WELCOME TO THE PENN STATE SPRING WATER FACULTY MEETING

Your Home Office
11 May, 2020

“ANYONE WHO CAN SOLVE THE PROBLEMS OF WATER WILL BE WORTHY OF TWO NOBEL PRIZES - ONE FOR PEACE AND ONE FOR SCIENCE.”

President John F. Kennedy
MEETING AGENDA

I. WELCOME [2:00-2:05PM; PLENARY]

II. UPDATE: PENN STATE WATER [2:05-2:50PM; PLENARY]

III. CONNECTING FOR INTERDISCIPLINARY WATER RESEARCH, EDUCATION, AND EXTENSION
[2:50-3:45PM]
  LIGHTNING TALKS [2:50-3:05PM; PLENARY]
  BREAKOUT SESSION [3:05-3:45PM; BREAKOUTS] – FACILITATED SMALL GROUPS

IV. REPORT-OUTS & NEXT STEPS [3:45-4:00PM; PLENARY]
MEETING SCOPE & OBJECTIVES

• UPDATE PENN STATE’S WATER FACULTY ON THE PLANS AND ACTIVITIES OF THE WATER COUNCIL AND WATER INITIATIVE DIRECTOR.

• TAKE COMMENTS AND INPUT ON THESE PLANS.

• RECRUIT FACULTY (AND STUDENTS) WHO WANT TO HELP.

• BUILD COMMUNITY AMONG PENN STATE WATER FACULTY.

• EXPLORE POTENTIAL RESEARCH COLLABORATIONS WITH COLLEAGUES.
BRIEF HISTORY

• DECADES OF GREAT RESEARCH, EDUCATION AND OUTREACH IN WATER RESOURCES RELATED SCIENCE AND ENGINEERING, SCATTERED ACROSS MANY COLLEGES AND CAMPUSES.

• DESIRE TO BRING THIS DISTRIBUTED EXCELLENCE TOGETHER TO MAKE THE WHOLE GREATER THAN THE SUM OF ITS PARTS, AS WATER EMERGES AS A KEY NATURAL RESOURCE CHALLENGE FOR THE COMING DECADES.

• LOTS OF PLANNING AND EFFORT. MANY THANKS DUE.

ROLES

• All the great work on research, education and outreach: **Water Faculty and Students (you).**

• Vision*, implementation of vision, links to real-world, transdisciplinary water challenges: **Water Initiative Director.**

• Vision*, guidance for the Director, links to faculty, students and programs, assistance with implementation: **Water Council.**

* Make the whole greater than the sum of its parts
PENN STATE WATER

SCIENCE
AGRICULTURE
ENVIRONMENT
ENGINEERING
CLIMATE
COMMUNITY ENGAGEMENT
POLICY
GLACIERS AND ICE
EXTENSION
WASTEWATER
WATER-ENERGY-FOOD
OCEANS AND REEFS
SUSTAINABILITY
ATMOSPHERIC SCIENCES
ECONOMICS
RISK REDUCTION & RESILIENCE
RECREATION AND TOURISM
STORMWATER
PUBLIC HEALTH
LIVING LAB
HISTORY
WATER SECURITY
SMART WATER TECHNOLOGIES
ART
LAW
ETHICS
MATERIAL SCIENCES
PENN STATE WATER CONSORTIUM

THE PURPOSE OF THE PENN STATE WATER CONSORTIUM IS TO COORDINATE AND ENHANCE INTERDISCIPLINARY RESEARCH, EDUCATION, AND SERVICE AND CATALYZE DEVELOPMENT AND DEMONSTRATION OF LASTING SOLUTIONS TO THE WORLD’S MOST PRESSING WATER CHALLENGES.
Penn State Water Consortium

Four Areas of Emphasis

1) Protecting Public Health and the Environment – Advancing understanding of human and ecological health and ecosystem services, supporting vibrant and sustainable economies, and developing solutions to address both enduring water quality problems and contaminants of emerging concern.

2) Advancing Resilient Communities on a Dynamic Earth – Strengthening understanding of fundamental Earth processes across scales, addressing flood and drought challenges, and developing and demonstrating innovations that enhance resilience to extreme events through actionable climate solutions.

3) Driving Innovation and Technology – Developing and deploying next-gen tools, techniques, and water-related materials and actively using the university as a living lab in the service of meeting the world’s most pressing water challenges.

