HUMBOLDT STATE UNIVERSITY

ASCE Student Chapter American Society of Civil Engineers

ERE MESSENGER

Environmental Resources Engineering

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SPECIAL EDITION

50 Years of ERE Impact on Humboldt County

by Charles M. (Mike) Anderson, ERE Emeritus Professor

INTRODUCTION

Have you ever … hiked the trails and watched the birds at the Arcata Marsh and Wildlife Sanctuary? driven on any road or highway? opened a faucet for a drink of water? flushed a toilet? switched on a light in a home or business? biked along the new Humboldt Bay trail? If you live in Humboldt County and answered "yes" to any of these, then you have almost certainly been impacted by ERE!

Three generations of ERE graduates impacting Humboldt County:
BS ERE 2016: Nic Sabo, Environmental Engineer, McBain Associates, Arcata
BS ERE 1997: Sherry Constancio, District Hydraulics Engineer, Caltrans, Eureka
BS ERE 1973: Marty Lay, Senior Environmental and Civil Engineer (Retired), SHN Consulting Engineers & Geologists, Eureka

This is the story of the impact of the HSU Environmental Resources Engineering (ERE) Program, by its faculty and graduates, on Humboldt County. As you will see, this impact is truly significant, directly and indirectly affecting nearly every resident of the county over our 50-year history (1969-2018). This is a bold claim, and you might well wonder how it is possible. Before getting to that, however – what is ERE, and who are its faculty, students, and graduates?

HSU's ERE Department offers one of the oldest, largest and most respected undergraduate environmental engineering programs in the United States. The program transitioned in 1969 from a traditional civil engineering curriculum, which had been successful academically, but which did not generate enough graduates annually to be sustainable. The new ERE curriculum was developed to take advantage of HSU's strong programs and reputation in natural

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FROM THE EDITORS

Hello from the Messenger staff! We hope you enjoy this Spring 2018 edition.

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"Begin challenging your own assumptions. Your assumptions are your window on the world. Scrub them off every once in a while or the light won't come in."

—Alan Alda, Actor
"Things Overheard While Talking to Myself"
2007

resources. In 1981, we became only the sixth undergraduate program in the country to be accredited in the field of Environmental Engineering by ABET (Accreditation Board for Engineering and Technology). Today, there are 71 such accredited programs in the U.S.

The ERE Program is widely respected within the education and engineering communities, and our graduates are recruited by top companies, government agencies, and graduate schools. Why is this?

First, we have been fortunate to attract and maintain an outstanding faculty – one with a broader range of backgrounds and experiences than generally found in traditional engineering programs, and made up of individuals committed to undergraduate teaching and a combination of research, professional service, and community service. We currently have 10 tenured and tenure-track faculty members, and several lecturers, plus five emeritus faculty members who have retired from full-time teaching but support the program in various other ways.

Second, we have developed a very strong curriculum – one that prepares graduates well for professional work and graduate school. Three major environmental areas are integrated throughout the curriculum: Energy Resources, Water Quality, and Water Resources. Many research projects involve our undergraduate students, and most feed back into our courses.

Third is our students themselves. The large majority (80%) come from California, with 30% from local and other far northern CA cities, 25% from southern CA coastal cities, 15% from central CA, and 10% from the SF bay area. 18% come from other states, and 1% from other countries.

As with our faculty, students who enter the program tend to come with a broader range of interests, backgrounds, and experience than generally found in traditional engineering programs. Examples: Michael (BS ERE 1975) arrived at HSU with a BA in Philosophy and three years of seminary. He came to HSU to earn a second BS degree (in ERE) rather that going on to grad school in his original field. Bill (BS ERE 1976) entered HSU as an Oceanography major, but switched to ERE before graduating. And Susan (BS ERE 1993) was a licensed airplane mechanic.

My journey to ERE
Patrick Sullivan (BS ERE 1996)
Senior Project Manager
GHD, Eureka

When I graduated from high school in 1984, I was definitely not ready for college, so I became a commercial whitewater rafting guide instead! For many years, I traveled the U.S. and around the world rafting and kayaking while working for several rafting companies, including Whitewater Voyages, Rios Tropicales, and Sobek.

In 1990, while rafting on the Zambezi River in Zambia, I met some young engineers who were helping build a swale marsh treatment plant in a remote village. One of them was from HSU. I decided it was time for me to move on from the pro-leisure circuit, and go back to school. I visited several CSU campuses, but after meeting and talking to ERE Professor Mike Anderson, my decision was made. I entered the program in the fall of 1991, and haven't looked back! When I asked Mike what to do first, he said "How about an Engineering Club rafting trip?" After 26 years, we are still rafting!

ERE students tend to be highly motivated and very hard workers. And, they seem to self-select for positive cooperation and mutual support rather than negative competition and I'm-only-in-it-for-me-ism. And, this is strongly reinforced by our faculty in ERE courses, where students are regularly required to work in teams. The result is that our graduates are among

Message
from our Dean

The Environmental Resources Engineering program is one of the many points of pride in the College of Natural Resources and Sciences (CNRS) at Humboldt State University. I have worked with ERE faculty and staff for many years, and have been singularly impressed with their dedication to their students as illustrated by their use of innovative pedagogies in the classroom, careful advising practices, and community-based student projects. The student, alumni, staff, and faculty impact of the ERE program in Humboldt County on employment, community / volunteer service, and local governance has been spectacularly impressive over their 50-year history, and I am pleased and proud to be associated with this fine group of colleagues.

—Steven A. Smith, Ph.D., Interim Dean
College of Natural Resources and Sciences

the best I have seen anywhere at working together cooperatively to solve large, complex problems.

Many engineering programs have very high standards for admission, accepting only the top students from high school. Yet, I am proud that we allow and encourage students with average academic backgrounds to enter our program. Why am I proud of this?

An example will suffice to answer. Roger (BS ERE 1987) did not have HSU ERE among his top choices for college. He wanted to study engineering at UC Davis or Cal Poly San Luis Obispo. However, they wouldn't admit him because his high school grades did not meet their strict entrance requirements. He entered the ERE Program, and was an excellent student. Upon graduation he received a scholarship offer to attend graduate school at UC Davis (somewhat ironically, considering that he wouldn't be an engineer if it had been up to them), but he chose UCLA instead. Today, he is the principal commercial manager in a major metropolitan area of California for one of the largest and most respected engineering consulting companies in the world specializing in water quality and water resources.

The Environmental Systems (ES) Graduate Program is offered through the College of Natural Resources and Sciences. While it is not officially an engineering degree program, two of the current options [Environmental Resources engineering (ERE) and Energy Technology and Policy (ETaP)] and two past options [International Development Technology (IDT) and Energy, Environment, and Society (EES)] are, or were, administered by ERE. We are proud to include these folks on our list of ERE graduates.

We awarded our first (nine) BS ERE diplomas in 1972-73. The high was 68 graduates in 1995-96, and we estimate roughly 50 for 2017-18. The first of our Environmental System MS degrees was awarded in 1985-86, with a high of 13 in 2014-15. Over our history, through Fall 2017, we have awarded a total of 1430 BS ERE degrees, and 200 MS degrees in ES with options in ERE, IDT, EES, or ETaP.

So, where did these 1430 ERE BS and 200 MS alumni go after graduation? While many are employed across the U.S. and some in other countries, most by far are in a few large metropolitan areas in three states on the west coast: California (Sacramento area, San Francisco Bay Area, Los Angeles South Coast Area), Oregon (Portland area), and Washington (Seattle area). However, a surprisingly large number either remained in Humboldt County, or returned later after starting their careers elsewhere.

Currently, there are 191 ERE grads living and working in Humboldt County, and I estimate that there have been more than 300 over our 50-year history. The current number is composed of 173 BS and 23 MS. (These latter numbers don't add to 191, because five grads have both BS and MS degrees from ERE.) For a county of only 135,000 residents, this is a large number of engineers from a single university engineering program.

TABLES 2-7, beginning on page 6, list the 191 ERE grads currently living and working in Humboldt County,

In a Nutshell – Spring 2018

HUMBOLDT STATE UNIVERSITY
ENVIRONMENTAL RESOURCES ENGINEERING
Local ERE BS and MS Alumni
Working Professionally in Humboldt County

BS ERE Grads	=	173
MS Environmental Syst ERE/ IDT/ EES/ ETaP Grads	=	23
Total BS ERE & MS Envir Syst ERE/ IDT/ EES/ ETaP	=	191

A composite list of local ERE grads (including professional contact info) is maintained and updated regularly. To make corrections or request a PDF copy, email cma2@humboldt.edu.

organized by employment sector. TABLE 8 lists grads who have been elected or appointed to civic positions, and TABLE 9 lists local retired ERE grads.

Some of our graduates started working locally in the 1970s and 80s, while others started more recently. Some have worked here their entire careers, while others stayed for only a short time. Regardless of length of service, all have individually and on teams made (or are making) technical, economic, political and/or social impacts on Humboldt County. And, taken collectively, as I said earlier, this impact is truly significant, affecting nearly every resident of the county over our 50-year history.

What are the mechanisms of this impact? These are primarily from two groups of folks: (1) ERE faculty, through local research and community service; and (2) ERE BS and MS graduates, through local employment, elected and appointed positions, and volunteer service. These will be the focus of our story, but there are others as well. First, ERE students (not only graduates) impact the local community through class projects. Example: Last semester (Fall 2017), senior ERE students in ENGR 492 "Capstone Design" re-routed and designed a section of Jolly Giant Creek to improve creek habitat, connectivity, and function. Also, ERE graduates working outside Humboldt County sometimes impact the county. Example: ERE grads at California's North Coast Regional Water Quality Control Board office in Santa Rosa impact Humboldt residents through developing and enforcing water quality objectives, and implementing plans to protect the region's waters. Finally, there are also impacts by family members of ERE faculty, students, and alumni. Example: My wife, Leslie, designed the interpretive signs located along the trails at the Arcata Marsh and Wildlife Sanctuary.

ERE IMPACT ON HUMBOLDT COUNTY
OUR STORY

(1) Impacts by ERE professors through local research and community service.

We currently have 10 tenured and tenure-track faculty members and two long-time lecturers, and there have been a total of 32 over our 50-year history. TABLE 1 presents this history. Many of these folks have carried out research that has impacted Humboldt County, and all have performed local community service.

Two especially significant ERE faculty impacts on the county are past and continuing activities associated with the Arcata Marsh and Wildlife Sanctuary (AMWS) and the Schatz Energy Research Center (SERC). The spectacular 300-acre AMWS, which was dedicated in 1981, might very well not exist today were it not for ERE professor Bob Gearheart. His involvement is honored through "Gearheart Marsh," one of six lakes, ponds, and marshes named for significant contributors. SERC was founded in 1989 by ERE Professors Peter Lehman and Charles Chamberlin, with generous funding by Dr. Louis W. Schatz. It certainly would not exist today except for the involvement of Professors Lehman and Chamberlain. ERE impacts on Humboldt County through AMWS and SERC are presented in first-person accounts later in this story.

