



Oklahoma Water Survey

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History of the Oklahoma Water Survey

- Founded in 2011
- First director was Dr. Bob Puls, who retired in 2015
- Early focus on Water Data Portal and outreach on fracking and produced water
- Had not been active since 2015
- Jason Vogel hired as director July 2017
- Currently have 2 full-time staff, 1 position open, 1 position pending, 5 grad students, and 12 undergrads in 10 majors working for us in some capacity (paid or volunteer)



Goals

- Have an impact on the sustainability of Oklahoma's water resources by providing leadership on finding solutions for the water challenges facing Oklahoma
- Facilitate the integration of University of Oklahoma research that can provide solutions to the water issues in the state
- Connect the OU faculty, students, and staff to the Oklahoma Water Community
- Make the Water Enterprise at the University of Oklahoma reputational in the region and beyond

...how will we do this:

by focusing on doing **MORE**



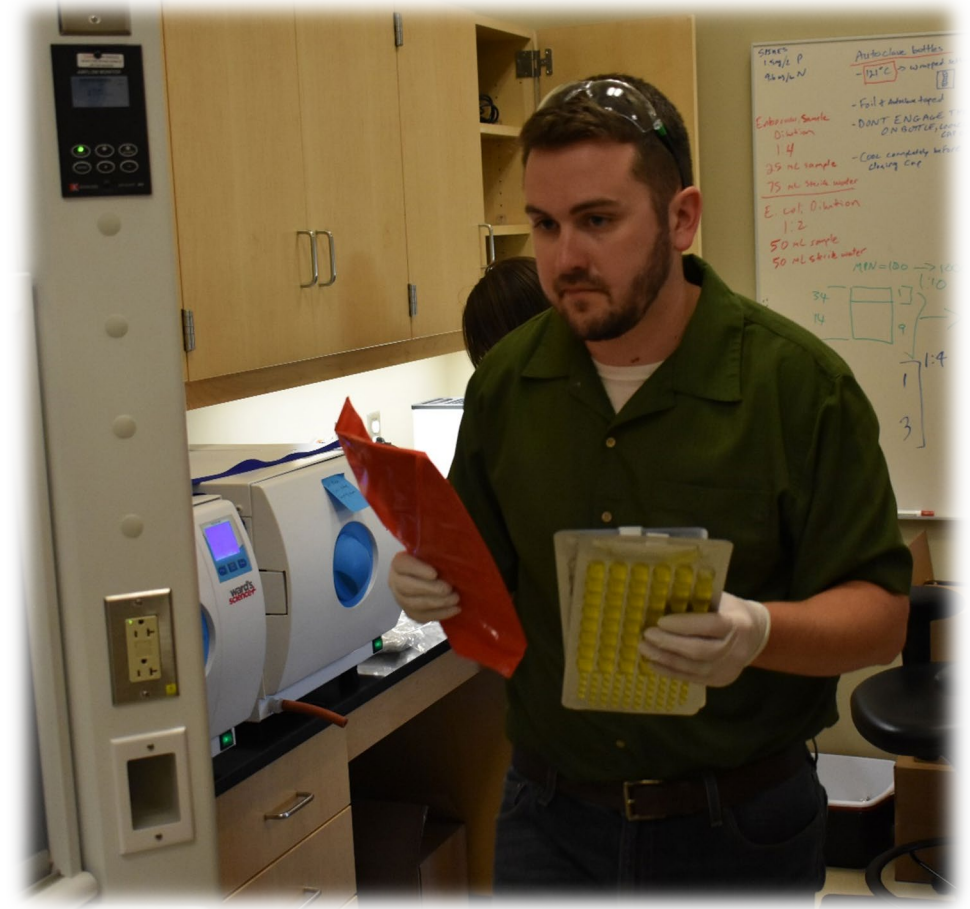
*M*onitoring *O*utreach *R*esearch *E*ducation