4) Guiding Social Action, Policy and Corporate Transformation – Strengthening public governance, water ethics, and environmental justice, enhancing water security at individual to national scales, improving private sector performance, and integrating the arts and humanities for improved awareness, understanding, and culturally-appropriate solutions.
PENN STATE WATER CONSORTIUM
TWO FOUNDATIONAL PILLARS

1) **TRANSFORMING WATER EDUCATION AND STUDENT OPPORTUNITIES** – EXPANDING FORMAL (DEGREE) AND EXTRACURRICULAR AVENUES FOR STUDENT EXPOSURE TO INTERDISCIPLINARY AND CROSS-CULTURAL PERSPECTIVES ON WATER TO ENHANCE THEIR PENN STATE EXPERIENCE AND STRENGTHEN THEIR KNOWLEDGE AND NETWORKS FOR AN IMPACTFUL FUTURE.

2) **ENGAGING PEOPLE, COMMUNITIES, AND PARTNER INSTITUTIONS** – SUPPORTING CURRENT AND FUTURE COMMUNITY-BASED WATER INITIATIVES, PROVIDING OUTREACH AND EXTENSION SERVICES, IDENTIFYING AND DEVELOPING PUBLIC, PRIVATE, AND CIVIL SOCIETY PARTNERSHIPS STRATEGIC TO UNIVERSITY WATER PRIORITIES, AND ENHANCING WATER-RELATED COMMUNICATIONS.
TWO-PHASED APPROACH:

• **PHASE 1** – FOCUS ON IMPROVING ENABLING CONDITIONS THAT FOSTER INTERDISCIPLINARY WORK, SUCH AS STRENGTHENING PENN STATE WATER AS A COMMUNITY THAT PERMEATES TRADITIONAL DISCIPLINE-BASED BOUNDARIES

• **PHASE 2** – FOCUS ON DEVELOPING AND ADVANCING STRATEGIC WATER INITIATIVES AND PARTNERSHIPS THAT FURTHER ELEVATE THE UNIVERSITY’S IMPACT AND RECOGNITION AS A CENTER OF EXCELLENCE IN THE WATER ARENA.
PENN STATE WATER CONSORTIUM
GOVERNANCE & NEXT STEPS

✓ UNIVERSITY-WIDE WATER CONSORTIUM
✓ IN LINE WITH THE 2019 GUIDING PRINCIPLES
✓ SELF-SELECTING WATER FACULTY (170+)
✓ ELECTED WATER COUNCIL
✓ WATER CONSORTIUM DIRECTOR
✓ WORK GROUPS, COMMITTEES, ETC FROM THE WATER FACULTY

✓ NEXT STEPS:
  1) BROADER REVIEW OF THE PROPOSAL
  2) REFINE AND SUBMIT TO OSVPR & PROVOST
OVERVIEW

• FOUNDED IN 1964, PA-WRRC IS AUTHORIZED BY CONGRESS AS ONE OF THE NATION'S 54 WATER RESOURCES RESEARCH INSTITUTES COMPRISING THE NATIONAL INSTITUTES OF WATER RESOURCES (NIWR).

• IN ALIGNMENT WITH THE WATER RESOURCES RESEARCH ACT, PA-WRRC FACILITATES RESEARCH, INFORMATION TRANSFER, & TRAINING

OPPORTUNITIES

• MESSAGING FOR LEGISLATORS (CAPITOL HILL VISITS)

• SMALL GRANTS (USGS 104B, USGS 104G)

• INTERNSHIPS & AGENCY PASS THROUGH GRANTS (USGS 104S COORD.)

https://www.pawatercenter.psu.edu/
BUILDING FORWARD

• JUST FUNDED TO PAWRRC (2020-21) IS PSU WATER RESOURCES RESEARCH GRADUATE SCHOLARS PROGRAM, PROVIDING PSU GRAD STUDENTS WITH PROFESSIONAL DEVELOPMENT & NETWORKING OPPORTUNITIES. TO BE OFFERED IN CONJUNCTION WITH WATER CONSORTIUM:
  • GRAD TRAINING WORKSHOP 1: GRAND RESEARCH CHALLENGES, USE OF STATE-OF-THE-ART RESEARCH METHODS AND FACILITIES TO ADDRESS THEM, AND INCLUSIVE MENTORING.
  • GRAD ACTIVITY: ENGAGE WITH A PROFESSIONAL SOCIETY (E.G., AGU, ASCE, AMS) AND PRESENT THEIR RESEARCH.
  • GRAD TRAINING WORKSHOP 2: COMMUNICATION OF WATER RESOURCES RESEARCH TO BROADER AUDIENCES.
OPPORTUNITIES