TABLE 1. ERE FACULTY HISTORY

ERE Transition Faculty from Original Civil Engineering Program		
Service Years	**Faculty Name**	**Areas of Expertise**
1957-1983	Jim Roscoe	Civil Engineering
1962-1983	Bill Schenler	Civil Engineering
1968-1973	Loren Anderson	Geotechnical Engineering
1970-1979	Howard Kelly	Physics / Thermodynamics
ERE Tenured and Tenure-track Faculty and Current Long-term Lecturers		
Service Years	**Faculty Name**	**Areas of Expertise**
1971-2003	Al Burrows	Ocean Engineering / River Engr
1973-2011	Mike Anderson *	Air Quality / Mechanical Engineering
1975-2003	Bob Gearheart *	Biology / Water and Wastewater Engr
1977-2014	Robert Willis *	Op Research / Water Resources Engr
1979-2017	Peter Lehman	Chemistry / Alternative Energy Engr
1979-Present	Brad Finney	Water Quality / Water Resources Engr
1979-1982	Wen-Sen Chu	Bay and Estuary Modeling
1981-2005	Ron Chaney *	Soils / Geotechnical Engineering
1983-2015	Charles Chamberlin *	Envir Microbiology / Pub Health Engr
1983-1985	Jerry Jackson	Water Quality / Treatment Plant Op
1983-1986	Anil Mitra	Physics / Mechanical Engineering
1984-1998	Mac McKee	Water Resources / Hydraulic Engr
1994-Present	Margaret Lang	Water Qual / Water Resources Engr
1995-Present	Beth Eschenbach	Water Resources / Engr Education
2000-Present	Eileen Cashman	River Morph / Sediment Transport
2000-2004	Derek Baker	Energy Res / Instruct Media Devel
2004-Present	Lonny Grafman	Design / Resilient Community Tech
2005-2010	Dustin Poppendieck	Indoor Air Quality
2005-Present	Arne Jacobson	Energy Policy / Renewable Energy
2011-2015	David Vernon	Energy Efficiency / Thermal Syst
2012-2017	Andrea Achilli	Membrane Separation in Envir Apps
2014-Present	Doug Saucedo	Dynamic Systems / Control Theory
2015-2017	Kerri Hickenbottom	Water Quality / Envir Health
2016-Present	Peter Alstone	Distrib Energy Systems / Economics
2016-Present	Liza Boyle	Air Quality / Solar Energy
2017-Present	Ali Moradi	Renewable Energy Storage Systems
2017-Present	Sintana Vergara	Organic Waste Treatment Processes
2017-Present	Margarita Otero-Diaz	Envir Chemistry / Envir Soil Physics

* Emeritus

Example Impacts by ERE faculty
by Brad Finney (BS ERE 1976)
ERE Professor

What impacts have ERE Faculty members had on our county? The obvious one is that ERE faculty members educated all of those ERE graduates who have gone on to practice their trade in Humboldt County. But wait, there's more, so much more.

Outside of the university classroom, the diverse talents and interests of ERE faculty have made a lasting impact on many Humboldt County communities. One important area of contribution is serving in elected and appointed public office. Sam Pennisi (Arcata City Council), Charles Chamberlin (Pacific Union School Board), Susan Orneles (Arcata City Council) and David Narum (Arcata School Board) have each served the community in elected positions. Mike Anderson (vice-chair, General Plan Development Committee) and Bob Gearheart (Wetlands and Creeks Committee) both served on standing committees for the City of Arcata.

Local non-profits, cooperatives, and professional and public service organizations have benefited from leadership contributions by ERE faculty members. For example, Lonny Grafman has been on the board of many local non-profit groups including Locally Delicious, and Bob Gearheart was on the Board of Directors of Coast Central Credit Union for many years. Mike Anderson was a volunteer educator at Six Rivers Planned Parenthood for more than 10 years, and Beth Eschenbach has helped with special Girl Scout functions. Al Burrows was particularly active with the local ASCE chapter, serving as an officer for several years.

As might be expected, many of the community service activities of ERE faculty members have had an educational component. ERE faculty members have taught special short courses for Arcata and McKinleyville High School teachers. Beth Eschenbach has contributed to Expanding Your Horizons which encourages middle school girls to take math and science in high school. Eileen Cashman has served as a judge for the Humboldt County Science Fair for many years. Mike Anderson, Beth Eschenbach and Margaret Lang have coordinated the annual Math Counts competition for middle school students over the last 30 years. Lonny Grafman has provided opportunities for local college students to participate in learning hands-on, resilient community technologies while brushing up on their Spanish speaking skills through the Practivistas Dominicana program.

In the capacity of practicing engineers, ERE faculty members have been involved in numerous local projects. Jim Roscoe worked on many such construction projects, and was the living memory of out-of-the-way survey points throughout rural Humboldt County. Mike Anderson did air quality sampling on the old pulp mill stacks – a stinky job! Bob Gearheart was one of the design engineers for the world-renowned Arcata Marsh and Wildlife Sanctuary, and nearly 40 years later, continues to volunteer his time as director of the Arcata Marsh Research Institute. Robert Willis provided guidance to the City of Arcata and the Humboldt Bay Municipal Water District on several surface and groundwater management projects. Other examples include Margaret Lang and Eileen Cashman participating in local stream rehabilitation and fish passage projects, and Peter Lehman, Charles Chamberlin, Arne Jacobson, and Peter Alstone participating in numerous local community renewable energy projects.

ERE faculty involvement in local projects has often been an extension of faculty research activities with student research assistants, so that the community benefits from both the professional contribution of the faculty members, and the efforts of the students. In the case of the Schatz Energy Research Center (SERC), a single faculty research project led by Peter Lehman and Charles Chamberlin resulted in an organization with a team of 36 professionals and students, an annual budget of more than $4.5 million, and a portfolio of energy-related projects that has touched many of the communities in Humboldt County and the world beyond. Ω

Impacts by ERE faculty: Arcata Marsh and Wildlife Sanctuary
by Bob Gearheart
ERE Emeritus Professor

In 1978, ERE Professor Brad Finney and I joined the City of Arcata's Wastewater Taskforce in developing a treatment system based on natural processes as an alternative to a complex regional approach that had been proposed. Key to this effort was a collaborative effort with Professor George Allen of the HSU Fisheries Department, as well as faculty from the Wildlife, Botany, Resource Interpretation, and Oceanography Departments.

The concept of using constructed wetlands as a means of treating wastewater was in its infancy, with most of the limited applications coming from Central Europe. To gain approval to use this type of alternative treatment system in Arcata, along with using constructed wetlands to meet discharge permit limits, the city had to make convincing arguments to the State and Regional Water Quality Control Board. The basis for this argument was the demonstration of enhancement to Humboldt Bay by the addition of beneficial uses of the proposed constructed wetlands: increased public use, environmental research, freshwater wetland habitat, and environmental education.

To support our arguments for an alternative treatment system, several pilot projects were designed and implemented. ERE student research

assistants were utilized in monitoring the system and in preparation studies for determining wetland treatment effectiveness and developing the basis for wetland design. The continuing research efforts over the years by ERE graduate and undergraduate students has been instrumental in the system's success.

In 1983 the Water Board accepted the concept based on data developed by the pilot project, and approved its use as an addition to Arcata's existing treatment system made up of physical primary unit and oxidation ponds. And the rest, as they say, is history. The relationship between the ERE Department and City of Arcata has continued to the present with upgrades and improvement of natural treatment components of the system.

AMWS has been a major asset for Humboldt County. In addition to treating Arcata's wastewater, it attracts visitors from near and far who come to hike its trails and enjoy its ponds and marshes, wildlife, and scenic views. Bird watching is a major use, and recreational runners, walkers, and bicyclists are also frequent visitors.

In 1986, I worked with Arcata's City Manager to form the non-profit Friends of the Arcata Marsh (FOAM) to support the public use of AMWS. Through FOAM, AMWS affords opportunities for environmental education of K-12 students as well as students from HSU and the College of the Redwoods.

Public use of the AMWS has been documented, with estimates of daily use ranging from 60 to 170 depending on season and weather conditions. On average, approximately 17,000 visitors sign the register at the Arcata Marsh Interpretive Center each year.

AMWS is known for its recreational, ecological, and cultural values, and is an established "place to stop and visit" for many Humboldt County citizens. Artists and photographers take advantage of AMWS wetland scenes, and their paintings and photographs depicting landscapes and wildlife are found in many local commercial and professional offices. AMWS is featured in many travel publications identifying places to visit in Humboldt County.

I feel very fortunate to have been a part of the Arcata Marsh Wildlife Sanctuary and wetland treatment component of the city's wastewater treatment system over all these years. One of the most rewarding things to me is that its existence and ongoing value is due in a large part to a collaborative effort by HSU faculty and students, City of Arcata staff, members of FOAM, and Marsh volunteers. Ω

Springtime at Allen Marsh, Arcata Marsh and Wildlife Sanctuary. *Photo by Leslie Scopes Anderson*

(2) Impacts by local ERE BS and MS graduates, through employment, elected and appointed positions, and volunteer service.

EMPLOYMENT – GOVERNMENT

Currently, 76 local ERE grads are employed by 11 government agencies, the second largest number of grads in a single employment category. Breaking it down further, 15 grads are at 6 local agencies, 55 are at one state agency, 5 are at 4 federal agencies, and 1 at a single tribal agency.

TABLE 2 lists ERE grads currently employed in government, broken into local, state, federal, and tribal sectors.

TABLE 2. ERE ALUMNI – GOVERNMENT

Company / Agency / Org City ERE Grad Name	Title	BS Yr	MS Yr	MS Opt
LOCAL PUBLIC SECTOR (CITY • COUNTY • REGIONAL)				
City of Arcata Building and Engineering Department Arcata				
Doby Class, PE	City Engineer	1993		
Jess Clifton	Engineering Technician I	2014		
Marcie Jimenez	Engineering Aide	2017		
City of Eureka Engineering Department Eureka				
Jesse Willor, PE	Dep Dir Pub Wks – Engr Div	2005		
Travis Clohessy	Engineering Technician	2014		
Brian Weekly	Engineering Technician	2015		
City of Fortuna Public Works Fortuna				
Merritt Perry, PE	Director / City Engineer	1997		
Humboldt County Association of Governments (HCAOG) Eureka				
Oona Smith	Senior Planner		1998	IDT
Humboldt County Public Works Department Eureka				
Tom Mattson, PE	Director	1990		
Tony Seghetti, PE	Deputy Director, Engineering	1993		
Jeff Ball, PE	Associate Engineer	1994		
Ken Freed	Assistant Engineer II	1996		
Izzy Konopa	Assistant Engineer II	2014		
Michael Layton	Assistant Engineer II	2010		
Angi Sorensen, PE	Associate Civil Engineer	2000		
STATE PUBLIC SECTOR				
Caltrans, Northern Region, District 1 Eureka				
Managers and First-line Supervisors				
Mark Suchanek, PE	Deputy District Director, M/O	1983		
Lena Ashley, PE	Branch Chief, Design E3	1985		
Tim Boese, PE	Branch Chief, Specifications	1982		
Sebastian Cohen, PE	Area Construction Engineer	1998		
Sherry Constancio, PE	District Hydraulics Engineer	1997		
Tom Fitzgerald, PE	Office Chief, Maint Engineering	1996		
Jaime Matteoli, PE	Project Manager	2010		
Dave Melendrez, PE	Project Manager	1990		
Suzanne Theiss, PE	Office Chief, Local Assistance	1984		
James Van Bonn, PE	Office Chief, Permits	2002		
Geoffrey Wright, PE	Area Construction Engineer	1997		
Jeff Zimmerer, PE	Area Construction Engineer	2006		
Other Professional Staff				
Alex Arevalo, PE	NPDES Storm Water Coord	1995		
Rachel Barry	Local Assistance Engineer	2015		
Chris Bledsoe	Traffic Safety Engineer	1998		
Eric Brunton	Traffic Safety Engineer	2002		
Anthony Carnemolla	Traffic Operations Engineer	2008		
Curtis Coburn, PE	Project Engineer, Maintenance	1994		
Caren Coonrod, PE	Project Engr, Minor B Projects	1999		
Clark Davis	Traffic Safety Engineer	1998		
Aaron Dorsch	Traffic Operations Engineer	2001		
Desiree Edgar	Design Engineer	2015		
Andy Eggink	Construction Engineer	2015		
Nicole Farrell, PE	Project Engr, Advance Planning	2006		
Dawn Friend, PE	Office Engineer, Construction	1996		
Kathy Gallagher, PE	Civil Engineer, Geotech Design	1996		
Noelyn Habana	Design Engineer	1996		
Paul Hailey, PE	Project Engineer, Hydraulics	2007		
Evelyn Hartman	ADA Program Coordinator	2003		
Lisa Hockaday	Traff Modeling Engr/Bike Coord	2010		
Brian Hodgson, PE	Project Engineer, Design	2004		
Jacob Hurd	Structure Construction Engineer	2017		
Nancy Kuykendall, PE	Project Engr, Advance Planning	1999		
Scott Lezchuk, PE	Project Engineer, Maintenance	2006		
Eric Lund, PE	Project Engineer, Design	1993		
Jamie Lusk	Traffic Operations Engineer	2006		
James McGee, PE	Constructability Engr, Constr	2001		
Elisa Meyer	Design Engineer	2005		
Jeremy Miller-Schulze	Design Engr, Advance Planning	2007		
Mark Mueller	Local Assistance Engineer	1995		
Chris Naylor	Construction Engineer	2005		
Jayne Nordstrom	Specifications Engineer	2005		
Peter O'Donnell, PE	Structure Construction Engineer	2005		
Ansel Ortiz	Design Engineer	2008		
Kristine Pepper, PE	Project Engineer, Hydraulics	2002		