OK_{H₂O}

Monitoring

- Three (3) scientists with monitoring and QA/QC training and experience.
- Attained ODEQ lab certification for *E. coli* and Enterococci.
- Have a new mobile sample processing facility.
- Providing monitoring service and assistance for OU researchers and Oklahoma stakeholders
 - *We are actively looking for partners*



Monitoring

- Bacteria monitoring in wadeable streams to improve bacteria listings for the 303(d) list
 - In coordination with DEQ, OWRB, and OCC
 - Preliminarily, 16 of 23 streams are eligible to be removed for *E. coli*
 - Preliminarily, 0 of 23 streams are eligible to be removed for Enterococci
 - Starting in spring 2019, funding will be provided by US EPA to continue this monitoring (via the ODEQ)



Outreach

- New website: **OKH2O.org**
- Creating professional development program and training portal
 - Riverology for Teachers and Engineers
 - Erosion and Sediment Control Certification
 - Low Impact Development Design, Inspection and Maintenance (with the City of Tulsa)
 - Dendrogeomorphology (with Freese and Nichols)
 - ...many more



Outreach



- Biannual News Magazine
- Organizing and cooperating in local conferences, work groups, and organizations
 - Governor's Water Conference
 - OCLWA Annual Conference
 - Great Plains LID Research and Innovation Symposium (GreatPlainsLID.org)
 - DEQ IPR and DPR Workgroups
 - OWRB Brackish Water Workgroup
 - Oklahoma Produced Water Workgroup

Outreach



- **Signature Program:** POND Program targeting education and volunteer monitoring of detention ponds
 - Partnership with Oklahoma Biological Survey, Landscape Architecture and Municipalities:
 - Water Quality Surveying
 - Bird Watching Aesthetic Improvements
 - Initial partners: Cities of Norman and Tahlequah
- **Goals:**
 - Improve environmental stewardship by increasing connection
 - Develop a sense of place for the ponds

