PSI conducts study panels and devotes resources to encourage exploration of high-risk and unconventional approaches to ecosystem restoration and protection, targeting underrepresented ideas and groups.

Math-Science-Leadership Program

The mission of the Math-Science-Leadership (MSL) program is to encourage, motivate, and inspire students to succeed in science, technology, engineering, mathematics (STEM) and develop the leadership and academic skills necessary to pursue a career in STEM fields. The Center for Urban Waters had been an early partner of the MSL. This is a valuable program that not only can give students valuable STEM education experiences that they might not normally have access to, but can also help to inspire students to pursue scientific education, possibly leading them to become the next CUW interns and researchers. The MSL team is in the process of refreshing the program and during this time we are working with Amanda Figueroa and the Urban Waters advisory board to identify ways to strengthen the collaboration between our programs, and to help support the ongoing operations of MSL.

Nagaoka International Corporation⁴

Nagaoka International Corporation donated a CHEMILES pilot-scale groundwater treatment system to the Center for Urban Waters. This donation was facilitated by Urban Waters board members, the Pierce County Executive's office, and Paul Reiter, former executive director of the International Water Association. This donation will open up opportunities to collaborate with new partners and create solutions to existing and anticipated water quality problems.

RAIN Incubator

Through the partnership between RAIN and Urban Waters, we are pursuing support to begin studies that apply cutting edge molecular biology and engineering approaches to pressing water quality and aquaculture problems.

⁴ New partnership formed in FY2019

UW Tacoma Science and Mathematics

Collaborations include an analysis of watershed advisory groups (T. Koontz), continuing a research program on marine microplastics (J. Masura), providing research space and guidance for shellfish research (B. Becker), assisting analytical method development to measure fire-fighting foams in drinking water (J. Dinglasan-Panlilio), providing logistics support for field campaigns (C. Greengrove and D. Shugar), and exploration of man-made chemical impacts on urban wildlife (C. Schell).

Washington Stormwater Center

The collaboration between the UW Tacoma and WSU Puyallup through the Washington Stormwater Center is largely maintained through TAPE, the Washington State Department of Ecology's (Ecology) process for evaluating and approving emerging stormwater treatment best management practices (BMPs). University of Washington Tacoma staff member Carla Milesi manages the operation and development of the TAPE program in partnership with Ecology. UWT staff are working with Ecology to designate sites as TAPE approved test facilities throughout the country. In the reporting period UWT staff completed a review and coordinated with our Stakeholders Advisory Group members to complete a review of an application from the Oregon State University Green Stormwater Infrastructure Research Facility to become an approved TAPE testing facility. Comments on the application were sent to OSU and we are awaiting response to those comments. Other facilities approved in prior years include the University of New Hampshire Stormwater Center in Durham, NH and the Stormwater Technology Testing Center in Portland, OR. UWT staff have been active in the effort to create a national stormwater technology testing protocol. This effort, called the Stormwater Testing and Evaluation for Products and Practices (STEPP) initiative is being led by the Water Environment Federation. UWT staff have been working with Ecology staff to represent Washington State and the TAPE program in this initiative.

UW Climate Impacts Group

Coordination between Puget Sound Institute and CIG to integrate their findings so that regional climate vulnerabilities and potential responses are explicitly included in Puget Sound strategic planning.

UW Tacoma Nursing and Healthcare Leadership

Continuing collaboration on air quality impacts on local communities combining field observations and sampling by underrepresented student groups with Urban Water analytical capabilities (R. Agnew-Evans).

Puyallup Watershed Initiative Stormwater Community of Interest

Urban Waters staff members Carla Milesi and Hayley Mathews have worked with the Stormwater Community of Interest (SCOI) for the past 5 years. The Initiative was originally created by the Russell Family Foundation and has since become an independent non-profit, though it still receives substantial funding from the Foundation. The SCOI provides annual funding to support the contributions of Urban Waters staff members to their programming, while connecting us to various organizations and agencies that are working on stormwater issues in the South Sound.

Additional Partners:

- Kitsap Public Health District
- Skagit County Health Department
- NOAA
- WA Department of Transportation
- Metro Parks Tacoma
- Tacoma Public Utilities
- Washington Sea Grant
- Washington State University



Joel Baker and Jill Purdy with Nagaoka International Corporation lead engineer Mr. Nguyen (left) and CEO Mr. Umezu (right).

3. GOALS FOR 2019–2020

The Center for Urban Waters is currently focused on four main goals, which are outlined more fully in our draft Strategic Plan (see appendix).

Strengthen identity and messaging to improve communication

While the Puget Sound Institute and the Center for Urban Waters (as a facility) have very strong brands, we have identified a need to clarify and strengthen our identity for the UW Tacoma research center within the facility. There has often been confusion due to the fact that our department has the same name as our building. A stronger identity and improved messaging will help us identify ourselves to new audiences, and by improving the clarity of our communications, we can improve understanding in the community of who we are and what we do at CUW, thus increasing our opportunities for partnerships and collaborations.

Our objective is that our partners and community members will have a clear understanding of our department, our programs, and how we fit in at the Center for Urban Waters facility. We are currently working toward ensuring that all CUW staff and partners use the same clear and consistent messaging, along with our website and marketing materials. Our website and marketing materials are currently being updated. In 2020 we will increase our engagement with the community through participating in events such as the Grit City Think and Drink, Green Drinks, and a new science discussion series planned for McMenamans, organized by the Oregon Museum of Science and Industry, as well as working to increase our article and editorial placements.

Develop and strengthen collaborations with new and existing partners

We have many strong partnerships across the Puget Sound, which have resulted in valuable collaborative projects. Our objective is to build in more frequent engagement points with our partners so that we can stay up to date with each other's activities and interests. We will also work in developing a process to identify potential collaborative projects in advance so that we can quickly respond when grant opportunities become available. We have begun conversations with local jurisdictional water quality programs to identify opportunities to engage with them and support their work. In the future, we will be exploring hosting technical and/or policy workshops, co-sponsored with partner organizations, focused on a specific local issue of concern. Our goal would be to bring together diverse stakeholders from all sides of the issue, who may not normally have a chance to interact with each other, to explore the causes of the issue and possible solutions.

Potential workshop examples:

- Application of molecular biology to shellfish aquaculture operations with Pacific Shellfish Institute, Washington Sea Grant, and biotech and shellfish industries.
- Supplying potable water immediately after natural disasters with TPU, FEMA, DoD, other utilities and drinking water equipment manufacturers.
- Infrastructure needs for renewable liquid fuels in port with Northwest Seaport Alliance, Port of Tacoma, PNNL, marine fuels industry, and UW Clean Energy Institute.
- Reducing environmental and economic costs through 'trading', 'banking', facility co-location and waste stream 'sharing' with local industries, utilities, and regulators.
- Greening highway infrastructure with WA Dept. of Transportation, Federal Highway Administration, stormwater engineers, designers, and contractors.