Continued

TABLE 2. ERE ALUMNI – GOVERNMENT (Cont'd)

Company / Agency / Org City ERE Grad Name	Title	BS Yr	MS Yr	MS Opt
Other Professional Staff (Continued)				
Tom Phillips, PE	Project Engineer, Design	1998		
Celeste Redner	Hydraulics Engineer	2003		
Sheila Sadkowski, PE	Project Engineer, Stormwater	1987		
Carlon Schrieve	Design Engr, Advance Planning	1995		
Alex Simmons	Design Engr, Advance Planning	2015		
Matt Smith, PE	Project Engineer, Design	2007		
Bryan Thomas	Traffic Modeling Engineer	2008		
Mike Vina, PE	Project Engineer, Hydraulics	1990		
Kristina Walker, PE	Design Engr, Minor B Projects	1998		
Lianna Winkler-Prins, PE	Project Engr, Advance Planning	2014		
FEDERAL PUBLIC SECTOR				
U.S. Army Corps of Engineers, San Francisco District Eureka Field Office				
Cammy Purchio	Regulatory Project Manger	2014		
U.S. Fish and Wildlife Service, Arcata Office Arcata				
Daryl Van Dyke	Spatial Analyst	2007	2009	ERE
U.S. Dept of Comm, NOAA Fisheries, W Coast Reg, N Coast Office Arcata				
Margaret Tauzer	Hydrologist	1985		
U.S. Dept of Health and Human Services, Indian Health Service Arcata Field Office				
Barry Jarvis, PE	Environmental Engineer	1985		
LT Dara Zimmerman	Environmental Engineer	2013		
TRIBAL GOVERNMENT				
Blue Lake Rancheria Blue Lake				
Stephen Kullmann	Community Develop Director		2009	EES

Government is perhaps the easiest category of ERE employment to demonstrate direct impact on Humboldt County. Examining TABLE 2, let's take local (city, county, and regional), state, federal, and tribal sectors in turn.

First, in the local sector, the highest ranking engineers working for Humboldt County and its three largest incorporated cities (Eureka, Arcata, and Fortuna) are all ERE alumni. These managing engineers provide planning, technical, administrative, and supervisory oversight associated with all public infrastructure (roads, bridges, sidewalks, water mains, sewers, etc.). Other ERE grads fill some of the professional staff positions, and do a lot of the actual engineering work. Taking all of this together, it is clear that anyone who drives on any roads or bridges in the county or these cities, or walks on any of their sidewalks, is directly impacted by ERE.

Also under the local government umbrella, ERE grad Kirk Girard was Humboldt County's Director of Community Development Services for 16 years. Perhaps no other ERE grad has had a greater individual impact on the county over our 50-year history. He in not listed in TABLE 2 becoause he no longer lives in Humboldt County.

Second, while there is only one agency represented in the state sector, it has more ERE employees than any other single organization in Humboldt County. Incredibly, there are more than 50 ERE grads currently working at Caltrans, Northern Region, District 1, in Eureka. Looking first at managers and first-line supervisors, the deputy district director for maintenance and operations is an ERE alum, as are the branch and office chiefs for design, specifications, local assistance, and permits; the district engineer for hydraulics; and two lead project managers. Add to this the impressive list of other professional staff who are ERE grads, we see that nearly every possible technical facet of highways, from advance planning and traffic modeling to pollution discharge and ADA compliance, is covered. And, since federal highways and freeways are built and maintained by the states (with federal money), it is clear that anyone who drives on any state or federal roadway in Humboldt County is directly impacted by ERE.

Third and fourth, looking at the federal sector, there are five ERE grads working at four agencies, and in tribal government we have one ERE grad working for a single organization. Check the organization websites and employee job titles in TABLE 2 to get a sense of ERE impact from these folks.

ERE Alumni Impacts – Government:
Humboldt County Public Works
by Chris Whitworth, PE (BS ERE 1988; MS IDT 1995)
Deputy Director (Retired)

After six years working for private consulting firms, I was hired by the Humboldt County Department of Public Works. The first few years were challenging, and as you might guess, focused on roadway repair design, a discipline I had no formal training in. But, I also designed for the five county airports and the many parks, boat ramps and trails the county owns and maintains. In addition, Caltrans trained me to take over maintenance and repair of the eight county traffic signals, and I reviewed and approved (or not) drainage reports for proposed private developments submitted to the County Land Use Department.

During the mid-1990's, a series of severe winter storms left the county with a backlog of more than 400 damaged sites that required the design, bidding and contracting of repairs. In a shop as small as Humboldt County's, you cannot afford to specialize too much, so even though I

had been promoted first to be head of design, and subsequently to be Deputy Director, I was still able to be involved with repair designs, as well as overseeing the geotechnical studies necessary for repairs. Over the next few years, I was able to delegate more of these responsibilities as other personnel became available, but I was still active in the design and construction process.

We also received grants from California Fish & Game (now Fish & Wildlife) to remove barriers to anadromous fish migration. The county had many under-sized, perched culverts that had been installed under emergency conditions following the 1964 flood. Development of replacement crossings required a mix of disciplines including hydrology, hydraulics, river morphology and fisheries biology. Over the next few years we removed more than 25 of the identified barriers. I worked with our environmental compliance department writing grants, assigning site surveys, developing hydrologic and hydraulics reports, and laying out preliminary designs. In addition, we also worked with several agencies on a variety of stabilization and enhancement projects around the county, including the Van Duzen Park and the Arcata-Eureka Airport drainage erosion repair.

As Deputy Director, I was in charge of the design and construction departments along with the materials testing laboratory. My work involved making sure that funding was available for projects, and that once funded, designs and construction occurred in a timely manner, within budget and as originally proposed. I applied for and administered grants for a variety of projects including bike lanes, safe routes to schools, roadway safety and environmental improvements.

Every day I see projects that I took part in creating. I worked in a variety of disciplines on a wide variety of projects because Humboldt County Public Works is so small. It was a dynamic, challenging job that I would recommend for anyone. Ω

ERE Alumni Impacts – Govt: Humboldt County Community Development Services

by Kirk Girard, PE (BS ERE 1988)
Director (1997-2012)

The HSU Campus Center for Appropriate Technology (CCAT) is celebrating its 40th Anniversary this year. This story starts there, with ERE Professor Peter Lehman encouraging me to take on the CCAT Director position as a bright-eyed ERE student. I said "yes" and joined the first group of Directors who rehabbed the Buck House and convinced the University Administration to let CCAT repurpose it as an appropriate technology showcase for HSU and the community. For a student-led organization, CCAT and its alumni have had an incredible impact over the past 40 years, in Humboldt County and beyond.

CCAT and ERE inspired me to use my education "appropriately" for the good of the community and environment. After school I worked side-by-side with ERE grad Marty Lay at SHN designing soil and groundwater remediation for local lumbermills and leaking landfills, including Humboldt County's Cummings Road Landfill.

Next, Norcal Waste Systems hired me to be their Northern Region Environmental Manager. There I implemented soil and groundwater remediation projects at municipal landfills in California and Oregon, including leachate control and methane capture for the Cummings Road Landfill.

After Norcal, I worked at Louisiana-Pacific Corporation as their Western Region Environmental Manager in the Samoa Office. Working with a team of in-house environmental professionals, including five ERE grads, we transformed LP's environmental program, implementing cutting edge legacy cleanups of old mill sites, modern industrial environmental management for more than thirty manufacturing plants, and installation of state-of-the-art pollution control technology, including closed-cycle bleaching at the Samoa Pulp Mill.

When LP pulled out of California, I became the Director of the Community Development Department for the County of Humboldt. I had served 10 years on the City of Arcata Planning Commission, and wanted to take a deep dive into community development. While I rarely cracked an ERE text book in this role, the reputation Humboldt County's Community Development Department earned in my sixteen years of service had roots in the training and education I received from ERE Profesors Peter Lehman, Bob Gearheart, Mike Anderson, and many others. One of ERE's credos was learn-by-doing. Similarly, we routinely followed our planning and consensus building with "doing." Our Department built efficient and transparent land use and building permitting operations, and developed a clear vision and policy foundation for the future development of Humboldt County, including creating a progressive General Plan that was approved by the Planning Commission in 2012. But over time, we stretched beyond these traditional planning functions and started implementing projects on the ground. We expanded from a 27-persons, $3 million per year permitting and planning shop, to an 87-persons, largely grant-funded $20 million per year community development operation, implementing economic development programs, providing workforce training, and funding and managing low income housing projects, rural water and sewer infrastructure, and watershed management and habitat restoration throughout the north coast.

Six years ago, some not-so-progressive changes in local political winds forced me to continue my career outside of Humboldt. My new role is Director of Planning and Development for the County of Santa Clara. It is a tremendous job, but when I wrap up my work here, I'm coming back home to Humboldt. Anyone who is an ERE grad will know why. Ω

ERE Alumni Impacts – Govt: Caltrans
by Lena Ashley, PE (BS ERE 1985)
Branch Chief, Design E3

Many engineers would say that the fun part of engineering is the hands-on part. But someone has to manage, and that's where I come in. Empowering, directing, and leading engineers in delivering successful PS&E (Plans, Specifications, and Estimates) is what I do as a Design Branch Chief. Working with a team of 12 engineers and technicians to deliver the right project to address a specified need and ensure a quality design that can be successfully constructed and implemented is my priority. Managing both capital cost and workforce costs is important. Facilitating clear communication among team members and external agencies, and problem solving together are tasks needed on every project.