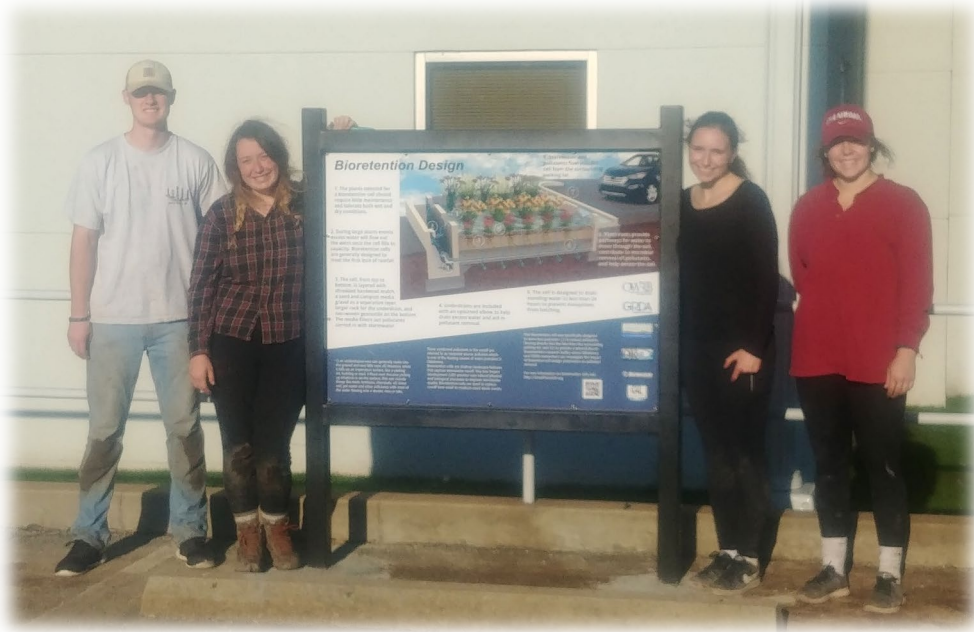


Outreach



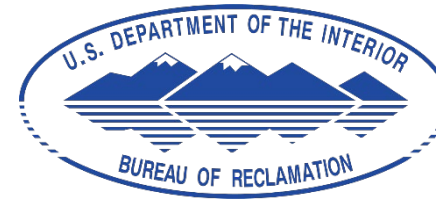
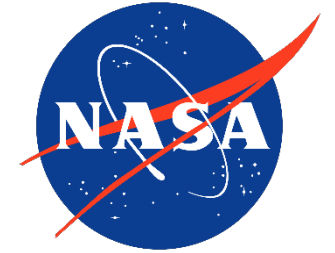
- Continuing to partner with OWRB, OCC, and others to implement innovative BMP demonstrations across the state

- Pervious Pavers at Lake McMurry (completed)
- Bioretention cells, see-through rain garden, and pervious concrete at GRDA (completed)
- Rain gardens in mid-town in OKC (completed)
- Wetland at Lake Eufaula (in progress)
- Rain gardens in Tahlequah (in progress)
- Large-scale proposals in development