INSTITUTIONAL MEMBERSHIPS:

• AMERICAN ACADEMY OF UNDERWATER SCIENCES
• CONSORTIUM FOR OCEAN LEADERSHIP
• CONSORTIUM OF UNIVERSITIES FOR ADVANCEMENT OF HYDROLOGIC SCIENCES, INC.
• UNIVERSITY CORPORATION FOR ATMOSPHERIC RESEARCH
• UNIVERSITIES COUNCIL ON WATER RESOURCES
• WORLD UNIVERSITIES NETWORK

https://www.pawatercenter.psu.edu/
TAKING ADVANTAGE OF EXTENSION & OUTREACH PROGRAMS
NO NEED TO REINVENT THE WHEEL
JENNIFER FETTER, PENN STATE EXTENSION – WATER RESOURCES

OVERVIEW

• MANY RESEARCH PROJECTS GENERATE VALUABLE INFORMATION TO SHARE WITH NON-RESIDENT AUDIENCES
• EXTENSION IS THE FORMAL THIRD COMPONENT OF THE LAND GRANT MISSION
• MANY OTHER FORMAL OUTREACH PROGRAMS EXIST AT PSU AS WELL

BUILDING FORWARD

• EXTENSION (AND OTHER EXISTING PROGRAMS) ARE SEEKING RESEARCH-BASED PARTNERS
• MANY FUNDING PROGRAMS REQUIRE A DISSEMINATION, OUTREACH, AND/OR EXTENSION COMPONENT
• LET’S START BUILDING THOSE CONNECTIONS INSTEAD OF INVESTING IN TEMPORARY OR UNNECESSARY NEW PROGRAMS

extension.psu.edu/water
PENN STATE WATER GRADUATE DEGREE PROGRAM

RECOMMENDATIONS FOR A MASTERS AND PHD PROGRAM
FROM THE CROSS-COLLEGE WATER GRADUATE DEGREE COMMITTEE
PENN STATE WATER GRADUATE DEGREE PROGRAM

I. BACKGROUND

II. WATER GRADUATE DEGREE PROGRAM COMMITTEE

III. RECOMMENDED GRADUATE PROGRAM
   a) GENERAL CHARACTERISTICS
   b) COMPONENTS

IV. RELATED ACTIVITIES
BACKGROUND

• CALLS FOR A WATER GRADUATE DEGREE PROGRAM
  o 2013 – INTERNAL WATER TASK FORCE – ESTABLISH AN INTER-DEPARTMENTAL GRADUATE PROGRAM CONNECTING WATER STUDENTS AND FACULTY ACROSS THE UNIVERSITY
  o 2014 – EXTERNAL REVIEW – DEVELOP A JOINT GRADUATE PROGRAM IN WATER SCIENCE
• 2017/2018 – TRACTION, WITH FACULTY FOCUS ACROSS WATER RESOURCES SCIENCE, ENGINEERING, POLICY & MANAGEMENT, LAW, AND LANDSCAPE ARCHITECTURE
• 2018 – WATER COUNCIL ESTABLISHED (FALL)
• 2019 – WATER GRADUATE DEGREE PROGRAM COMMITTEE FORMED
WATER GRADUATE DEGREE PROGRAM COMMITTEE

• FIRST MEETING ON APRIL 2, 2019
• CHARGE TO DESIGN AND STAND-UP INTERDISCIPLINARY PROGRAM
• MEMBERS INCLUDING:
  o FACULTY: COLLEGES AGRICULTURAL SCIENCES, ENGINEERING, EARTH AND MINERAL SCIENCES, ARTS & ARCHITECTURE, INSTITUTES OF ENERGY & ENVIRONMENT
  o GRAD STUDENTS: AG SCIENCES AND ENGR
• TO CONSIDER:
  o CONTENT
  o STRUCTURE: DUAL TITLE & STAND-ALONE INTERCOLLEGE GRADUATE DEGREE PROGRAM (IGDP)
• WORK: COLLECT DIVERSE FACULTY INPUT, BENCHMARKING & RESEARCH, MEETINGS & DISCUSSIONS
• RECOMMENDATION: JANUARY 16, 2020
RECOMMENDED PROGRAM: CHARACTERISTICS