I've enjoyed working in partnerships on many projects, including storm damage restorations, fish passage improvements, and two large highway improvements: the Confusion Hill Slide Bypass and the Willits Bypass. These projects were not located in Humboldt County, but they certainly impact most residents of the county.

During the winter of 2002/2003, the ancient Confusion Hill landslide became increasingly active and closed US 101 nearly a dozen times, separating families from schools and cutting off the north coast from the greater SF Bay Area. My highly-motivated team expedited construction of a solution to restore Route 101 and ensure reliable travel. Our geologic team concluded that the massive landslide, more than a quarter mile long and 1000 feet high, could not be retained and had to be bypassed. The bypass alignment crossed the South Fork Eel River twice and cut through a steep, rugged mountainside. I led my project team of structure and roadway designers, geologist, surveyors, biologist, archeologist, planners, and right-of-way specialist through development of an environmental impact report and selection of a preferred alternative. In August 2003, the Federal Highway Administration approved more than $65 million to permanently restore US 101.

Humboldt Bay Trail along US 101 near the mouth of Jacoby Creek.
Photo by Leslie Scopes Anderson

Midway through the project, I transferred from Project Manager to become the Environmental Manager responsible for completing the environmental document and obtaining all construction permits. We received the first District 1 incidental take permit for COHO salmon needed for construction of the bypass. The bypass was constructed in three years and opened to traffic in June 2009. Following the opening, the original Route 101 alignment along the ancient landslide was decommissioned. I enjoyed working as the Design Engineer on this landslide decommissioning project that restored the landslide slope to a more natural value.

The Humboldt Bay Trail project is giving Caltrans engineers an opportunity to work with the City of Eureka, Humboldt County, and the City of Arcata on achieving the long-envisioned goal of a separated, non-motorized trail connecting Eureka and Arcata. The 17-mile trail from Arcata's Skate Park, through the Arcata Marsh and along the US 101 safety corridor to southern Eureka along the waterfront, is one of the most exciting and well-supported projects in Humboldt County today. The final 4.2-mile segment of the trail, from Bracut to Eureka, could be completed as soon as 2020.

I feel fortunate to have found HSU's ERE program. And now, after 25 years working at Caltrans, I am proud to be one of the ERE graduates working here in Humboldt County. Ω

ERE Alumni Impacts – Gov't: Multi-Agency Collaboration
by Sherry Constancio, PE (ERE 1997)
formerly
North Coast Flood Mgt Coordinator
Eureka Flood Center
California Dept of Water Resources

Although I currently work at Caltrans as the District Hydraulics Engineer, I started my career at the California Department of Water Resources (DWR) State-Federal Flood Operations Center in Sacramento. In 2007, after ten years, I returned to Humboldt County to assume the role of North Coast Flood Management Coordinator at DWR's Eureka Flood Center (EFC). The only office of its kind, EFC was established following the devastating floods of 1964, in which

29 lives were lost on the north coast. Recognizing the unique and inherent flood threat within the 20,000 square-mile area of responsibility, this Center was co-located in direct partnership with the National Weather Service (NWS) and U.S. Geological Survey (USGS). Together we maintained, monitored and reported on real-time gaging stations that serve as official forecast points within the Smith, Klamath, Redwood Creek, Trinity, Mad, Van Duzen, Eel, Navarro and Russian River basins. Utilizing technological advances in weather and river forecasting, and with our federal partners, I was able to manage EFC so that it served as a vital early warning system for local officials and the people of the north coast. Following significant storm and high water events, I conducted post-flood forensic investigations in the field to analyze impacts and identify necessary improvements to our warning and flood control systems. I worked with other professionals to run and refine hydrologic models, and issue hydrologic forecasts, notifications and products that supported our local officials and potentially save lives and property. It's a humbling experience to be a part of something that has a direct, immediate impact on people's lives.

Emergency planning, response, and recovery require a close partnership with local, state, federal, NGO, and tribal entities. EFC works with NWS, USGS, State and County Offices of Emergency Services, FEMA, U.S. Bureau of Reclamation, National Parks Service, U.S. Coast Guard, U.S Army Corps of Engineers, CA Highway Patrol, Cal Fire, Humboldt Bay Municipal Water District, PG&E, news media, tribal governments, and other community organizations. I served as the DWR representative in multi-agency groups and technical advisory committees including: CA Tsunami Steering Committee, Redwood Coast Tsunami Work Group, Water Safety Coalition of Northwest CA, Redwood Creek Watershed Group, and Humboldt Bay Initiative Sea Level Rise and Vertical Datum groups.

I participated in emergency exercises and was part of the multi-agency design team for the Cascadia Subduction Zone Earthquake and Tsunami Response Plan. In March 2011, the world became acutely aware of the destructive flooding and debris flow potential of a devastating 9.0 earthquake that struck off the shore of Japan. The resulting tsunami's impacts extended to the U.S. West Coast, and EFC helped to provide critical information throughout the event. In Humboldt County, post-event inspections of the Redwood Creek levee system were required due to tsunami surge.

In 2013, I was part of a team called out to investigate a boat that had washed up in Crescent City, and I helped determine that there was a link to the 2011 Japanese tsunami. Inspection stickers and hand painted characters on the side of the 21-foot fishing boat ultimately confirmed this to be from Takata High School in Iwate Prefecture City of Rikuzentakata. This discovery helped create a special connection between Crescent City and Takata High School students, and led to the publishing of a bilingual children's book about the 8000-mile journey entitled "The Extraordinary Journey of Kamome: A Tsunami Boat Comes Home." Written by HSU geology Emeritus Professor Lori Dengler, and Amya Miller, a special assistant to the mayor of Rikuzentakata, the book was illustrated by Arcata artist Amy Uyeki and has become a symbol of hope around the world.

Another notable project involving cooperative efforts with our partners was the development of a Flood Emergency Preparedness, Response and Recovery Plan Pilot Project with the City of Arcata. Following presentation to the Arcata City Council, we secured agreement to initiate a Pilot Study for the city based upon the local stream flooding designation. As project lead, I oversaw the coordinated effort with City of Arcata staff to investigate the city's flood risk, evaluate existing flood control systems and develop a plan for the city's flood response and recovery. Another exciting experience was being a part of the technical advisory committee for the

Sherry Constancio inspecting a Japanese fishing boat in April 2013. The boat was part of the debris, from the March 2011 Japanese tsunami, that washed ashore in Crescent City, California.

Redwood Creek Estuary Restoration and Levee Rehabilitation Conceptual Design Project. The project objectives were to restore natural processes sufficient to develop and maintain estuarine habitat, rehabilitate the levee to achieve a sustainable level of flood protection, and be compatible with adjacent agricultural land use.

These experiences and the opportunity to collaborate with others for the benefit of the people and resources on the north coast has been an integral part of my incredibly fulfilling career. Ω

ERE Alumni Impacts – Govt:
Redwood Nat'l and State Parks
by Greg Bundros (BS ERE 1975)
Hydrologist (Retired)

For 34 years, I had the privilege of working at Redwood National and State Parks (RNSP). In 1978, RNSP was expanded by 48,000 acres to its current boundary, occupying the lower-third of the Redwood Creek watershed. Of the newly acquired area, 38,000 acres had been extensively logged and contained more than 400 miles of logging roads, many abandoned and failing. The expansion legislation authorized a program to rehabilitate the disturbed lands within the newly expanded park area.

Starting in 1979 and for the next 13 years, I was a project leader in the Watershed Restoration Program. We were a team of hydrologists and geologists tasked with doing something that had never been done before at this scale, and the learning curve was steep.

Our goal was to reduce erosion and sedimentation caused by the extensive logging road network inherited with the park expansion. I spent winter months in the field, mapping active and potential erosional processes, and prescribing erosion control treatments. In the spring, I designed excavations and prepared technical specifications and drawings. During the summer months, I oversaw and managed the heavy equipment work, often camping near the project area all week to avoid long commutes.

Today, most of the roads inherited with the park expansion have been removed, thereby significantly reducing the sediment threats to the park's aquatic and riparian resources during large storms. The methods we established for assessing and quantifying sediment sources, prioritizing treatments and heavy equipment use have been adopted extensively throughout our region and the country. Sediment assessments are now required by state forest practice rules when planning timber harvest activities.

In 1992, I became the lead for the Private Lands Program. About 45 percent of the Redwood Creek watershed is public land, mostly managed by RNSP. The majority of the remaining land, upstream of the park, is managed for timber production. My primary job was to work with private landowners within the Redwood Creek watershed to minimize erosion and sedimentation from their roads that could potentially impact the downstream resources in the park. In 1995, I led an effort that culminated with the NPS and private landowners signing formal agreements, committing the parties to work together and address potential sediment sources in the upper Redwood Creek watershed. These agreements provided the framework for cooperative erosion control efforts in the upper watershed.

I also led a multi-year effort assessing logging roads on private lands in Redwood Creek that was completed in 2004. We evaluated 70% of the more than 1,100 miles of roads, built databases, and performed GIS analyses to prioritize areas and roads for treatment. We also provided a treatment strategy that was used to seek funding to implement work. Several projects have been completed since that time, and the work continues to this day. I believe these efforts will reduce the sediment threats to the downstream park resources, improve riparian conditions and water quality throughout Redwood Creek, and ultimately benefit anadromous salmonid populations in the watershed, as habitat conditions improve. This program of cooperative stewardship has been used as a model in other parts of our county and the Pacific Northwest. Ω

EMPLOYMENT – CONSULTING

Currently, 85 ERE grads are employed by 30 engineering consulting companies in Humboldt County. This is the largest number of grads in any single employment sector. TABLE 3 shows the local ERE grads currently employed in the consulting sector.

TABLE 3. ERE ALUMNI – CONSULTING

Company / Agency / Org City ERE Grad Name	Title	BS Yr	MS Yr	MS Opt
AM Baird Engineering Fortuna				
Matt Pearson, PE	Senior Staff Engineer	1997		
Chase Cimina	Associate Engineer	2016		
Matt Nyberg	Associate Engineer	2015		
Peter Seidel	Associate Engineer	2015		
Juliette P. Bohn Consulting Arcata				
Juliette Bohn	Principal / Proj Mgr		2010	EES
John Damon, PE McKinleyville				
John Damon, PE	Principal Engineer	1976		

Continued

TABLE 3. ERE ALUMNI – CONSULTING (Cont'd)