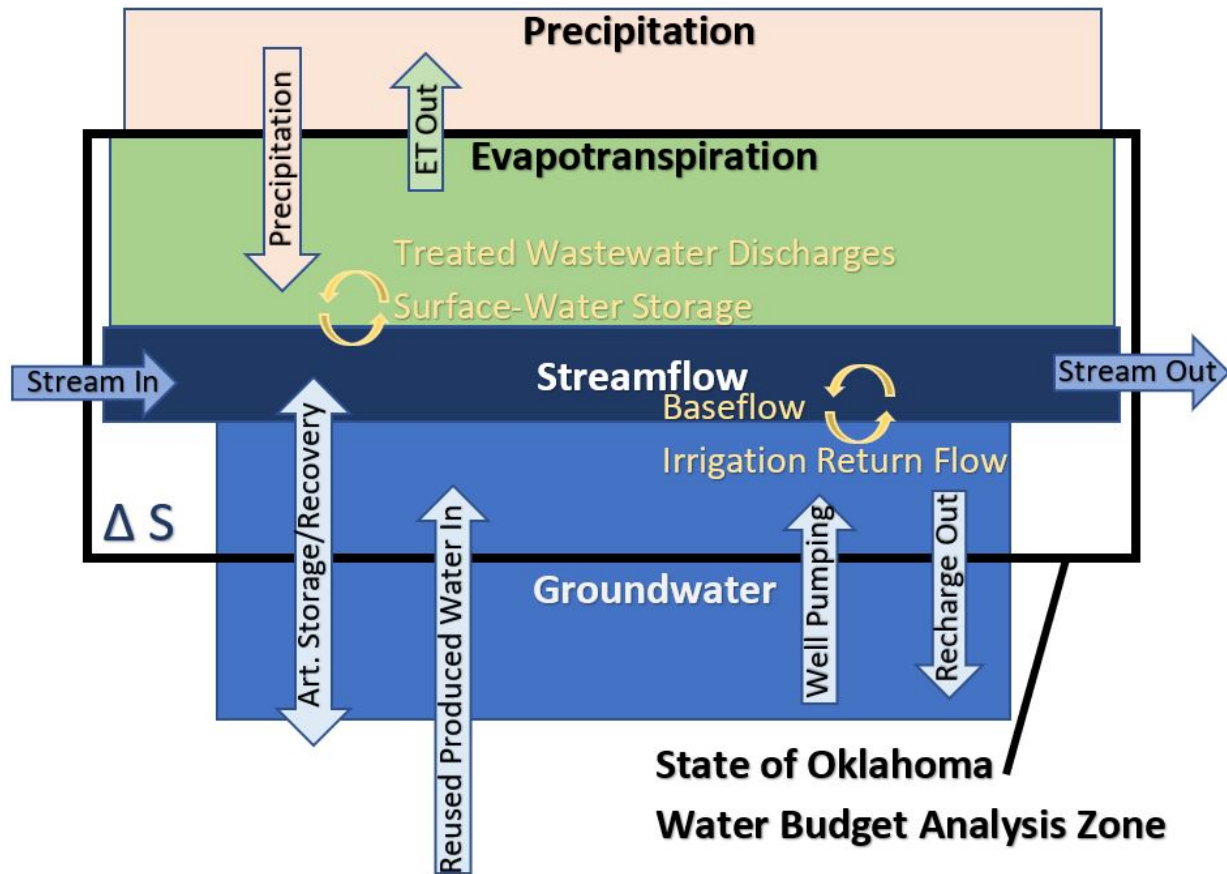


Research

- Coordinate large-scale proposals to provide solutions for Oklahoma water issues
- Involve stakeholders across the state with OU research proposals
- Encourage faculty to pursue and be involved with research that directly impacts the water resources in Oklahoma