Expand education and job training for students

Students are involved in nearly every aspect of our work at Urban Waters. They work side by side with our scientists in the lab, write and edit stories for the Puget Sound Institute, and sometimes develop research projects of their own. To date we have trained nearly 100 undergraduate students, as well as a few high school students. Our objective is to improve the visibility and accessibility of our programs for students at UW Tacoma and other local campuses and ensure that we are providing the most engaging and beneficial learning experience as possible. To engage with pre-college students, we are currently working on reconnecting with the Math-Science-Leadership program and in 2020 we will be connecting with Tacoma STEAM and Graduate Tacoma. To reach community and technical college students, we will engage with Bates Technical College to explore how we can partner with their Civil Engineering Technology program. We will also explore ways of engaging with two-year colleges to introduce students to CUW, possibly by inviting professors/departments to bring students for tours or request in-classroom presentations from CUW staff. To increase engagement on the UW Tacoma campus, we are working to align with the developing SET engineering degree programs. We will also evaluate our capacity to host more courses in our lab, such as with Julie Masura's TESC 495 summer class.

Increase the breadth and depth of the research enterprise

As we come to the end of the first decade of Urban Waters, we have become an established and strong research center. Our objective is to continue to bring scientists together from diverse fields to work together on real-world issues and to create a lively and collaborative work space. We are currently working on hiring additional staff for the Puget Sound Institute and reconfiguring some of our office space to more comfortably house our growing staff. In 2020, we will begin exploring the possibilities for creation of new joint faculty appointments with UW departments and local and regional agencies, new scholarships for UW engineering students, and fellowships to support visiting senior scientists.

4. FINANCIAL REPORT

Current external grants and contracts: \$4.95M

Current cash in hand: \$1.6M

Anticipated burn rate: \$1.6M/year

FY19 SPONSORED RESEARCH DIRECT AND INDIRECT COSTS

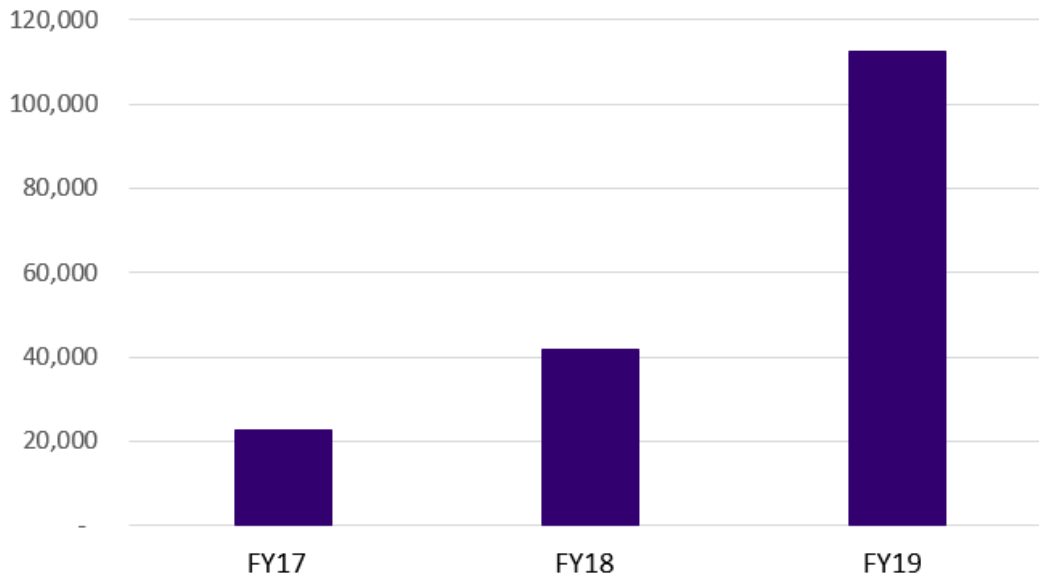
Total Direct Costs	FY 19
Federal Funds	\$1,231,999
Non-Federal Funds	\$328,889
TOTAL	\$1,560,888

Total Indirect Costs	FY 19
Federal Funds	\$310,887
Non-Federal Funds	\$66,508
TOTAL	\$377,395

Center for Urban Waters rent from Sponsored Budgets: **\$112,482**

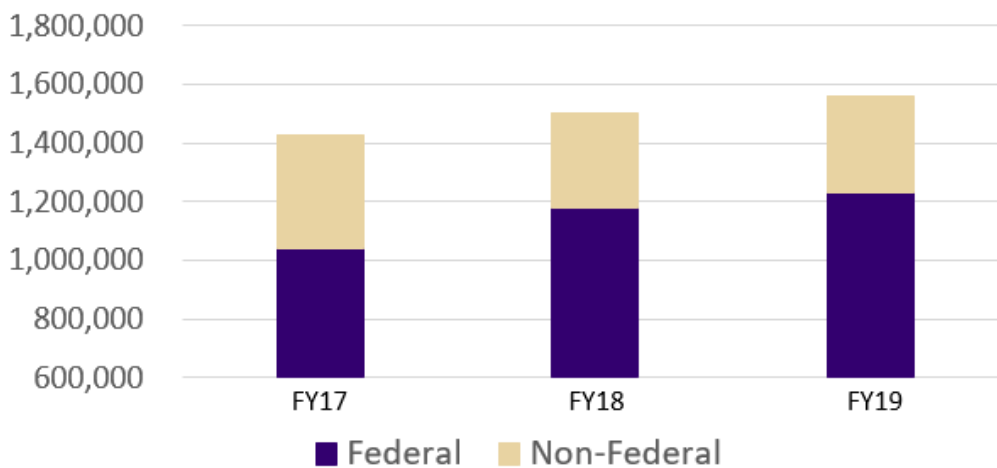
UW Tacoma Income from CUW		UW Tacoma Payments to CUW		UW Tacoma Net Contribution To CUW in FY19
Returned IDC	\$251,597	Operations Budget	\$80,000	
Rent	\$112,482	Rent	\$383,134	
TOTAL	\$364,079	TOTAL	\$463,134	\$99,055

Annual Rent Payments from Grants and Contracts
 UWT@Center for Urban Waters
 (Annual rent ca. 360K/year)



By increasing the total value of external grants and contracts and more carefully recovering rent costs from these awards, Urban Waters scientists have substantially reduced the rent subsidy required from UW Tacoma.

Annual Research Expenditures



Annual research expenditures (i.e., funds spent from external grants and contracts) by fiscal year at the Center for Urban Waters. These numbers are direct costs only, and do not include the ca. 26% indirect costs spent during the same period.

5. STUDENT INVOLVEMENT

GRADUATE STUDENTS CONDUCTING RESEARCH AT URBAN WATERS

Nina Zhao is a PhD student in Environmental Engineering with UW Seattle. She is studying the fate and transport of synthetic steroids and other bioactive contaminants in the environment with a special focus on their transformation in both natural and engineered systems.

Rui Wang is a visiting PhD student from South China University of Technology. He is working with Dr. Ed Kolodziej on investigating the degradation mechanism of emerging contaminants in stormwater during the chlorination process.

Ting Tang is a visiting PhD student from South China University of Technology. She has been working on the environmental fate (partition and transformation) of a range of stormwater-associated pollutants for which little is known in the scientific literature.

Alex Tellez is a graduate student pursuing dual degrees in Marine and Environmental Affairs and in Governance and Public Policy at UW. She is analyzing the legal and policy frameworks controlling chemical contaminants in Puget Sound fish in support of the UW Puget Sound Institute and is the teaching assistant for Julie Masura's TESC 495 course.

Fan Hou is an exchange PhD student from China Agricultural University. She works on target quantification of stormwater tracers in urban creeks.

"Over the summer I worked as an intern with the Puget Sound Institute to create an inventory of all currently active research projects relating to the recovery of the Puget Sound and Salish Sea... This project provided the foundation of a larger effort that will supply and maintain an inventory of the current scientific research that informs Salish Sea recovery efforts."