Company / Agency / Org City ERE Grad Name	Title	BS Yr	MS Yr	MS Opt
Forsyth Applied Sciences Arcata				
Jon Forsyth, PE	Owner	1983		
GHD Eureka				
Steve Allen, PE	Principal	1996		
Brendan Byrd	Staff Engineer	2015		
Rebecca Crow, PE	Senior Project Manager	1997		
Gary Davidson	GIS Analyst	1976		
Jax Gill	Staff Engineer	2017		
Luke Halonen	Staff Engineer	2014		
Richela Maeda	Staff Engineer	2015		
Steve McHaney, PE	Senior Project Manager	1986		
Camille Penny	Staff Engineer	2015		
Dagan Short, PE	Senior Project Manager	1998		
Nate Stevens, PE	Project Engineer	2013		
Patrick Sullivan, PE	Senior Project Manager	1996		
Jeremy Svehla, PE	Senior Project Manager	2003		
Joshua Wolf, PE	Senior Project Manager	2003		
Brett Vivyan, PE	Project Manager	2011		
Gavin Zirkel	Staff Engineer	2017		
Kurt Gierlich, PE Eureka				
Kurt Gierlich, PE	Consulting Engineer	1985		
GMA Hydrology Arcata				
Cort Pryor	Proj Mgr / Survey Mgr	2008		
Ghirardelli Associates Inc. McKinleyville				
Charlie Hayler, PE	Project Manager		2000	ERE
Jim Osier, PE	Sr Constr Inspector	1988		
Green Road Consulting McKinleyville				
Robin Collins, PE	Principal Engineer	2001		
Matti Nylander	Project Engineer	2015		
Barrett Penton	Project Engineer	2015		
Greenway Partners Arcata				
Steve Salzman, PE	Principal	1986		
Nathan Sanger, PE	Civil Engr / Proj Mgr	2010		
HWR Engineering and Science Arcata				
Laura Kadlecik	Co-Owner	1990	1998	IDT
Mike Wilson, PE	Co-Owner		1996	ERE
House Moran Consulting, Inc. Ferndale Home Office				
Annje Dodd, PE	Senior VP and Partner	1997		
Kolstad Land Surveys Bayside				
Tai Morgan-Marbet, PE	Land Survor-in-Training	2010		
LACO Associates Consulting Engineers, Inc. Eureka				
Mike Nelson	Pres / CEO Plan Prin	1994		
Rod Wilburn	VP Engineering	2000		
Arrow Walker	Assistant Engineer	2015		
Brian Wallace	Assistant Engineer	2014		
Lost Coast Engineering Ferndale				
Tai Morgan-Marbet, PE	Associate Engineer	2010		
Andy Nawrocki	Staff Engineer	2015		
McBain Associates Arcata				
Scott McBain	Partner / Project Manager	1989		
Fred Meyer	Stream Restoration Designer	1996		
Nic Sabo	Envir Engineer	2016		
Michael Love & Associates Arcata				
Mike Love, PE	Principal Engineer	1996		
Travis James, PE	Senior Proj Engineer	2007		
Tony Llanos, PE	Senior Proj Engineer	1996		
Steven Pearl	Staff Engineer	2014		
Moonstone Associates, Inc. McKinleyville				
Lisa Stromme, PE	Owner	1999		
Mother Earth Engineering Arcata				
Kendra Miers, PE	Co-owner / Principal Engr	2011		
Patricia Lai	Co-owner / Project Engr	2012		
Craig Lorenc	Staff Engineer	2013		
Nanette Nickerson	Staff Engineer	2012		
Phil Zerkel	Staff Engineer	2013		
Northern Hydrology and Engineering McKinleyville				
Jeff Anderson, PE	Co-owner Prin Engr		1998	ERE
Bonnie Pryor	Co-owner Prin Geomorph	1999		
Brian Draeger	Staff Engineer	2015		
Rose Patenaude, PE	Water Resources Engr	1999		
Corin Pilkington	Staff Engineer	2009		

Continued

TABLE 3. ERE ALUMNI – CONSULTING (Cont'd)

Company / Agency / Org City ERE Grad Name	Title	BS Yr	MS Yr	MS Opt
NorthPoint Consulting Group, Inc. Eureka				
Michelle Aldrete	Staff Engineer	2017		
Derek Roelle	Staff Engineer	2017		
Omsberg & Preston Eureka				
Erika Willor	Project Engineer	2005		
Ontiveros and Associates, Inc. Fortuna				
Brian Ontiveros, PE	Principal Engineer	1993		
Pacific Watershed Associates McKinleyville				
Brad Job, PE	Sr Civil Engineer	1993		
Ryan Seng	Staff Engineer	2013		
William Popenuck, Air Quality Consultant Orick				
Bill Popenuck	Principal	1980		
Real Solutions Eureka				
Heidi Benzonelli	Owner/Lead Energy Consult	2007		
Redwood Energy Arcata				
Michael Winkler	Partner/Energy Analyst	2001		
SHN Consulting Engineers & Geologists Eureka				
Mike Foget, PE	Dir, Envir Services Div	1986		
Pat Barsanti	Envir Engineer	1991		
Erilynn Helliwell	Staff Engineer	2015		
Pieter Gustavson	Staff Engineer	2016		
Jordan Ludtke	Staff Engineer	2017		
Bill McGoldrick	Staff Engineer	1992		
Chuck Swanson	Staff Engineer	2013	2015	ERE
Whitchurch Engineering Fortuna and Eureka				
Jeff Laikam, PE	Engineering Supervisor	1997		
Darren Tully, PE	Engineering Manager	2003		
Ben Adams	Project Engineer	2014		
Nic Flenghi	Technology Coordinator		2017	ERE
Jeff Hinton, PE	Senior Civil Engineer	2009		
Zach Johnson	Project Engineer	2013		
Flynn Manetta-Tomlinson	Project Engineer	2017		
Brad Wilson, PE	Senior Civil Engineer	2011		
Terrence Williams Automotive Consultant Redway				
T.K. Williams	Principal Engineer	2004		

Although perhaps not as obvious at first glance as for the government sector, ERE grads in consulting have also had significant positive impacts on Humboldt County.

The 30 companies in Humboldt County that employ ERE graduates range in size from large to very small. For example, at the large end, GHD employs 9000 people in 200 offices worldwide, and their Eureka office employs 15 ERE grads, including the local Principal Engineer. In the middle, SHN has five offices in California and Oregon, and their Eureka office employs 7 ERE grads, including the Environmental Services Division Director. At the small end, Northern Hydrology and Engineering is a local firm in McKinleyville employing five ERE grads, including the two co-owners. Examples at the very small end include Juliette P. Bohn Consulting and Forsyth Applied Sciences, both in Arcata, and both owned and operated by ERE grads with no other employees.

Note that many of the 30 companies have ERE employees with titles indicating ownership or top management: Owner, Principal, President, CEO, Senior VP, Partner, (divisional) Director, and Senior Engineer. These folks will generally have their stamp on all that is accomplished at those firms, so it is safe to say that any impacts on Humboldt County by these firms are also ERE impacts.

Checking company websites, there is an amazing diversity in specialization among the companies, from areas normally found in traditional civil, mechanical, and electrical engineering, to newer environmental engineering and renewable energy. These specializations include: construction management, materials testing, transportation, land development, low-impact development, landscape architecture, land surveying, hydrographic surveying, GIS, recreation, environmental engineering, environmental monitoring, geosciences, renewable energy, energy efficiency, energy management, geomorphic assessment, sediment management, water quality, water resources modeling, water resources management, watershed hydrology, river restoration, riparian restoration, wetlands restoration, hydrodynamics, channel hydraulics, fish passage, coastal ecology, and cannabis site inspection and licensing.

ERE Alumni Impacts – Consulting:
GHD
by Steve Allen, PE (BS ERE 1996)
Principal

When I graduated from HSU in 1996, I had to explain to potential employers what the HSU ERE program was all about and why they should give me a chance. They wanted to know how an environmental engineer was different from a traditional civil engineer. Now, more than twenty years later, HSU's ERE program and ERE graduates are well un-

derstood and sought after in Humboldt County and beyond. The rigorous program, with its multi-disciplinary approach, continues to develop ERE graduates who have strong technical skills, are motivated, have a broad background to tackle a host of real world challenges, and have the skills to be successful working as an engineer. At GHD we actively seek out ERE graduates because of the great reputations of the ERE program and the ERE graduates themselves.

My first job after graduation was as an entry level staff engineer at a small local firm, Spencer Engineering. I found I really enjoyed working as a consulting engineer, especially the variety of projects and variety of roles on projects that consulting provided. Moving to Winzler & Kelly (now GHD) allowed me to work with and learn from many more professionals with different backgrounds including engineers, geologists, biologists, and planners on a variety of projects. After 22 years working as a consulting engineer, and now as a managing Principal at GHD, I still enjoy the same positive attributes that first drew me to the consulting world.

There are many examples of projects that have improved our local Humboldt County community, including roads, trails, water, wastewater, stormwater, wetlands, and many remediation and restoration projects. These projects require a multi-disciplinary team and years of hard work with our clients, local stakeholders, regulatory agency staff, and many others to realize positive improvements in our local community.

One exciting local project is the Salt River Ecosystem Restoration Project. Since 2009, GHD has served as the prime environmental, engineering and construction management firm for this $34M project for the Humboldt County Resource Conservation District. The project includes restoring fish passage to more than 15 miles of historic salmonid spawning tributaries and 300 acres of tidal wetlands to support a broad list of special status and native species. GHD has led this multi-phase ecosystem restoration encompassing 7.7 miles of stream restoration, 700,000 cubic yards of cut and fill, and many in-stream habitat structures. The ultimate goals of the project are to restore the Salt River channel and adjacent riparian floodplain by adding channel habitat complexity, increasing hydraulic conveyance, constructing habitat features that re-establish ecological processes; and restore tidal connectivity to historic tidal wetlands to allow for the natural evolution of diverse and self-sustaining salt- and brackish-water tidal marshes, intertidal mudflat, and shallow water habitats. Many people have contributed to this very complex and challenging project. ERE grad Jeremy Svehla has been our project manager leading this project, and he has worked closely with many other ERE alumni both within and outside of GHD. Our role is one part of a project that has taken decades to develop and implement. While not yet complete, the phases that are built are functioning as intended and there are many positive benefits already being realized by the local community.

Aerial overview of Salt River Ecosystem Restoration Project.
Photo by ERE Professor and pilot Brad Finney (BS ERE 1976)

Another notable project is the Rohner Creek Flood Control Project. Rohner Creek is an urban stream that flows through the City of Fortuna that would overtop its banks and flood critical roadways and large portions of private and commercial property on a regular basis. The project became a top priority for the city, and GHD prepared a hydrologic, hydraulic, and in-stream flow study. The city used the study to secure primary funding for this project in the form of a $3.5m Department of Water Resources Grant. Preliminary engineering and environmental studies were completed to facilitate the city in making an informed selection of a preferred alternative. These considerations included potential impacts to private property, potential impacts to existing utilities, construction costs, long-term maintenance costs relative to flood reduction, ability to obtain grant funding, and environmental constraints that could affect regulatory compliance and therefore the ability of the project to move forward.

The project provided us with the opportunity to help a community remove 150 homes and businesses from flood risk, provide significant environmental benefit by restoring ESA listed species

habitat and improving fish passage and therefore access to their habitat, assist our Client to secure $7.5M in project funding, finding common ground with sometimes conflicting goals of private property owners and regulatory agencies, obtaining regulatory approvals and seeing the project through two years of construction with two different general contractors. Brett Vivyan, another ERE graduate, has been our project manager leading this project and he has worked closely with many other ERE alumni on this project both within and outside of GHD. Now that the second year of construction is complete, the project is considered a success.

These large complex projects are not easy and it takes many people dedicated to the positive outcomes to make them happen. The effort and results are worth it. We are proud to be active partners committed to making positive changes in our community. Ω

ERE Alumni Impacts – Consulting: Northern Hydrology & Engineering
by J. Rose Patenaude, PE (BS ERE 1999)
Senior Water Resources Engineer

I have been involved in an on-going project in the lower Mad River since 2009 that involves many facets of environmental engineering, including wastewater, soil chemistry, hydraulic modeling, geomorphology, hydrologic monitoring, water quality monitoring, civil site design, fisheries restoration, public outreach and presentations, CEQA, and the need to understand and potentially change policy. While ERE grad Lisa Stromme, PE (now at Moonstone Associates) and I were both at SHN Consulting Engineers and Geologists, Inc., we worked on the McKinleyville Community Services District's 20-year Wastewater Management Facilities Plan. We evaluated wastewater disposal options and the option tof taking their existing percolation ponds off-line from their treated wastewater reclamation system was discussed. One option was to increase the agronomic efficiency of a river floodplain used for effluent reclamation to accommodate the proportion of effluent allocated to the percolation ponds annually. This was to be achieved by converting the reclaimed floodplain into a riparian forest, planted with species that could uptake wastewater at a greater agronomic rate than pasture grasses.