- INTER-COLLEGIATE AND GLOBAL
- INTERDISCIPLINARY
  - E.G., NATURAL SCIENCES, ENGINEERING, SOCIAL SCIENCES AND HUMANITIES
- CREATE A COHORT OF GRADUATE STUDENTS
  - FOUNDED IN A SHARED SET OF COMMON COURSES AND EDUCATIONAL EXPERIENCES
  - CONVERSANT AND CAPABLE OF ENGAGING ACROSS DISCIPLINES & SOCIAL SECTORS
  - EDUCATED TO IMPLEMENT SOLUTIONS TO WATER CHALLENGES WHICH ARE TECHNICALLY SOUND, ECONOMICALLY FEASIBLE, CULTURALLY APPROPRIATE
RECOMMENDED WATER PROGRAM: OVERVIEW

MASTERS AND PHD

• RECOMMENDATION FOR A STAND-ALONE IGDP
  ✓ RECOGNIZE IT COULD WORK AS A DUAL TITLE

• CORE CURRICULUM
  ✓ 9 CREDITS
  ✓ COURSES & SEMINARS
  ✓ BUILD COHORT

• THREE GENERAL CATEGORIES OF STUDY
  ✓ REMAINING CREDITS
  ✓ REQUIREMENTS ACROSS ALL THREE CATEGORIES
RECOMMENDED PROGRAM

CORE CURRICULUM (9 CREDITS)

1) COMMON ENTRY COURSE – TAKEN 1ST SEMESTER, PROVIDES OVERVIEW, BUILDS COHORT (3 CREDITS)
   o GLOBAL WATER ISSUES, WITH TREATMENT OF PA
   o SCIENCE AND MANAGEMENT OF WATER WITHIN SOCIO-ECOLOGICAL-TECHNOLOGICAL SYSTEMS

2) SEMINARS – ONGOING, EXPOSURE TO DIVERSE TOPICS, MAINTAINS COHORT (3 CREDITS TOTAL)
   o THREE SEMINARS, COULD INCLUDE EXISTING (MODIFIED?) AND/OR NEW SEMINARS

3) FINAL COMMON COURSE – TAKEN LAST SEMESTER; OPTIONS CONSIDERED INCLUDE…
   o COMMUNICATING WATER: STRENGTHEN COMMUNICATION SKILLS FOR ENGAGING DIVERSE AUDIENCES
   o WATER PRACTICUM: COMMUNITY-BASED, INTER-DISCIPLINARY, TO FUNCTION AS A CAPSTONE
WATER GRADUATE DEGREE PROGRAM

ADDITIONAL AND RELATED ACTIVITIES

• WATER CERTIFICATE
  o INITIAL DISCUSSIONS WITH LAW AND BUSINESS

• WATER GRADUATE STUDENT COMMUNITY
  o CHARETTES INVOLVING 2 DOZEN GRAD STUDENTS FROM ACROSS COLLEGES
  o STRONG INTEREST TO FORM CLUB OR SIMILAR
    ✓ INTERDISCIPLINARY
    ✓ PROFESSIONAL
    ✓ SOCIAL
WATER GRADUATE DEGREE PROGRAM

NEXT STEPS

• PRESENTATIONS
  ✓ DEPARTMENT FACULTY
  ✓ SPRING WATER FACULTY MEETING (MAY 11TH)
  ✓ ONLINE PRESENTATION

• REFINE CONTENT

• REFINE ADMINISTRATIVE ASPECTS

• PRESENTATIONS TO ADMINISTRATION
PENN STATE WATER GRADUATE DEGREE PROGRAM

DISCUSSION AT BREAKOUT SESSION
WATER GRADUATE STUDENT GROUP
KATIE HAYDEN, GRADUATE RESEARCH ASSISTANT IN PREISENDANZ LAB

OVERVIEW
• Working to build a water graduate student community with diverse representation from colleges/units across PSU
• 2 meetings were held in February
  • 23 students attended
  • 44 on listserv

BUILDING FORWARD
• Inform your grad students! Interested students can send me an email so I can add them to our listserv kxh5242@psu.edu
• Picking up in Fall:
  • Solidifying if this will be a club/organization or student chapter through an association
  • Water graduate student “orientation” in fall for connecting new and current students
    • highlighting resources (for data processing and analysis), water courses, seminars, etc.
Water Action Plan