"This internship provided me many beneficial skills and opportunities that I feel will help advance both my academic and career goals in the future. Firstly, this project greatly enhanced my communication skills through various emails and interviews with people from different organizations in the region. As a student majoring in Environmental Science, it was extremely helpful to learn the language surrounding research and recovery efforts and to get to talk with people who are currently working in the field. It was also very beneficial to learn about the many different organizations and projects working towards the recovery of the Salish Sea ecosystem. Compiling the list of projects was a specifically valuable task as it opened my eyes to the many research opportunities I could participate in within my field of study, and gave me a closer look at many of the lead environmental organizations in the area that I may want to work for post-graduation."

Rachel Hettinger, 2019 Summer Intern

RESEARCH ASSISTANTS

Christopher Wu is a UWT Environmental Science graduate. After completing a summer internship at CUW in 2017, he continued working in Ed Kolodziej's lab. He worked on sample collection, processing and analysis for several projects and was a listed author on several publications.

Melissa Gonzalez is 2019 UWT Environmental Science graduate who works on sample processing and data analysis for stormwater quality and toxicity studies. She began as an undergrad student researcher (paid position) at CUW and is now employed as a full-time technician.

David Wark is currently a UWT Environmental Science major who holds a paid laboratory technician position assisting the Kolodziej and James groups with sample preparation and analysis.

Alan Cortina began working in Ed Kolodziej's lab at Urban Waters while a UWT undergraduate and recently graduated from UWT in with a B.S. in Environmental Science. He will begin graduate school in UW CEE Environmental Engineering program in the fall. Alan works on sample collection and analysis of biological tissues to observe uptake of contaminants into organisms.

Diana Vedenova is a UWT student in the Science and Mathematics (SAM) program working with Dr. Andy James on his field and laboratory studies of chemical contaminants in Puget Sound.

Alex Sweetser is a master's student in the UW School of Marine and Environmental Affairs. They are a 2019 Washington Sea Grant Hershman Fellow with the Northwest Indian Fisheries Commission, assisting with regional salmon recovery efforts and conducting research on the stages of recovery and the different tradeoffs of management decisions.

2019 SUMMER INTERNS

Rachel Hettinger is a rising senior Environmental Science major at UWT. She is developing an inventory of current environmental research projects in the Puget Sound/Salish Sea ecosystem to support the UW Puget Sound Institute.

Richard Brun is a recent UWT Computer Science program graduate who will continue his studies in the M.S. program beginning this fall. He is conducting an internship with the City of Tacoma Office of Sustainability to deploy a network of low-cost air quality monitors in Tacoma.

Rachel Anderson is a rising junior at the University of San Diego who is working on a joint Urban Waters/RAIN effort to develop to detect pathogenic organisms in shellfish aquaculture operations.

Mason Ward is a UWT undergraduate in the Politics, Philosophy and Public Affairs (PPPA) program assisting Dr. Tom Koontz with his analysis of the use of science in regional fisheries recovery plans.

Johannah Noyes is a UWT undergraduate in the Politics, Philosophy and Public Affairs (PPPA) program assisting Dr. Tom Koontz with his analysis of the use of science in regional fisheries recovery plans.

ADDITIONAL CUW INTERNS & VOLUNTEERS

Matt Saylor graduated with an M.S. in Geospatial Technologies from UW Tacoma and assisted Tanya Roberts in a Puget Sound Institute study that explores why and where urbanization is occurring in and near designated urban growth areas.

Jennifer Elliott, PhD volunteered with PSI staff soon after receiving her PhD. She is a listed co-author on the starter package for the Puget Sound Partnership's toxics in fish implementation strategy.

CLASSES OFFERED AT CUW

TESC 495 Environmental Research Experience course was taught at the CUW during Summer Quarter 2019 by Julie Masura. This course is planned to become a regular offering during the summer quarter.



Julie Masura and her summer TESC 495 students at the 2019 Urban Waters Summer Student Symposium.

6. GRANTS

GRANTS AWARDED IN FY 2019

PI	PROJECT TITLE	SPONSOR	AMOUNT
Baker, Joel	Year 2: Puget Sound Action Agenda — Implementation Strategic, Science, Monitoring and Adaptive Management Analysis and Activities	Puget Sound Partnership	\$1,188,000
Baker, Joel; Evans-Agnew, Robin; Schell, Chris; Koontz, Tom	Voices Unbound: Amplifying Perspectives of Disenfranchised Communities to Provoke Environmental Change	UW EarthLab	\$49,987 (team total)
James, C. Andrew	Puget Sound Ecosystem Management Program funding renewed through 2021	Puget Sound Partnership/EPA	\$79,985
Baker, Joel	TAPE Program renewal	WA Dept. of Ecology	\$160,514
Baker, Joel	Benthic Index of Biotic Indicators – Implementation Strategies	WA Dept. of Ecology	\$136,720
James, C. Andrew	Evaluating Chemical Tracers of Boat Waste Discharges to Puget Sound	WA State Parks and Recreation Commission	\$43,265
Kolodziej, Edward	Analysis of stormwater runoff from the California Camp wildfire	National Science Foundation	\$13,982
Kolodziej, Edward	Improving Environmental Forensics: Resolving and Apportioning Stormwater and Legacy Pollutant Sources with Non-Target High Resolution Mass Spectrometry	UW Royalty Research Fund	\$39,973
Kolodziej, Edward	Performance Evaluation of Engineered Hyporheic Zones for In-Stream Water Quality Improvement in Urban Creeks – PSP Near Term Action	Puget Sound Partnership	\$243,387
Kolodziej, Edward	Development of Chemical Indicators to Detect, Track and Assess Treatment of Novel and Emerging Toxic Stormwater Pollutants – PSP Near Term Action	Puget Sound Partnership	\$241,937
Kolodziej, Edward	Urban Stream Syndrome - Expanding Research on Toxic Pollutants in Urban Watersheds	National Science Foundation	\$329,577

PROPOSALS SUBMITTED IN FY 2019

PI	PROJECT TITLE	SPONSOR	BUDGET
James, C. Andrew	PSEMP 2020-21 Toxics Monitoring Program	Puget Sound Partnership	\$79,985
Francis, Tessa	Residential Shoreline	Washington Department of Fish and Wildlife	\$140,010
Kolodziej, Edward	Performance Evaluation of Engineered Hyporheic Zones in Urban Creeks	Washington Department of Ecology	\$243,387
Kolodziej, Edward	Development of Chemical Indicators to Detect, Track and Assess Pollutants	Washington Department of Ecology	\$241,937
Kolodziej, Edward	RAPID Collaborative Proposal: Characterization of upland watershed contamination from wildland-urban burning	National Science Foundation	\$13,958
Francis, Tessa	Marine and Nearshore Grant Program: Analyze and Synthesize Grant Program Results, Phase 2	Washington Department of Fish and Wildlife	\$49,211
Punt, Andre	Ocean Modeling Forum 4	David and Lucile Packard Foundation	\$544,356
Kolodziej, Edward	Improving Environmental Forensics: Resolving and Apportioning Stormwater and Legacy Pollutant Sources with Non-Target High Resolution Mass Spectrometry	UW Royalty Research Fund	\$39,973
Punt, Andre	Ocean Modeling Forum 4	David and Lucile Packard Foundation	\$352,727
James, C. Andrew	PSP and UWT PSEMP 2018	Puget Sound Partnership	\$8,496
Baker, Joel	UW-ECY Benthic Index of Biotic Indicators Implementation Strategies	Washington Department of Ecology	\$136,720
Baker, Joel	Year 2: Puget Sound Action Agenda — Implementation Strategic, Science, Monitoring and Adaptive Management Analysis and Activities	Puget Sound Partnership	\$1,188,000

7. PUBLICATIONS

Authors affiliated with CUW are in bold.