Since I joined Northern Hydrology & Engineering (NHE), I have worked closely with MCSD and Mary Burke (CalTrout North Coast Project Manager, IDT grad 2011) to obtain funding to design off-channel habitat restoration for fisheries in the location of the percolation ponds, enhance public access, and implement a biofiltration pilot study to test the nutrient and water uptake rates of several riparian tree species. These projects were funded through the Department of Fish and Wildlife's Fisheries Restoration Grant Program and through a grant from the Coastal Conservancy, as well as cost shares from MCSD and NHE. Engineering designs for the off-channel habitat are complete and the biofiltration pilot study is underway.

With the project designs complete, the project team is now in the process of applying for implementation funding to restore the percolation ponds back to an active floodplain. In tandem, I will continue working with MCSD and the North Coast Regional Water Quality Control Board to adjust their permits as necessary to take the percolation ponds off-line and convert the reclaimed floodplain into a working forest. Acres of riparian forest are intended to provide a biofilter to add effluent treatment prior to disposal to the Mad River. In addition, a large portion of the forest is planned for rotation to maintain high agronomic efficiency, which should be an economic benefit to McKinleyville. The ecological benefits of this project are numerous. Finally, the project team is working with a trail planner to enhance an existing trail to view the Mad River and access the site, providing social benefits to the local community. Ω

ERE Alumni Impacts – Consulting: SHN Consulting Engineers and Geologists, Inc.
by Marty Lay, PE (BS ERE 1973)
Senior Environmental / Civil Engineer (Retired)

In June 1973, I joined the local firm of Winzler and Kelly Consulting Engineers (now GHD), and my initial job was to complete a water resources and land use evaluation for the Hoopa Valley Indian Reservation under a grant from the U.S. Bureau of Indian Affairs (BIA) to the Hoopa Valley Business Council (HVBC). The work involved detailed land use evaluations for farming, as well as physically monitoring local streams, all while coordinating with the Hupa people, Tribal operations departments, and associated regulatory agencies (HVBC, Bureau of Indian Affairs, Indian Health Service (IHS), U.S. Forest Service, etc.). This effort led to water system grants being awarded to HVBC from the U.S. Housing and Urban Development, the U.S. Economic Development Administration, and BIA. I was the junior design engineer doing the field surveys and design layout as well as office design for review by senior engineers, HVBC, BIA, and HIS. For the next five years our teams developed a valley-wide domestic water transmission and service distribution system network that included water storage, booster pump stations, instream water diversion systems, and water treatment facilities. I presented design alternatives to HVBC for input on Tribal preferences, and then adjusted the design. I did some of my own hand drafting and calculations, while relying on input from team members I assembled in disciplines of hydrology, agriculture, fisheries and forestry, cultural impacts, and road building.

I became the resident construction engineer (RE) for many of the projects I designed (approximately five miles of transmission and distribution pipeline, four tank locations, and three instream water diversions), and was thus able to see what worked and what

needed to be changed, given site physical and regulatory constraints, political and cultural issues, and economics of the various projects (grants, loans, and local money availability). Duties of the RE included daily construction inspection and reporting, permitting compliance observations, soil compaction testing, concrete sampling, survey control, contractor interaction and communications, HVBC reporting and consultation, contractor payroll processing, and government agency reporting and project updates. I worked with other ERE grads, including Pat Barsanti and Dave Edmonds. This work continued when I moved to SHN Consulting Engineers in 1980 as I assisted with design and construction inspection responsibilities for ongoing water system work in the Hoopa Valley.

My next great Humboldt engineering experience was being selected by design engineers (CH2M and SHN) and the City of Arcata to be the resident construction engineer for the Arcata Wastewater Treatment Plant construction during the early 1980's. I was the counterpart to the construction firm, and had to rely on many engineering, construction, and ecosystem-trained people to get the project completed. Construction work included demolition of existing facilities while keeping wastewater treatment processes active, excavation, pile driving, and concrete work for new structures, as well as new and modifications to existing yard and pump station plumbing and electrical, system controls construction, new headworks, chlorine contact basin, digester rebuild, and marsh treatment polishing facilities. As the onsite resident engineer (RE), I was responsible for: daily detailed construction inspection and reporting, and as-constructed drawings; all new and old system operational testing and startup observations and coordination with the Arcata treatment plant operators; contract change order review, processing, and negotiations between the contractor, treatment plant operators, design engineers, and the City of Arcata; weekly and monthly construction reporting documents; contractor pay request and quantity review and processing through the payment request system; weekly and special construction meetings and interfacing with the various involved parties and regulatory agencies; coordination of special testing, survey control, and permitting compliance with the contractor and City of Arcata; coordination with ERE Professor Bob Gearheart regarding the treatment marshes; coordination with HSU Fisheries Professor George Allen on the fish rearing aspect of the treatment processes construction; pile driving and bridge construction oversight; and so on and on. This was a great project and a wonderful group of people to be involved with at that point of my career.

One of my favorite projects was being the lead civil/environmental engineer for the site civil design (demolition and disposal of existing land and bay facilities, water, wastewater, stormwater, fire protection, site grading and surfacing, and HAZMAT operations) for the Eureka C Street Marketplace (now Madaket Square) and the associated Fisherman's Terminal building and boardwalk structures. Our SHN team worked with local architect Philippe Lapotre, marine engineers BERGER-ABAM, City of Eureka (engineering, permitting, waterfront facilities operations, public works, fire department representatives), and many regulatory agencies. ERE graduates who assisted on this project at SHN were Pat Barsanti, Bill McGoldrick, and Mike Foget. Upon completion of the design, I was selected to be the construction oversight representative to the City of Eureka for the site civil and structural construction components of the project. Tasks included almost daily site inspections with the City Resident Inspector and City Engineer and subsequent reporting for project daily records. I oversaw and performed contaminated soil and water cleanup operations and testing, reporting, and follow up with involved agencies. I also observed and documented pile driving and concrete boardwalk construction, utility infrastructure construction and inter-ties, and grading and asphalt paving / concrete flatwork construction and testing, with the assistance of many of our SHN staff. All involved parties met regularly to adjust design aspects and interferences of facilities with utilities as such "inconveniences" arose. The result is a working recreational and commercial fishing facility that enhances the Eureka waterfront. Ω

EMPLOYMENT – RETAIL SERVICE

Currently, 6 ERE grads are employed by 5 local retail companies. TABLE 4 shows the local ERE grads currently employed in this sector. Check the company names and websites, and the ERE employee job titles of to get a sense of ERE impact.

TABLE 4. ERE ALUMNI – RETAIL

Company / Agency / Org City ERE Grad Name	Title	BS Yr	MS Yr	MS Opt
Hi-Growth Distribution LLC McKinleyville				
Walt Dragaloski, PE	Owner / Sales Rep	1990		
Humboldt Performance Cycle Redway				
T.K. Williams	Owner / Engineer	2004		
NuLeaf Construction Services Bayside				
Auriah Milanes	Owner / Lead Designer	2006		
OurEvolution Energy and Engineering Arcata				
Andy Sorter, PE	Principal Engineer	2004		
Praxeis, LLC Eureka				
Matt Pearson, PE	Co-founder	1997		
Travis Wentworth	Co-founder	2014		

ERE Alumni Impacts – Retail:
OurEvolution Energy and Engineering
by Andy Sorter, PE (BS ERE 2004)
Principal Engineer

As a professional working in the area, I am never surprised when I meet a new colleague who is an ERE alumni. As I look at local projects and infrastructure from electric vehicle charging stations, to micro-grids to large bridge and bypass projects, I see the faces of ERE alumni leading the way.

After graduating in 2004, I worked for a local engineering firm before moving to Seattle for a job at Ridolfi, Inc. Ridolfi specializes in environmental engineering on native lands, and this work was very satisfying.

After four years, I returned to Humboldt County and worked for a local company for a year while obtaining my professional engineering license. I was ready to start my own business and focus on my passion… energy efficiency.

In 2009, I founded OurEvolution Energy & Engineering. By partnering with Ridolfi, I was able to secure many contracts in northern California working with tribal governments completing strategic energy planning. We then branched into energy auditor training, strategic energy planning and energy efficiency implementation at institutions from Alaska to Nevada, including being involved in the installation of many public EV charging stations.

In 2013, The California Clean Jobs Act was established. It provides local school districts with funds to complete energy assessments and implement energy efficiency measures. Through this program, OurEvolution has been able to identify and complete lighting retrofits, HVAC and refrigeration upgrades, and building envelope improvements at schools throughout Humboldt County. Not only do these projects save energy and the associated costs for the District, in many cases they also have dramatic impacts on the health and comfort of the staff and students.

From 2013 to 2016 we were involved in the funding, procurement, civil design, product specifications, and construction oversight of 12 electric vehicle charging stations from Rio Dell to Willow Creek to Trinidad. We are proud to have funded, installed and donated the first publically available Level II charging station in Arcata. We are committed to supporting the necessary infrastructure for widespread adoption of these technologies.

In 2015, we had the opportunity to work at HSU through the CSU's Monitoring Based Commissioning Program (MBCx). Teaming with fellow ERE alumni at kW Engineering (based in Oakland), HSU Facilities Mgt engineers, and ERE students, we completed energy assessments, monitoring, energy modeling, energy efficiency measure development, controls enhancements, and several capital construction projects in Gist Hall and Founders Hall. These projects saved nearly half of the energy expenditures at Gist Hall and approximately 25% at Founders Hall. Additionally, the comfort and operational efficiency of both buildings was dramatically improved. Working in these iconic buildings in my hometown with fellow HSU ERE grads was truly a gratifying experience.

In 2015 and 2017 OurEvolution worked with the Humboldt Bay Harbor District to assess energy usage, power distribution, and switch yard complications at its newly acquired "Terminal 2" Site. This site was previously the location of a large pulp mill facility. We completed energy assessments of the facility, developed mapping of the power distribution at the site and assisted the Harbor District in locating and addressing a significant sulfur hexafluoride (SF6) leak in the main 60 kV to 12 kV switch yard. SF6 is an insulating material used in high voltage breaker applications. In addition to being very costly, SF6 has an extremely high "greenhouse gas potential," roughly 23,000 times that of carbon dioxide. These projects resulted in energy expenditure reductions and the complete repair of the SF6 leak, reducing both costs and greenhouse gas emissions. Ω

EMPLOYMENT – PUBLIC UTILITIES

Currently, 3 local ERE grads are employed by a single public utility. TABLE 5 shows the local ERE grads currently employed in this sector.

TABLE 5. ERE ALUMNI – PUBLIC UTILITIES

Company / Agency / Org City ERE Grad Name	Title	BS Yr	MS Yr	MS Opt
Redwood Coast Energy Authority Eureka				
Richard Engel	Dir of Power Resources	1988		
Allison Campbell	Mgr of Power Resources		2014	ETaP
Mahayla Slackerelli	Mgr of Account Services		2017	ETaP

With only three local ERE grads, our representation in this employment sector is deceptively small. In fact, the three local grads working at this one public utility (Redwood Coast Energy Authority) have a disproportionately large impact on Humboldt County. Virtually all current Humboldt County residents who get their electricity from the grid are impacted.