Research

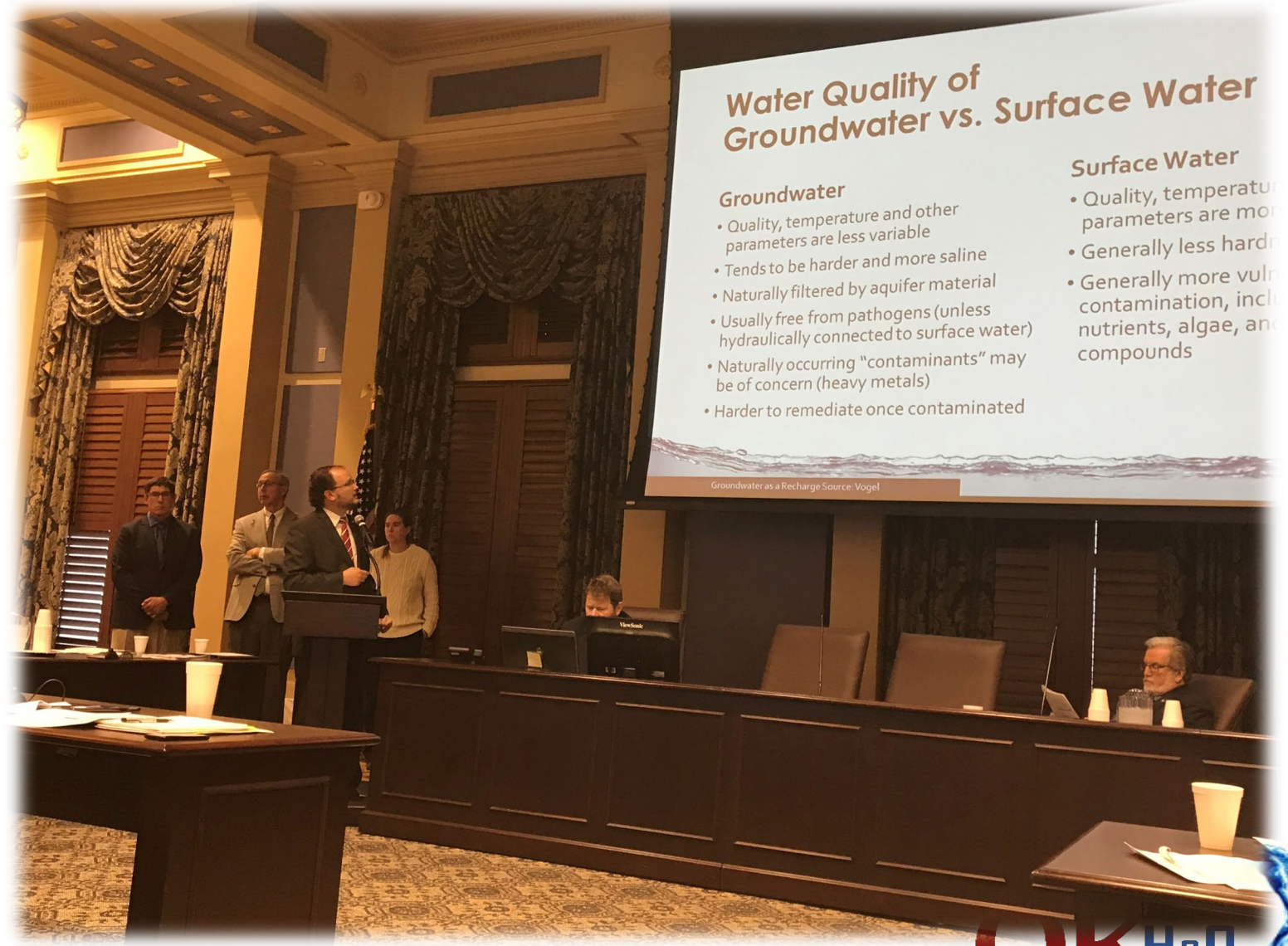


- Oklahoma Water Balance project in support of OWRB Water for 2060 goal.



Research

- Aquifer transfer and recharge interim study for Senator Rader



Water Quality of Groundwater vs. Surface Water

Groundwater

- Quality, temperature and other parameters are less variable
- Tends to be harder and more saline
- Naturally filtered by aquifer material
- Usually free from pathogens (unless hydraulically connected to surface water)
- Naturally occurring "contaminants" may be of concern (heavy metals)
- Harder to remediate once contaminated