1. **Francis TB** and Lowry, D (eds). 2018. Assessment and Management of Pacific Herring in the Salish Sea: Conserving and Recovering a Culturally Significant and Ecologically Critical Component of the Food Web. The Salish Sea Pacific Herring Assessment and Management Strategy Team. The SeaDoc Society, Orcas Island, WA. 74 pp.
2. **Peter KT, Tian ZY, Wu C, Lin P, White S, Du BW**, McIntyre JK, Scholz NL, **Kolodziej EP**. 2018. Using High-Resolution Mass Spectrometry to Identify Organic Contaminants Linked to Urban Stormwater Mortality Syndrome in Coho Salmon. *Environmental Science and Technology*. 52(18): 10317-10327.
3. Ljungstrom G, **Francis TB**, Mangel M, Jorgensen C. 2019. Parent-offspring conflict over reproductive timing: Ecological dynamics far away and at other times may explain spawning variability in Pacific herring. *ICES Journal of Marine Science*. 76(2): 559-572.
4. MacCall AD, **Francis TB**, Punt AE, Siple MC, Armitage DR, Cleary JS, Dressel SC, Jones RR, Kitka H, Lee LC, Levin PS, Mclsaac J, Okamoto DK, Poe M, Reifentstahl S, Schmidt JO, Shelton AO, Silver JJ, Thornton TF, Voss R, Woodruff J. 2019. A heuristic model of socially learned migration behaviour exhibits distinctive spatial and reproductive dynamics. *ICES Journal of Marine Science*. 76(2): 598-608.
5. **Francis TB**, Levin PS, Punt AE, Kaplan IC, Varney A, Norman K. 2018. Linking knowledge to action in ocean ecosystem management: the Ocean Modeling Forum. *Elementa: Science of the Anthropocene*. 6: 83.
6. Punt AE, Okamoto DK, MacCall AD, Shelton AO, Armitage DR, Cleary JS, Davies IP, Dressel SC, **Francis TB**, Levin PS, Jones RR, Kitka H, Lee LC, Mclsaac JA, Poe MR, Reifentstahl S, Silver JJ, Schmidt JO, Thornton TF, Voss R, Woodruff J. 2018. When are estimates of spawning stock biomass for small pelagic fishes improved by taking spatial structure into account? *Fisheries Research*. 206: 65-78.
7. Voss R, Quaas MF, Schmidt JO, Stoeven MT, **Francis TB**, Levin PS, Armitage DR, Cleary JS, Jones RR, Lee LC, Okamoto DK, Silver JJ, Thornton TF, Dressel SC, MacCall AD, Punt AE. 2018. Quantifying the benefits of spatial fisheries management – An ecological-economic optimization approach. *Ecological Modelling*. 385: 165-172.
8. Hastings A, Abbott KC, Cuddington K, **Francis TB**, Gellner G, Lai YC, Morozov A, Petrovskii S, Scranton K, Zeeman ML. 2018. Transient phenomena in ecology. *Science*. 361(6406): 990.
9. Ishida Y, Gugala NA, **Georgiadis NJ**, Roca AL. 2018. Evolutionary and demographic processes shaping geographic patterns of genetic diversity in a keystone species, the African forest elephant (*Loxodonta cyclotis*). *Ecology and Evolution*. 8(10): 4919-4931.
10. Ng'weno CC, Buskirk SW, **Georgiadis NJ**, Gituku BC, Kibungei AK, Porensky LM, Rubenstein DI, Goheen JR. 2019. Apparent competition, lion predation, and managed livestock grazing: Can conservation value be enhanced? *Frontiers in Ecology and Evolution*. 7: 123.
11. Kaya D, Sowers KR, Demirtepe H, Stiell B, **Baker JE**, Imamoglu I, Kjellerup BV. 2019. Assessment of PCB contamination, the potential for in situ microbial dechlorination and natural attenuation in an urban watershed at the East Coast of the United States. *Science of the Total Environment*. 683: 154-165.
12. Donohue MJ, **Masura J**, Gelatt T, Ream R, Baker JD, **Faulhaber K**, Lerner DT. 2019. Evaluating exposure of northern fur seals, *Callorhinus ursinus*, to microplastic pollution through fecal analysis. *Marine Pollution Bulletin*. 138: 213-221.

13. Kenyon PT, **Zhao H**, Yang X, **Wu C**, Cwiertny DM, **Kolodziej EP**. 2019. Detection and quantification of metastable photoproducts of trenbolone and altrenogest using liquid chromatography–tandem mass spectrometry. *Journal of Chromatography A*. 1603: 150-159.
14. Han P, Yu Y, Zhou L, **Tian Z**, Li Z, Hou L, Liu M, Wu Q, Wagner M, Men Y. 2019. Specific Micropollutant Biotransformation Pattern by the Comammox Bacterium *Nitrospira inopinata*. *Environmental Science and Technology*. 53 (15), 8695-8705.
15. **Peter KT**, Herzog S, **Tian ZY**, **Wu C**, McCray JE, Lynch K, & **Kolodziej EP**. 2019. Evaluating emerging organic contaminant removal in an engineered hyporheic zone using high resolution mass spectrometry. *Water Research*. 150: 140-152.
16. Barboza, L., J. Frias, A. Booth, L. Vierira, **J. Masura**, J. Baker, G. Foster, L. Guilhermino. 2019. Microplastics Pollution in the Marine Environment *in* Sheppard, C. (ed.) *World Seas: An Environmental Evaluation*, vol III: Ecological Issues and Environmental Impacts. London: Elsevier, p. 329-352.
17. Zhao K, Ishida Y, Green CE, Davidson AG, Sitam FAT, Donnelly CL, de Flamingh A, Perrin-Stowe TIN, Bourgeois S, Brandt AL, Mundis SJ, van Aarde RJ, Greenberg JA, Malhi RS, **Georgiadis NJ**, McEwing R and AL Rocaš. Loxodonta Localizer: a software tool for inferring the provenance of African elephants and their ivory using mitochondrial DNA. *Journal of Heredity*, in press.
18. **Roberts, T., A. Kinney**, M. Johnson, L. Fore, E. Trujillo, D. Bilhimer, and B. Rau. 2018. Marine Water Quality Implementation Strategy Starter Package. Prepared by Puget Sound Institute and Puget Sound Partnership for the Department of Ecology.
19. West, J., **C.A. James, A. Kinney**, E. Trujillo, L. Bentley, **J. Elliott, T. Francis, N. Georgiadis**, and **T. Roberts**. 2018. Starter Package for the Toxics in Fish Implementation Strategy. Prepared by Washington Department of Fish and Wildlife, Puget Sound Institute, Puget Sound Partnership, and Washington Department of Commerce for the Stormwater Strategic Initiative.
20. **Kinney, A.** 2018. Base Program Analysis for the Shoreline Armoring Vital Sign (Appendix IIc of the Shoreline Armoring Implementation Strategy). Prepared by Puget Sound Institute for the Habitat Strategic Initiative.
21. **Kinney, A., A. Sweetser**, and **T. Francis**. 2019. Analysis of 2016-2019 Regulatory Investments: A Review of Puget Sound Marine and Nearshore Grant Program Results, Addendum to the Part 1 Report.
22. **Kinney, A., A. Sweetser**, and **T. Francis**. 2019. Analysis of 2016-2019 Invasive Species and Oil Spill Investments: A Review of Puget Sound Marine and Nearshore Grant Program Results, Addendum to the Part 2 Report.
23. **Kinney, A., A. Sweetser**, and **T. Francis**. 2019. Analysis of 2016-2019 Capital Investments: A Review of Puget Sound Marine and Nearshore Grant Program Results, Addendum to the Part 3 Report.
24. **Kinney, A.** and **T. Francis**. 2019. Analysis of 2016-2019 Shoreline Armoring Investments: A Review of Puget Sound Marine and Nearshore Grant Program Results, Part 4. Puget Sound Institute. Tacoma, WA.