In addition, while only one local public utility currently employs ERE grads, in the past there have been several others. For example, ERE grads at one time filled two positions with significant impact on Humboldt County: Route Manager, T&T Engineer at AT&T, and District Engineer at Humboldt Community Services District.

ERE Alumni Impacts: –
Public Utilities
Redwood Coast Energy Authority
by Richard Engel (BS ERE 1988)
Director of Power Resources
and
Allison Campbell (MS ETaP 2014)
Manager of Power Resources

Humboldt County has several public utility agencies, most of them community service districts and similar entities that provide water and wastewater services for unincorporated areas and tribal lands. For many years, ERE graduates have played roles in delivering public utility services to Humboldt County. In the past, these utilities included AT&T, Humboldt Community Services District, and PG&E.

Our employer, Redwood Coast Energy Authority (RCEA), recently became a different kind of public utility, namely a community choice aggregator (CCA). CCAs allow local governments to provide electric power to residents and businesses, typically with lower rates, more renewable energy, and lower greenhouse gas emissions than the incumbent utility company. Since launching in May 2017, RCEA's CCA program has successfully delivered on all of these goals.

Our program helps keep millions of dollars in Humboldt County each year that would otherwise go elsewhere. It will bring new jobs and new clean energy infrastructure to our county. This past February we learned that the California Energy Commission will provide grant funds to support development of a solar microgrid at the airport in Mckinlyville. It will be developed in partnership with Schatz Energy Research Center, PG&E, and the county. We are also in the early stages of creating a partnership to develop California's first offshore wind power project. Our Community Choice Aggregation program also supports generation of local renewable power, including Humboldt Redwood Company's biomass power plant in Scotia. Humboldt County is leading the way in creating a locally-controlled energy economy.

ERE graduates have provided public utility services to the county for many years. The two of us along with Mahayla Slackerelli all earned our ERE BS or MS degrees from HSU, and we currently contribute to the power resources team at RCEA. We maintain the CCA program on a day-to-day basis, help the program develop new services, and work to build a cleaner and more local power portfolio.

Humboldt Redwood Company's biomass power plant in Scotia. Generation of local renewable power such as done here is supported by Redwood Coast Energy Authority's Community Choice Aggregation program.

Richard
After graduating from HSU, I worked several years at the City and County of San Francisco's Public Utilities Commission, where I implemented energy efficiency projects. I later worked at the City of Palo Alto Utilities as a residential energy and water conservation field representative.

I have long been intrigued by the CCA model, and in 2016 I jumped at the chance to help RCEA bring community choice to Humboldt County. As director of power resources, I get to work on a wide variety of tasks, including power procurement, setting retail power rates, planning for new power project development, and explaining to the public how our program works. It's satisfying to put my education and professional experience to work each day bringing clean and affordable energy to over 60,000 Humboldt County electric customers. In the coming year, I look forward to building a local Solar Energy Innovation Network with support from the National Renewable Energy Laboratory. This network will include partners such as the County Planning Department, Schatz Energy Research Center, and local solar companies. The partnership will help us to achieve our central goal of meeting more of Humboldt County's energy needs with locally generated renewable power.

Allison
While working as a data analyst for Gemini South Observatory in Chile, I became progressively more interested in climate change, greenhouse gas emissions, and understanding how in the world electric utilities were going to solve the problem of seamlessly integrating renewable energy. I looked at a lot of graduate programs to retrain for the multidisciplinary field of electric utilities and energy policy. Early in my search, the Energy, Technology, and Policy graduate program at HSU stood out for its student-dedicated faculty and depth of course content. After earning my MS degree, I was hired at RCEA, and have been central to the CCA team since its inception. In my

role as Manager of Power Resources, I lead regulatory compliance with external agencies, support wholesale power procurement, and liaison with HSU professors for CCA student projects. I couldn't be happier with my career in the utilities – I get to dive deep into complex analytical problems that benefit our local community.

The analytical problems I address include assisting in the development of load forecasts for Resource Adequacy planning and the grid interconnection study for the Arcata Airport Microgrid Project. Long term load forecasts are used by state agencies in the annual Resource Adequacy process to develop contingency plans for back-up generation. The microgrid at the Arcata Airport will provide 2.3 MW of power from a PV array with 8 MWh battery backup. In addition to the local benefits of emergency response resiliency met with the microgrid, the battery storage will meet the state-mandated energy storage requirements for Humboldt County's CCA. Ω

ERE Alumni Impacts –
Public Utilities:
Humboldt Community Services District (HCSD)
by Stephen Davidson, PE (BS ERE 1977)
District Engineer (Retired)

December 30, 2005. It was a dark and stormy night … and windy … so windy it closed Hwy 101 between Arcata and Eureka because of downed trees, and knocked out power to the local region. The Humboldt Community Services District (HCSD in Cutten), my employer for 20 years, was at the ready. Mobilizing our fleet of emergency generators, we scurried among the 29 sewage lift stations and nine water pressure zones to keep the facilities operational. Emergency preparedness cannot be over emphasized. The district yard emergency generator provided office, garage, communication, and most important, fueling tank power to keep things up and running. We used our own radios instead of relying on cell phones, because in storm emergencies cell phones are the second things to go, right after the power.

Utility engineering is all about providing efficient, effective customer service. Our customers rarely think about their sewer or water service (other than the monthly bill) until there is a problem. Being a sewer and water district, we were blessed with specific service requirements which did not include police, fire or land use politics and allowed us to concentrate on providing and improving our utility services. One way to achieve this level of service is to develop a mindset to "get the job done" with a minimum of wasted effort and future maintenance requirements. We prided ourselves on repairing and replacing our infrastructure correctly the first time.

Incorporated in 1952, most of our infrastructure was nearing replacement age. In order to stabilize rates, it was important to have a realistic capital replacement program, to reduce emergencies, and provide consistent service. Day-to-day tasks included designing new and replacement sewer and water infrastructure (mains, water booster pump stations, water storage tanks, and sewage lift stations), generating bid specifications and cost estimates, developing capital improvement programs, equipment selection, and keeping up with the myriad of government compliance.

In the 1960's the District got a "good deal" on welded steel gas pipe that was inappropriately used for our water system piping. Unfortunately, it didn't take long for the pipes to begin springing leaks as it (the gas pipe) began corroding. It took our construction crews 15 long years to replace it all at a mile a year. The good news is that we received new, modern equipment to assist us.

Currently, as part of its on-going capital replacement program, HCSD is replacing its South Bay Well, located just south of Eureka at the base of Humboldt Hill. This work is too large to handle in-house, so a contractor is removing the old well and installing a similar replacement well. The work is scheduled to be completed by the end of August, 2018. Ω

Humboldt Community Services District's South Bay Well corroded casing. HCSD is currently replacing the well as part of its on-going infrastructure replacement program.

EMPLOYMENT – RESEARCH AND EDUCATION

Currently, 22 local ERE grads are employed by 4 research and education organizations. This does not include HSU ERE faculty, which is covered above in (1) Impacts by ERE professors. TABLE 6 shows the local ERE grads currently employed in this sector.

TABLE 6. ERE ALUMNI – RESEARCH AND EDUCATION

Company / Agency / Org City ERE Grad Name	Title	BS Yr	MS Yr	MS Opt
Humboldt State University Arcata				
Andrea Alstone	Energy Planner / Anal, Facil Mgt		2009	ERE
Peter Alstone	Assistant Professor, ERE		2009	ERE
Eileen Cashman	Professor, ERE	1984		
Annje Dodd, PE	Lecturer, ERE	1997		
Brad Finney	Professor, ERE	1976		
Joy Finney	Admin Assist, President's Office	1990		
Arne Jacobson	Professor, ERE		1997	ERE
Tim Kohberger	IT Consultant, ITC DT Support	1996		
Doug Saucedo	Lecturer, ERE	2005		
Lawrence Berkeley National Laboratory Arcata Home Office				
Colin Sheppard	Transportation Sci Engr Assoc		2009	ERE
Mattole Valley School District Arcata				
Mark Dubrow	Tutor (Math & Science)	1991		
Schatz Energy Research Center (SERC) Arcata				
Arne Jacobson	Director		1997	ERE
Peter Alstone	Faculty Scientist		2009	ERE
Jerome Carman	Research Engineer		2013	ERE
Dave Carter, PE	Managing Research Engineer	2005		
Greg Chapman, PE	Senior Research Engineer	1999		
Margaret Harper	Research Engineer	2012	2013	ETaP
Andrew Harris	Research Engineer	2012		
Kyle Palmer, PE	Research Engineer	2007		
Tom Quetchenbach	Research Engineer		2011	ERE
Kristen Radecsky	Research Engineer		2009	EES
Doug Saucedo	Research Engineer	2005		
Mark Severy, PE	Research Engineer		2013	ERE
Jim Zoellick	Managing Research Engineer	1990		

A slight majority of local ERE grads in this employment sector are employed by the Schatz Energy Research Center (SERC). All of their current and past directors, as well as the managing research engineers, are ERE alumni. And, most of the other professional staff members are also ERE grads. Thus, virtually all impacts on Humboldt County by SERC can also be claimed as ERE impacts.

Other research and ed organizations in the County have also hired ERE grads. Check the organization websites and job titles in TABLE 6 to get a sense of ERE impact.

ERE Alumni Impacts – Research and Education:
Schatz Energy Research Center (SERC)
by Jim Zoellick (BS ERE 1990)
Managing Research Engineer

Of the 191 ERE graduates currently working professionally in Humboldt County, 24 (12%) are in the field of research / education. All but two of these are employed by either the Schatz Energy Research Center (SERC) at HSU, or by the University itself. The work performed by these ERE grads, and others before them working in research, has had a profound impact on Humboldt County and has established us as a statewide leader in the planning and deployment of community-scale renewable energy.

I am a Managing Research Engineer at SERC, where I have worked for nearly 23 years. Our approach at SERC is applied research; we focus on solving practical problems. We do not tend to do the same things over and over, and we don't focus our efforts on well-understood, firmly established energy topic areas. Instead, we focus on emerging areas that are not readily addressed by the private sector.

This approach has led us on an interesting journey over the last three decades. We began our research with a focus on hydrogen as a storage medium for intermittent renewable energy. This evolved into research and development of fuel cells, fuel cell electric vehicles, and hydrogen fueling stations. Today, while we still have a hand in the hydrogen world, we have branched out to myriad energy research areas. These include smart grids, energy access in the developing world, bioenergy and low carbon transportation.

SERC, being located at the University and closely affiliated with the ERE program, has always employed a large number of ERE grads. Today we employ 14 of the 24 ERE grads currently working locally in the research sector. One of the most satisfying things in my career has been the opportunity to work with my ERE colleagues on projects that directly impact our local community. This has included numerous projects with local tribes and local government. Collectively we have helped shape the way Humboldt County meets its energy needs.

In 2005, I led a research effort at SERC working along side several other ERE grads, including Richard Engel and Michael Winkler. We were part of a local team that assessed

Humboldt County's energy needs, opportunities, and constraints. This work led to the development of an Energy Element for the County's General Plan Update, and it also began the long and fruitful partnership between SERC and the Redwood Coast Energy Authority (RCEA), which was formed in 2003.