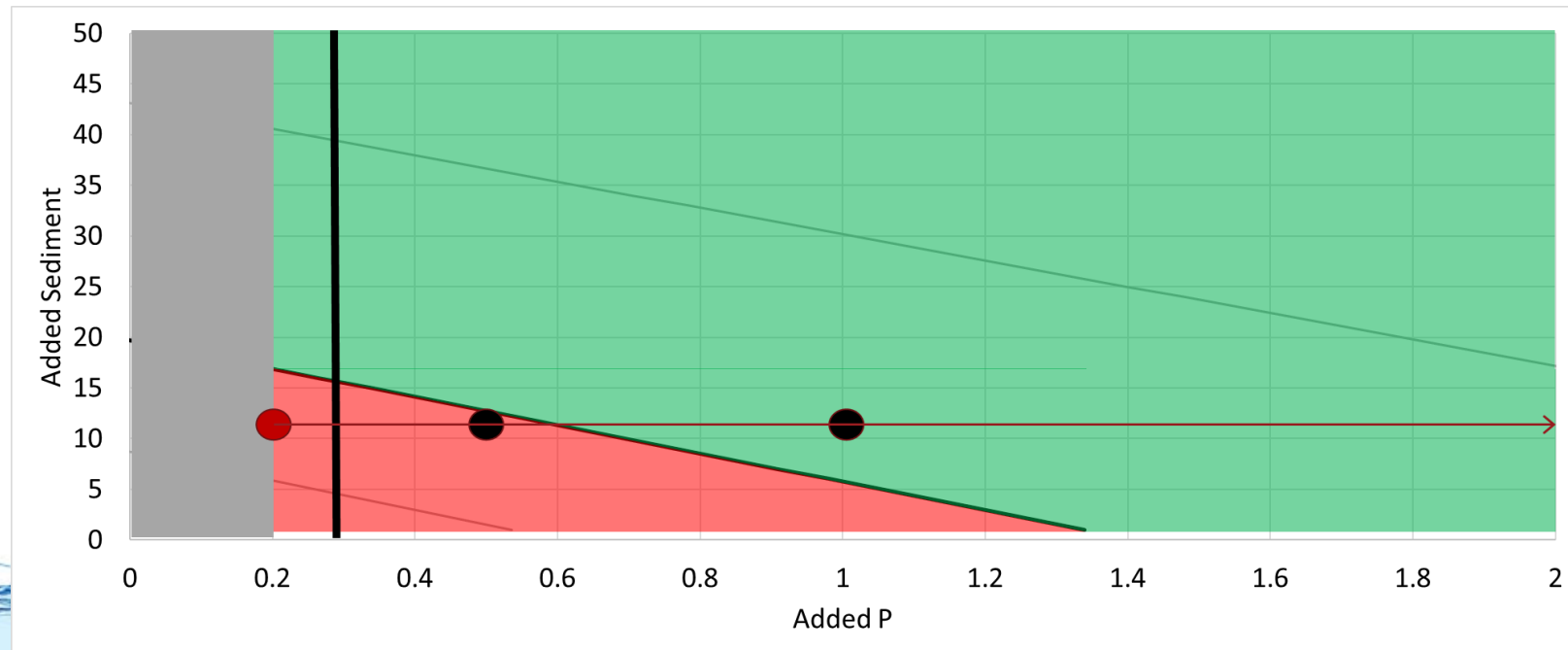
Surface Water

- Quality, temperature parameters are more variable
- Generally less hard
- Generally more vulnerable to contamination, including nutrients, algae, and compounds

Groundwater as a Recharge Source: Vogel

Research

- Compost Filter Sock Pollutant Leaching
 - In cooperation with Minnick Materials and Fertile Ground



Research

- Economic Value of Environmental Education in Oklahoma
 - Using Travel Cost Model
 - Looking for cooperators



Research

- Values and Attitudes of Water Reuse in different cultures in Oklahoma
 - with the Institute for the Study of Human Flourishing,
 - potentially in collaboration with the Chickasaw and Choctaw Nations and others.



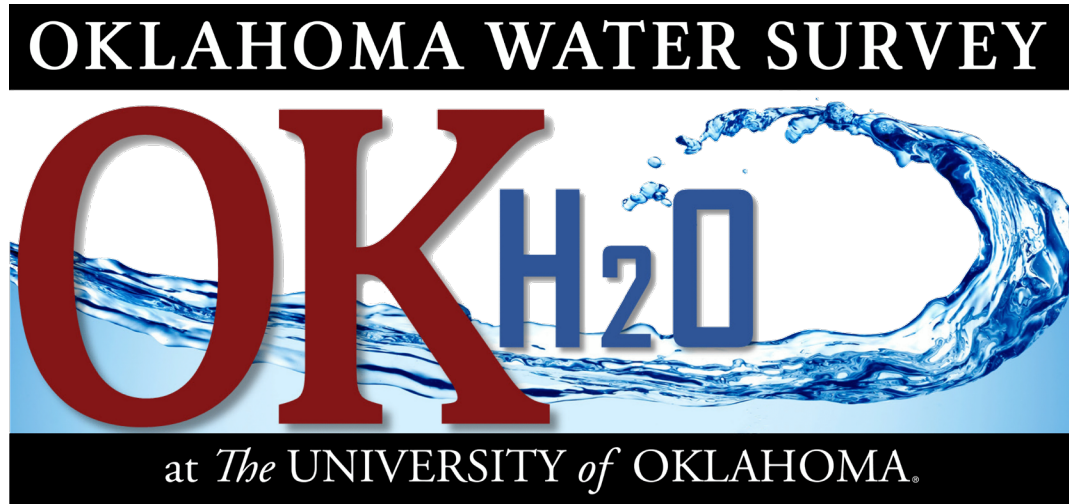
INSTITUTE FOR THE STUDY OF
HUMAN FLOURISHING
The UNIVERSITY of OKLAHOMA



Education

- Serve as a conduit between Oklahoma stakeholders and the classroom
- Provide and share internship opportunities with OU students
- “How to Study Water at OU” pamphlet and Water Faculty Directory
- Sponsored student group to adopt the Duck Pond as part of the POND program
- Active participant in the Hydrology and Water Security program
- Making progress towards dual degree program with UPAEP University in Puebla, Mexico in
 - Environmental Science,
 - Environmental Engineering,
 - Environmental Sustainability, and
 - Environmental Studies





www.OKH2O.org



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This could
be you!
Hydrologic
Scientist