8. DIRECTOR'S ACCOMPLISHMENTS & GOALS

FISCAL YEAR 2019 ACCOMPLISHMENTS

Representing CUW in the community. Dr. Baker continues to serve as a point person for the Center for Urban Waters programs in the local and regional communities. Engagement ranges from media interviews to responding to information requests from elected officials to public lectures. Working with colleagues from the City of Tacoma and the Puget Sound Partnership, Dr. Baker coordinates frequent visits to our Center.

Leading the development of the successful *Voices Unbound* collaborative community project. Dr. Baker serves on the Dean's Advisory Committee for the University of Washington College of the Environment EarthLab. EarthLab created a donor-sponsored grant program designed specifically to better engage with disenfranchised communities on pressing environmental issues. Dr. Baker brought together a successful team of UW Tacoma faculty from SIAS (Tom Koontz and Chris Schell) and from the School of Nursing and Healthcare Leadership (Robin Evans-Agnew) that created the *Voices Unbound* study. In their initial collaborative effort, this faculty and a cohort of UW Tacoma undergraduate students are currently surveying the environmental perceptions of underrepresented communities (including people experiencing homelessness) in Tacoma.

Representing the Center for Urban Waters on campus. Dr. Baker oversees the fiscal and administrative relationships between Urban Waters, the School of Interdisciplinary Arts and Sciences, and the UW Tacoma administration. A major outcome from these interactions is the continual improvement of research administration and services at UW Tacoma. As the largest research center in Tacoma with a diversity of funding types and sources, Urban Waters provides the testbed to develop and refine structure and best practices for research administration at UW Tacoma.

Leading the UW Puget Sound Institute. Dr. Baker continues to serve as the Director and Principal Investigator of the UW Puget Sound Institute, a ca. \$1.4M/year externally supported program with 7-8 senior research scientists in residence. In this role, Dr. Baker is one of the leaders of the Puget Sound science program, allowing him to play significant roles in setting the strategic direction of the research enterprise in the region.

Reinstituting the Urban Waters Advisory Board. Working with Board Chair Jim Waldo, Dr. Baker recruited an influx of new members to the Advisory Board and assisted with their strategic planning exercise. The Board has balanced representation among public entities, tribes, and the private sector, and they have set an aggressive course for the organization as it enters its second decade.

FISCAL YEAR 2020 GOALS

Enhancing financial security. The UW Tacoma program at the Center for Urban Waters needs to diversify our funding base and clientele to provide greater financial security. While all academic research centers rely on a subsidy from their home institutions, Urban Waters needs to continue growing external revenue streams to lessen the reliance on these funds. Increased extramural research support at Urban Waters has resulted in substantially more indirect cost recovery and direct rent payments over the past several years, buffering somewhat the budget issues UW Tacoma experienced in 2019. Continuing such revenue increases may not be possible without recruiting additional Principal Investigators to the UW Tacoma group at Urban Waters.

Urban Waters should substantially improve our fund-raising efforts through encouraging individual donors and foundations. In FY2019 less than \$10K was donated to Urban Waters through only two sources (an endowed gift managed by the Greater Tacoma Community Foundation and an individual donation), neither of which resulted from active recruitment and solicitation by Dr. Baker or the UW Tacoma Advancement office. We will write a realistic development plan with the goal of increasing private fund-raising to \$50K in FY20.

Expanding PSI as the regional Puget Sound water quality science center. A significant opportunity exists to solidify and expand Urban Water's role as a leading water quality research and application program in the region. Building on the experience gained through the UW Puget Sound Institute as the science-policy 'boundary organization', we plan to build a coalition of regional water and wastewater utilities, NGOs and regional governments focused on science-based management of Puget Sound water quality. This expanded PSI will build in-house technical capacity, expand collaborative opportunities for UW Tacoma faculty and students, and raise the national stature of the Center for Urban Waters.

Implementing the Board's strategic plan. The Urban Waters advisory board has created an ambitious strategic plan designed to position the Center as a key regional resource serving communities by addressing the most critical water issues. Working with staff and partners, Dr. Baker will ensure that this plan is implemented by keying our quarterly Board meetings to specific goals within the plan.

Recruiting additional Principal Investigators. The UW Tacoma program at Urban Waters is very productive for its size. Further growth and stability require adding Principal Investigators who increase the breadth of our research expertise, resulting in more opportunities for high impact interdisciplinary research that is competitive for funding. A significant chicken and egg problem exists, and Dr. Baker will work with UW Tacoma leadership to identify opportunities to add faculty who both meet the on-campus needs and bring colleagues to Urban Waters. Growth of Environmental Science through the proposed M.S. program and the initiation of Civil Engineering at UW Tacoma should provide such opportunities.

Publishing science synthesis papers. While substantial progress has been made growing productive research programs at the Center for Urban Waters, we have not taken advantages of these to write 'bigger picture' synthesis manuscripts for publication. In particular, papers that describe the best practices emerging from PSI related to informing environmental policy with science should be written. Dr. Baker plans to spend at least two solid months in 2020 dedicated to creating two papers for publication.

9. APPENDIX

URBAN WATERS ADVISORY BOARD ROSTER



Constance T. Bacon

Connie Bacon served on the Port of Tacoma Commission from 1998 through 2017. She also served on the Board of Directors for the Asia Pacific Cultural Center, Fuzhou Advisory Committee, Water Partners of Tacoma Board, the City of Tacoma's Mayor's Commission on International Relations, and the Port of Tacoma Endowed Chair at the University of Washington Tacoma. She served two terms on the Washington Economic Development Commission. Bacon also served as Vice Chair of the Port of Tacoma Audit Committee. She is a Senior Fellow of the American Leadership Forum. Bacon is a former Executive Director of the World Trade Center Tacoma and served eight years as special assistant to former Washington Gov. Booth Gardner.

She is a graduate of Syracuse University and earned a Master's Degree from The Evergreen State College.



Joel E. Baker PhD (*ex-officio*)

Professor Joel Baker holds the Port of Tacoma Chair in Environmental Science at the University of Washington Tacoma. He is the Science Director of the Center for Urban Waters and the Director the UW Puget Sound Institute.