• Near-term plan...roughly the next year
  – List is approximately in order of priority
• Seeking input and assistance
  – Q&A in plenary,
  – breakout discussions,
  – offline
Water Action Plan

• Spring Water Faculty event (annual)
• Communications effort
• Water graduate degree program
• Support for water research
• Water Consortium proposal
• Water graduate student community
• Fall Water New Year event

• Water learning series
• Water faculty orientation program
• Water faculty co-funded positions
• Water research experience for undergraduates (REU) program
• Water field class
• Penn State Poseidon awards
• Water certificate program

Some more details to follow
Water Action Plan

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Some more details to follow.
Water Action Plan

• Spring Water Faculty event (annual)
• Questions:
  – Is one annual faculty meeting sufficient?
  – Do you have suggestions for the format or content?
Water Action Plan

• Communications effort – a multifaceted, complex topic
• We’re thinking about both internal (our faculty, staff, students) and external (the public that we serve, prospective students and faculty, agencies) communications
  – Strategic communications plan. Consult with communications professionals.
  – Newsletter
  – Outreach (“Water Safe PA”)

• Questions:
  – Do you have centers or programs that should be linked to our web site?
  – What would you find valuable for internal communications (format, content)?
  – Do you have needs / creative ideas for external communications or outreach?
Water Action Plan

• Support for water research – another complex, multifaceted topic
  – Research ‘speed dating’ efforts, faculty meetings (today), conferences and workshops (e.g. Fall Water New Year event)
  – Publication of research funding opportunities.
  – Facilitation of research proposals.
  – Seed grants program
  – Support and development of critical research infrastructure; numerical models, field sites, lab facilities (e.g. EESL)
  – PA Water Ally program – stakeholder-inspired PA-focused research

• Questions:
  – Can you help us to identify high-priority calls for research funding?
  – What research support and initiation efforts would you find most valuable?
Water Action Plan

• Fall Water New Year event
  – Launch an annual “Happy New Water Year” festival event (30 Sept – 1 Oct).
  – strengthen the Penn State water community,
  – engage partners from outside of Penn State,
  – celebrate the importance of water and the spectrum of roles it plays in our lives,
  – engaging representatives from across the University, including the Arts and the Humanities.

• Questions:
  – Would you be interested in helping us to plan the first Water New Year event? (we need to start now).
Water Action Plan

• Water learning series
  – Coordinate, emphasize, enhance water-focused colloquia and seminars.
  – Perhaps offer to highlight "water talks" within existing colloquium series?

• Questions:
  – Do you have suggestions for how we could improve university-wide water colloquia without creating an overload of colloquium series?
Water Action Plan

• Water faculty orientation program
  – Introduce new faculty members to members of the Water Faculty, etc, at Penn State
  – Extend to graduate students? (maybe just Water Orientation Program)
  – Help new people navigate the complex, rich opportunities at Penn State

• Question:
  – Any volunteers to help?
Water Action Plan

• Water faculty co-hires
  – One new hire (welcome)!! One search / interview underway (Landscape Architecture). Three searches on hold (but still possible) – CivE, ESM, EE.

• Question:
  – Were we to be so lucky as to be able to initiate new positions...what are areas of need?
Water Action Plan

• Water research experience for undergraduates (REU) program
  – Needs a faculty champion or three to assemble a great proposal.

• Question:
  – Anyone interested in leading or helping? This could be a great community builder and recruiting mechanism.
QUESTION & ANSWER
BREAKOUT SESSIONS

1) WATER GRADUATE DEGREE PROGRAM – JACK WATSON
2) PENN STATE WATER EXTENSION – JENN FETTER
3) CLIMATE AND RESILIENCE – KLAUS KELLER
4) WATER (IN)SECURITY, HEALTH AND SOCIETY – ASHER ROSINGER
5) WATER-ENERGY-FOOD (WEF) NEXUS – RACHEL BRENNAN
6) WATER QUALITY: TRADITIONAL & EMERGING CONTAMINANTS – HEATHER PREISENDANZ & ODETTE MINA
7) WATER AND INFECTIOUS DISEASE – BETH MCGRAW
8) WATER ACTION PLAN FY20-21 – KEN DAVIS