After earning degrees in Environmental Chemistry (B.S., SUNY Syracuse, 1982) and Civil and Environmental Engineering (University of Minnesota, M.S., 1985 and Ph.D., 1988), he joined the faculty of the University of Maryland, where he was promoted to Professor in 1999. Dr. Baker moved to UW Tacoma in 2008 to assist establishing the Center for Urban Waters. Dr. Baker's research centers about the behavior of organic contaminants in the environment, specifically atmospheric transport and deposition, the dynamics of contaminant transport in estuaries, and modeling the exposure and transfer of bioaccumulative chemicals in aquatic food webs. He teaches courses in water quality modeling and environmental chemistry, has co-authored over one hundred papers on contaminant cycling in the Great Lakes, the Chesapeake Bay and Puget Sound, was the inaugural chair of the Puget Sound Partnership Science Panel and in 2010 received the Conservation Research Award from the Seattle Aquarium Society.



Anne Clark Bartlett PhD (*ex-officio*)

Anne Clark Bartlett is Dean of the School of Interdisciplinary Arts and Sciences at UWT and Professor of English. She came to UW Tacoma in 2016 from DePaul University, where she published widely on literature by and for medieval women, attaining the rank of Professor in 2004. Dr. Bartlett served as a graduate program director, department chair, elected President of the University Faculty Council, and Special Assistant to the Provost, where she launched a university-wide initiative, "Innovation through Collaboration." She was named an American Council on Education Fellow in 2011-2012 and was placed at Portland State University. She remains active

on the ACE Council of Fellows Advisory Board as well as in organizations such as the Council of Colleges of Arts and Sciences (CCAS) and the American Association of Colleges and Universities (AAC&U).

As Dean of the School of Interdisciplinary Arts and Sciences, Dr. Bartlett supports the activities of c. 140 faculty and c. 25 staff in five multidisciplinary Divisions in SIAS, along with the Center for Urban Waters, home to environmental research and policy initiatives that foster sustainable solutions to restore and protect the Puget Sound. In support of UW Tacoma's urban-serving mission, Dean Bartlett is working with Hilltop Artists and the Museum of Glass to establish a university pipeline for glass arts students; with the Tacoma legal community to develop robust pre-Law programming, and with the Broadway Center for the Performing Arts to provide opportunities for students and the community to engage with cutting-edge theater. Dean Bartlett has also supported faculty and staff participation in the Op-Ed Project and Digital Storytelling Workshops in support of UWT's mission of publicly-engaged scholarship.



Bonnie J. Becker PhD (*ex-officio*)

Bonnie Becker is an Associate Professor of Marine Ecology and Assistant Chancellor for Strategy and Assessment at University of Washington Tacoma. She received her AB degree in Biology from Harvard University (1995) and her Doctorate in Biological Oceanography from the Scripps Institution of Oceanography in San Diego (2005). Prior to coming to Tacoma in 2006, she worked for eight years as a marine biologist for the National Park Service in San Diego, managing a long-term ecological monitoring program as part of a multi-agency network. Her research focuses on marine conservation, with a focus on shellfish larval ecology as well as habitat monitoring and restoration. She has worked with well over sixty undergraduate research students in her laboratory, and has expertise in the design and assessment of high impact educational practices.

From 2013-2016, Becker served as the Associate Dean of Academic Initiatives in the School of Interdisciplinary Arts and Sciences and has led or co-led a number of campus-wide initiatives. In 2015-16, she co-chaired the Strategic Planning Steering Committee for UW Tacoma that resulted in the current five-year plan, *Charting our Course*. In her current role, she supports the implementation of the strategic plan, and cultivates a culture of evidence-based planning and decision-making at the University, including overseeing the Office of Institutional Research. Her current service includes serving on the Board of the Point Defiance Zoo Society, the Policy and Technical Committee of Citizens for a Healthy Bay, and as local chair for the Western Society of Naturalists.



Kurt Beckett

Kurt Beckett is the deputy CEO of The Northwest Seaport Alliance. He oversees the organization's internal operations, including port operational efficiencies, port infrastructure development, public affairs, finance and administration, human resources and legal.

Prior to joining the NWSA, Beckett served two years as deputy CEO of the Port of Seattle with management duties including capital development, police, public affairs and the office

of social responsibility. He joined the Port of Seattle in November 2007 as the external affairs director and in 2010 was promoted to chief of staff.

As chief of staff, he led successful efforts to strengthen organizational performance and managed strategic issues and port-wide initiatives for the CEO and executive team. As external affairs director, he oversaw public affairs, government relations, tourism and regional transportation, as well as worked closely with the port's five elected commissioners.

Prior to joining the port, Beckett served as chief of staff for Sen. Maria Cantwell from 2004 to 2007, and as her deputy chief of staff from 2001 to 2004. From 1991 to 2000, he worked for Rep. Norm Dicks, including serving as district director for all 6th District operations.

Beckett has served on a number of policy committees and panels in Washington state, King County and the Puget Sound region. His successful track record with issues management crosses a broad range of industries, including international trade, aerospace and maritime, natural resources, economic development and clean energy.

He has a master of business administration and bachelor's degree in political science from the University of Washington.



Dan Cheney, PhD

Dan Cheney is a Senior Scientist emeritus at the Pacific Shellfish Institute (PSI) where he also served as Executive Director from 1995 to 2009. He specializes in aquaculture production systems, water quality analysis, aquatic ecosystem analyses and coastal resource management and inventories.

Dan is the principal investigator for on-going federally and state funded applied research studies to examine the application and environmental interactions of shellfish production practices, develop methods to control and monitor bacterial contamination and reduce the public health risk of raw shellfish.

Dan is also owner of BioAquatics International LLC (BAI) and continues to support this company's coastal permitting; economic, environmental and biological assessment and natural resources practice. Dan's consulting work has involved field and laboratory studies, including diving and video surveys, investigative reviews and analyses, and descriptive reporting for clients in Washington State, and elsewhere in the U.S. and Canada, the tropical Pacific and the Middle-East. Clients include private industry, public agencies and universities, and legal representatives.

Dan earned his B.S. and Ph.D. in Fisheries from the University of Washington and his M.S. in Zoology from the University of Hawaii.



Rajendra Katti, PhD (*ex-officio*)

Raj Katti is currently the Dean and Professor in the Institute of Technology, University of Washington Tacoma. He was the chairman of the Electrical and Computer Engineering Department at North Dakota State University (NDSU) from 2011-13. He spent 23 years as a faculty member in the Electrical and Computer Engineering Department at North Dakota State University, where he was responsible for starting the BS Computer Engineering Program in the 90s. He was a senior design engineer at the Intel Corporation in 2000 and 2001 where he worked in the Design for Testability Group. At UW Tacoma, Raj has obtained ABET accreditation for three undergraduate programs, has started the BSEE program, and obtained school status for the Institute.

Raj holds a bachelor's degree in Mechanical Engineering from the Indian Institute of Technology (Bombay), India, an MS degree in Mechanical Engineering from the University of Idaho, and MS and PhD degrees in Electrical Engineering from Washington State University. His interests are in cryptographic hardware, finite field arithmetic, fault tolerant computing, and computer architecture. He has published over 70 journal and conference papers on these topics. He has received research funding from the National Science Foundation in the areas of performance modeling of computer architectures and cryptography. He has also received research funding from the Intel Corporation, John Deere and the Department of Defense. He has collaborated with the IBM Almaden Research Center on the development of unidirectional error correcting codes.



Bruce Martin

Bruce currently works as the Energy Resource Manager for WestRock Tacoma, having spent his career in Energy and Environmental Management. He describes his work as being at the crossroads of environmental performance and sustainable energy management. "I enjoy the variety, to learn and be engaged in all there is to know regarding energy and environmental opportunities. Every day I get to be involved in new issues that will shape the future of our region."

A Tacoma native, Bruce attended Wilson High School and studied Chemical Engineering and Pulp and Paper Science at the University of Washington. He's worked in the Wood Products, Environmental Consulting, and Power industries his entire career.

Early in his career, during work for an environmental consulting firm in Portland he served multiple terms as Chairman of the Air and Waste Management Association's Oregon Chapter, while also attending two years of law school in the evenings.

In time Bruce returned to the pulp and paper industry, working for various Northwest companies as Energy or Environmental Manager, while also serving on the Boards for various regional manufacturing trade groups, – the Northwest Pulp and Paper Association, Northwest Industrial Gas Users Association, Industrial Customers of Northwest Utilities, Energy Action Northwest, and the Alliance of Western Energy Consumers. Most recently Bruce has been an active member on the Integrated Resource Planning stake holder committees for both the Power and Water divisions of Tacoma Public Utilities.



Conor McCarthy

Council Member Conor McCarthy is a dedicated private attorney, devoted husband and father of two small children, and committed public servant. He formerly worked in the trenches with City and Tacoma Public Utilities staff for over seven years, first as an attorney and then as a manager. His combination of private sector and municipal government experience, along with his passion for community service, makes him uniquely qualified to be an effective City council member. He is proud to serve the City as the Deputy Mayor and an at-large council member, recognizing the tremendous value and unique contributions from all of our different neighborhoods, business districts and residents.

Born and raised in Tacoma, Council Member McCarthy is a Lowell Leopard, Jason Lee Bobcat and Stadium Tiger. He is proud of our City and dedicated to making Tacoma even better. While he loves our City, he recognizes that Tacoma continues to face significant challenges which we must work tirelessly to overcome. To that end, he is focused on fixing our road infrastructure, increasing job growth, helping local businesses thrive, improving public safety, supporting schools and students, and protecting the most vulnerable in our community.

Council Member McCarthy believes that good City government and exceptional public service can make a positive impact on the quality of life and opportunities for everyone in Tacoma. He is dedicated to working diligently to ensure that our entire community thrives.



John McCarthy

John McCarthy is a Commissioner of the Port of Tacoma. A former Pierce County District and Superior Court judge for more than 22 years, he recently retired from the bench. He worked as a longshoreman for 10 years and served previously on the Port of Tacoma Commission from 1983 to 1992.

McCarthy has been a member of the Washington State Bar Association since 1975 and volunteers at Mount Rainier National Park. He is an honorary life member of the Washington Public Ports Association. He also serves on the Pierce County Regional Council and as the Port of Tacoma's Tribal Liaison. He was the first member of the Boys and Girls Club of South Puget Sound's to be selected to their Alumni Hall of Fame, and he continues to officiate high school football.

He earned a bachelor's degree in Science with a minor in Mathematics from Seattle University and a law degree from the University of San Francisco.



Linda McCrea

Linda McCrea was appointed Director of Utilities in December 2017 to serve during the selection period of a new director. She is Tacoma Public Utilities' first female director. McCrea retired from Tacoma Public Utilities in March 2017 after a notable 37-year career with Tacoma Water, where she had been Superintendent since 2010.

Linda started her career with Tacoma Public Utilities in 1980 after graduating from the University of Washington with a Bachelor of Science in Civil Engineering. Over the next 13 years, she advanced through engineering positions in Tacoma Water's distribution section, and in 1993 she was appointed water distribution manager. Her accomplishments include establishing preventive maintenance programs and renewal and replacement programs for the distribution system, along with successful acquisition of multiple small water systems into the Tacoma system. She was an early proponent of addressing aging infrastructure issues through asset management, benchmarking and coordination of infrastructure projects to minimize costs and community disruptions. She has been active and impactful in several water industry organizations, including chairing the Washington Water Utility Council; active in the Pacific Northwest Section of American Water Works Association, a member of the national American Water Works Association, Water Utility Council, and as co-chair of the Utility Management Committee for Association of Metropolitan Water Agencies.



Jim Parvey, P.E., LEED AP

Jim Parvey has 32 years of experience in civil and environmental engineering. He holds a bachelor's in civil engineering from the University of Washington. He is a licensed professional engineer in the State of Washington and an accredited professional with the United States Green Building Council's Leadership in Energy and Environmental Design program. Jim has worked with

the state, community groups, and others to develop rehabilitation programs and secure funding for the Murray Morgan and Hylebos moveable bridges. He has worked for both public and private enterprise. His project experience includes the Center for Urban Waters, the Cheney Stadium Renovation, the Hylebos Bridge Rehabilitation, the Murray Morgan Bridge Rehabilitation, and Broadway Local Improvement District.

At the City of Tacoma he manages the Office of Environmental Policy and Sustainability where he works on improving the city's overall environmental performance and livability.



Catherine Rudolph

Catherine Rudolph serves as the Strategic Advisor for Economic Development to Pierce County Executive Bruce Dammeier. Her previous experience includes Government Affairs Director for the Tacoma Pierce County Association of Realtors, Executive Director of the Australia New Zealand American Society in Seattle, and a variety of marketing and research positions with technology firms. She holds a B.A.

from St. Martin's University and a Certificate in Executive Leadership from the Johnson Graduate School of Management at Cornell University.

She has served on the boards of Northwest Sinfonietta, Asia Pacific Cultural Center, and Tacoma Architectural Foundation.



Derek Sandison

Derek I. Sandison was appointed director of the Washington State Department of Agriculture by Gov. Jay Inslee in June 2015.

As state agriculture director, Sandison supports and promotes Washington’s rich and diverse agricultural industry both nationally and internationally. He currently serves as chair of the National Association of State Departments of Agriculture’s Marketing and International Trade Committee.

Sandison, a lifelong Washington resident, has worked in both the public and private sectors for more than 40 years. Before his current appointment, Sandison served as director of the Office of Columbia River within the state Department of Ecology. There, he was responsible for developing water supplies vital for the state’s agricultural community.

He has received many awards throughout his career, including the U.S. Bureau of Reclamation’s John W. Keys III Award for building partnerships and strengthening relationships and the Washington State Water Resources Association’s Water Resources Leadership Award.

Sandison has a master’s of science in natural resource management and a bachelor’s degree in biological science, both from Central Washington University.



Kate Snider, PE

Kate Snider is Co-founder and Principal of Floyd | Snider, a Seattle-based multi-disciplinary engineering and environmental consulting firm with B-Corp certification. Kate is a professional civil engineer with over 26 years of experience in site engineering and site cleanup. Kate’s strengths and reputation are in management of complex project teams, agency negotiations, multi-party facilitation and strategy development for cost-effective remedial design coupled with design for future redevelopment and aquatic habitat restoration. She is also a certified mediator and has significant skills in facilitating diverse or multi-jurisdictional teams to reach solutions optimizing group objectives.

Kate has been one of the leaders in developing and implementing area-wide solutions to contaminated site management, both in upland and aquatic environments, including decades of work on the Thea Foss Waterway. Many of Kate’s engagements involve the facilitation and management of complex environmental, policy and organizational issues for multi-party groups. Kate provided project management and facilitation assistance to the executive teams of Ports of Tacoma and Seattle in formation of The Northwest Seaport Alliance.

Kate's work addresses Puget Sound water quality through industrial stormwater management, sediment source control and policy development. Kate has facilitated multiple multi-party work groups associated with Washington State Department of Ecology regulatory policy development for stormwater permitting and low impact development requirements.

Kate holds an undergraduate degree in Civil Engineering and a graduate degree in Landscape Architecture from Cornell University. She is a registered Professional Engineer in Washington and Oregon. Kate also serves as Board President at the Whidbey Institute, a 108-acre home for transformative learning on south Whidbey Island.



James Waldo, Board Chair

Jim is a Partner at Gordon Thomas Honeywell (GTH). He joined GTH as a Partner in 1980, after working for the U.S. Department of Labor and the U.S. Attorney's Office. He focuses his practice on complex negotiations, project permitting and implementation, representation of public and private entities in multi-party negotiations, with an emphasis on environmental issues including natural resources, energy and tribal law. He earned his law degree from Willamette University School of Law and his bachelor's degree from Whitman College.

His commitment to the environment extends to his life outside the office. In addition to serving on the board of directors of Urban Waters, he is a member of Ruckelshaus Center for Public Policy. He also serves on the Advisory Board of the University of Washington Tacoma.

DRAFT STRATEGIC PLAN

2019 – 2024

ORGANIZATION DESCRIPTION

The Center for Urban Waters, established in 2010, brings together environmental scientists, analysts, engineers and policymakers who are developing creative and sustainable solutions to restore and protect Puget Sound. The founding partners – the City of Tacoma, the University of Washington Tacoma and the Puget Sound Partnership – are committed to providing a collaborative environment where the best-available science forms the basis for policy development and implementation. The Center for Urban Waters is the result of years of work by community leaders who dreamed of a world-class research center on Commencement Bay dedicated to finding solutions for urban bay communities.

At the Center for Urban Waters, University of Washington Tacoma research scientists seek to understand and quantify the sources, pathways, and impacts of chemical pollutants in urban waterways. Our lab uses highly sensitive analytical tools to measure contaminant levels in water, sediment, and other environmental samples. The resulting data can be combined with sophisticated computer models to track pollutant sources and transport in the Puget Sound region.

UW students work side-by-side with Urban Waters colleagues, contributing to research teams while gaining valuable training and experience. One of our main programs is the Puget Sound Institute, which was formed through a cooperative agreement between the EPA, the Puget Sound Partnership and UW Tacoma. Members of the Puget Sound Institute work to catalyze the collective actions of scientists, engineers and policymakers to restore and protect the Puget Sound ecosystem by synthesizing and integrating research findings into timely foundations for informed decisions.

MISSION

UW Tacoma at the Center for Urban Waters is a highly collaborative university-led applied science research center dedicated to finding globally-applicable solutions to urban water quality problems in the Pacific Northwest.

THE CORE OF URBAN WATERS

- Creating sustainable, efficient and equitable water quality systems that support vibrant coastal communities while protecting the environment.
- Enhancing collective conversations and decision making by providing timely, credible, and actionable scientific information to coastal communities.
- Training students to solve practical real-world problems and to design sustainable city infrastructure and systems.

VISION

We strive to be:

- Accessible and responsive to our local community while understanding global applications of our work.
- Always seeking opportunities to identify and solve emerging water issues in coastal cities.
- Respected and recognized for the quality and impact of our work.
- Valued for our leadership and distinct contributions to complex environmental investigations

This vision will be supported by:

- Dynamic interdisciplinary research groups led by accomplished senior university scientists.
- Tangible enthusiasm and support from community leaders.
- Strong ties with UW students, faculty, and their academic and research programs.
- A deliberate and thoughtful community engagement enterprise supported by dedicated resources.
- A diverse and stable funding portfolio that includes dedicated resources to seed new research lines and to reinvest in research infrastructure.
- A clear and efficient university administrative support structure.

GOALS AND STRATEGIES

GOAL #1: Strengthen our identity and messaging so we can communicate more effectively.

Objectives:

- Partners and community members have a clear understanding of our department, how we fit in at the Center for Urban Waters, and what we do.
- All CUW staff and partners share consistent messaging around UWT@CUW.
- Our website and marketing materials communicate a clear and consistent message about who we are and what we do.

Potential strategies:

- Update CUW, City of Tacoma, UWT, and PSP materials (web sites, etc.) with clear and consistent Urban Waters branding.
- Host high visibility public events at Urban Waters to bring community members to our facility to grow their knowledge and networks, while engaging with currently relevant topics.
- Organize and host speaker/discussion series that demonstrates how Urban Waters synthesizes science in ways that address community issues.
- Increase article/editorial placements.

GOAL #2: Develop and strengthen collaborations with new and existing partners.

Objectives:

- We have built-in engagement points with partners where we can identify opportunities for collaboration.
- We understand the information and research needs of our partners.
- We can easily work with partners to create joint projects and share data.
- Organizations are excited to work with UWT@CUW and form new partnerships.

Potential strategies:

- Identify opportunities to engage with Puget Sound municipal/county/tribal water quality programs. Explore regional water quality authority models elsewhere to identify potential benefits here.
- Establish a distinct role for Urban waters and strengthen collaboration with local, state, and federal environmental laboratories.
- Co-sponsor technical/policy workshops with partner organizations, e.g.,
 - Application of molecular biology to shellfish aquaculture operations with Pacific Shellfish Institute, Washington Sea Grant, and biotech and shellfish industries.
 - Supplying potable water immediately after natural disasters with TPU, FEMA, DoD, other utilities and drinking water equipment manufacturers.
 - Infrastructure needs for renewable liquid fuels in port with Northwest Seaport Alliance, Port of Tacoma, PNNL, marine fuels industry, and UW Clean Energy Institute.
 - Reducing environmental and economic costs through 'trading', 'banking', facility co-location and waste stream 'sharing' with local industries, utilities, and regulators.
 - Greening highway infrastructure with WA Dept of Transportation, Federal Highway Administration, stormwater engineers, designers, and contractors.

GOAL #3: Expand opportunities for education and job training for university students.

Objectives:

- UWT@CUW has engaging research opportunities for students from UW Tacoma and other institutions.
- Students know how to learn about research opportunities at UWT@CUW and where to apply for them.
- Staff and faculty at UWT and other institutions are aware of our programs and encourage their students to participate.
- Our research opportunities prepare students for future jobs with local South Sound employers.
- Employers know the value of job applicants having experience at the UWT@CUW labs.

Potential strategies:

- Form a partnership with Tacoma STEAM/Graduate Tacoma to expose 8-12 grade students to careers in Urban Waters fields.
- Reconnect with the Math-Science-Leadership Program.
- Align Urban Waters with developing engineering degree programs at UW Tacoma.
- Form partnerships with Bates Technical College (Civil Engineering Technology program)

GOAL #4: Increase the breadth and depth of the research enterprise.

Objectives:

- UWT@CUW is a lively and collaborative work space where PIs from various fields work together to address issues that align with the core mission of Urban Waters.

Potential strategies:

- Create fellowships to support visiting senior scientists
- Create scholarships for UW engineering students
- Explore joint faculty appointments with UW departments and local/regional agencies
- Partner with local universities and colleges to co-locate research at Urban Waters
- Recruit senior federal scientists
- Explore options to reconfigure for more research lab space