In 2009 SERC and RCEA received a $200,000 grant from the California Energy Commission (CEC) to further their energy planning work and develop the RePower Humboldt Strategic Plan. This plan found that Humboldt County could meet all of its energy needs using local renewable energy sources, and that efforts to pursue such a path would bring many benefits to the local area, including increased energy security, greater resilience, local jobs, and a more sustainable environment. Again, this was a research effort that I led along with other ERE grads working at SERC, including Colin Sheppard and Peter Alstone.

The RePower Humboldt study also found that the local community had a strong desire to participate in energy planning efforts and to have a say in energy related decisions, spurring a desire to pursue community-based energy supply options. Community Choice Aggregation, which was established by the CA legislature in 2002, was identified as one possible path forward. In May of 2017, RCEA began serving Community Choice Energy customers in Humboldt County and providing the energy component of their electricity service, while PG&E continues to deliver electricity and maintain the poles and wires. This is a huge step toward, empowering our community to pursue its energy vision, in part because it can provide the financial means to make energy projects happen.

The RePower Humboldt study led to a number of follow-on projects, all of which prominently involve ERE grads. One of SERC's most exciting recent projects was the establishment of a community-scale, low-carbon microgrid at Blue Lake Rancheria. Funded in part by a $5 million CEC grant, the Rancheria's microgrid serves their casino, hotel and tribal office complex and features a large solar electric array, battery storage, sophisticated controls and a legacy back-up generator. The system is normally managed to reduce the Rancheria's energy costs, but in the event of a local disaster and subsequent long-term power outage, the system will provide emergency power to serve a designated Red Cross shelter at the site. This project, led by my SERC colleague, ERE grad Dave Carter, has established SERC as a leader in the microgrid space.

The success of the Blue Lake Rancheria microgrid helped lead to SERC's most recent award from the CEC, another $5 million grant that, along with more than $6 million from RCEA, will be used to establish a cutting-edge microgrid that serves our regional airport and U.S. Coast Guard Sector Humboldt Bay facility. This project will also be led by Dave Carter, and will feature a partnership between SERC, RCEA, PG&E, and the County of Humboldt. This will be PG&E's first multi-customer microgrid, and will serve 18 customer accounts at the end of a distribution circuit. The system will feature the largest solar electric system in Humboldt County coupled with a large battery. RCEA will own the solar electric and battery systems and will use these to provide clean, cost-effective renewable power to their local Community Choice Energy customers. In the event of a power outage, PG&E will manage the microgrid. This partnership between RCEA and PG&E is unique, and it could establish a statewide model for future microgrid projects. In terms of disaster resilience, the project will be very significant. During a long-term power outage the airport microgrid will be capable of serving critical emergency services for the airport and Coast Guard Station nearly indefinitely.

Another effort that SERC and RCEA have just embarked on is the development of offshore wind energy in Humboldt County. We have one of the best offshore wind resources in the country, as well as a port that could serve the offshore wind industry. This, along with the fact that the rest of the state's coastal waters have recently been deemed "off-limits" for wind energy development by the U.S. Navy, has focused a lot of attention on Humboldt's

Aerial view of solar array at Blue Lake Rancheria.

wind resource. Because our coastline has deep water, the turbines deployed here will need to be floating. This is cutting edge technology that is just reaching full-scale commercialization. We are working with the state and others to examine this opportunity, and if things line up properly we might pursue development of a floating offshore wind farm over the next 5-10 years. This would move us toward a 100% local renewable energy supply while also providing a substantial boost for our local economy.

Due in no small part to the hard work of many ERE grads, Humboldt County has established itself as a leader in the planning and development of community-driven renewable energy projects. We still have a lot of work to do, but our sustainable energy opportunities look promising here on the north coast, and you can bet that ERE grads will continue to play a prominent role in shaping Humboldt County's energy future! Ω

EMPLOYMENT – NON-PROFITS

Currently, 4 local ERE grads are employed by 4 non-profits. TABLE 7 shows the local ERE grads currently employed in this sector. Check the organizations and job titles to get a sense of ERE impact.

TABLE 7. ERE ALUMNI – NON-PROFITS

Company / Agency / Org City ERE Grad Name	Title	BS Yr	MS Yr	MS Opt
California Trout, North Coast Region Arcata				
Mary Burke	Program Manager		2011	IDT
Dispute Resolution Services Fortuna				
Susan Tappan, PE	Owner	1980		
Jacoby Creek Land Trust Bayside				
Susan Ornelas	Executive Director	1994	2002	IDT
Open Door Community Health Centers Arcata				
Laura Kadlecik	Special Projects Manager	1990	1998	IDT

ERE Alumni Impacts – Non-Profits:
California Trout (CalTrout)
by Mary Burke (MS IDT 2011)
Program Manager

The HSU MS Program in Environmental Systems with option in International Development Technology (IDT) taught me to understand effective engineering solutions for problems involving social and natural resources issues. The program's consideration of political and economic dimensions of developing successful engineered solutions has proven highly relevant to the work I do with California Trout (CalTrout), which is a non-profit in Humboldt's rural coastal communities.

CalTrout works throughout the state to ensure that there are resilient wild fish in healthy waters to support a better California. CalTrout's North Coast region extends from the headwaters of the Eel River in Lake County to the Smith River near the Oregon border, and includes all of Humboldt County. We are often called upon to solve complex resource issues that balance the needs of wild fish and people. All of our river, creek, and estuary projects require the services of local and regional engineering and environmental science firms that are well-staffed with ERE graduates. We work with consulting firms to develop proposals for funding, and then we partner on collaborative processes to produce engineering designs and environmental compliance documents so projects can be implemented and improve the conditions for state and federally listed salmonids. In addition, many of our state and federal agency partners are HSU or ERE graduates. All of our projects benefit from the training and skills provided by the University and specifically by the ERE Department.

The north coast of California has large resource extraction industries and river systems which have major restoration needs. These needs have spawned organizations that have become leaders in salmonid restoration. Their work is to restore ecosystem function to support the life history of salmon and steelhead. Typical awards for restoration projects range from $100,000 to millions of dollars. The Salt River restoration project in the Eel River Delta recently showcased one of the largest restoration projects along the Pacific Coast. More than $35,000,000 has been spent on significant improvements to agriculture, fish, and wildlife in the coastal zone in the past four seasons of implementation. The economic impact of local restoration is three-fold: first, state and federal grants are used to fund the work and support local non-profits, engineering and environmental firms, and construction contractors; second, the resulting benefits to salmonid populations will provide future benefits to local recreational and commercial fisheries; and third, the restoration of ecological processes is at the heart of our public trust doctrine, and it benefits the natural world now and into the future.

During my time in the IDT graduate program, I focused on understanding the perspective of the people involved rather than a prescriptive action targeting a perceived need. While all of our projects involve fish, water, and people, each project has a unique set of conditions that require tailored engineering tools as a part of a multi-disciplinary approach to ecosystem restoration. I am thankful to have the partnership of many passionate and dedicated ERE graduates as we work together on these challenging and rewarding projects. Ω

ELECTED / APPOINTED OFFICIALS

Currently, 7 ERE grads have been elected or appointed to serve on 7 city, county, and regional councils, boards, and commissions. Four of the positions (Arcata City Council, Humboldt Bay Harbor, Recreation, and Conservation District, Humboldt County Board of Supervisors, and McKinleyville Community Services District) are elected; the other three are appointed. TABLE 8 shows the local ERE grads currently serving in these positions.

TABLE 8. ERE ALUMNI – ELECTED / APPOINTED OFFICIALS

Company / Agency / Org City ERE Grad Name	POSITION	BS Yr	MS Yr	MS Opt
Arcata City Council Arcata				
Susan Ornelas	Member (through 2020)	1994	2002	IDT
Michael Winkler	Member (through 2020)	2001		
Humboldt Bay Harbor, Recreation, and Conservation District Eureka				
Stephen Kullmann	3rd District Commisioner (through 2018)		2009	EES
Humboldt County Board of Supervisors Eureka				
Mike Wilson, PE	3rd District Supervisor (through 2020)		1996	ERE
Humboldt County Planning Commission Eureka				
Dave Edmonds	Vice Chair (through 2019)	1973		
McKinleyville Community Services District McKinleyville				
Mary Burke	Board Member (through 2020)		2011	IDT
North Coast Unified Air Quality Mgt District Hearing Board Eureka				
Charles Roecklein, PE	Chair / Engr Member (through 2018)	1981		
Redwood Coast Energy Authority Board Eureka				
Michael Winkler	Vice Chair Arcata Director (through 2018)	2001		

Impacts on Humboldt County by ERE grads in this category are generally fairly clear and easy to demonstrate. Let's take them in the order shown in TABLE 8.

The Arcata City Council is the legislative policy-making branch of city government. It directs the course of local government through its power to adopt ordinances, levy taxes, award contracts, and appoint certain city officers, commissions, and committees. The council clearly impacts all residents of the city as well as many other people who visit the city. Thus, with two ERE grads currently on the Arcata City Council, as well as others having served in the past, it is clear that ERE has an impact on these same folks.

The Humboldt Bay Harbor, Recreation, and Conservation District manages Humboldt County's tidelands, bays, and estuaries. It oversees planned development of the harbors and ports, as well as protection of the natural resources located here. It has permit jurisdiction over all lands granted to the District, including all of Humboldt Bay. With one ERE grad currently serving as a commissioner, and another having served in the past, it is clear that ERE has a direct impact on users of Humboldt Bay (sailors, fishermen, etc.) and also an indirect impact on many other residents (who buy food such as oysters harvested from the bay, etc.).

The Humboldt County Board of Supervisors acts for the county much as the Arcata City Council acts for the city. Thus, the ERE impact on county residents associated with the county board of supervisors is very similar to the case of the ERE impact on Arcata residents associated with the city council, except of course on a larger scale.

Humboldt County Planning Commission members are appointed by the Humboldt County Board of Supervisors, and they provide planning review and recommendations to the board. Thus, the impacts on Humboldt County associated with the planning commission are a subset of the impacts associated with the board of supervisors, already described.

The McKinleyville Community Services District provides water, sewer, street lighting, and recreational services to the community. With one ERE grad currently on the board, it is fair to say that ERE impacts virtually all McKinleyville residents.

The Hearing Board for North Coast Unified Air Quality Management District administers the judicial functions of the District. Matters that may be brought before the board include: petitions for a variance, requests for abatement orders, and appeals of permit decisions. The hearing board chair is an ERE grad. The impact of ERE on Humboldt County here is not only on those few who come before the board, and it is difficult to gage the specific impacts.

Finally, the Redwood Coast Energy Authority (RCEA) is governed by a board of directors whose members are appointed by the governing bodies of RCEA's member agencies. The ERE alumni board member was appointed by the Arcata City Council. Since the RCEA board governs RCEA, ERE can claim the same impacts here as for RCEA stated earlier: an impact on all county residents who purchase their electricity from the grid, that is, the great majority of county residents.

ERE Alumni Impacts – Elected / Appointed Officials: Humboldt Bay Harbor, Recreation, and Conservation District
by Stephen Kullmann (MS EES 2009)
Commissioner (3rd District)

I was appointed to the Humboldt Bay Harbor, Recreation, and Conservation District (HBHRCD) Board of Commissioners in February 2017 to complete the term of another ERE Alum, Mike Wilson, who was elected to the Humboldt County Board of Supervisors. I brought to the Board my experience as an elected member of the Blue Lake City Council, where I also served on the governing boards of Redwood Coast Energy Authority and Humboldt Waste Management Authority. I also gained valuable experience in Humboldt Bay issues from my tenure as the Wiyot Tribe Natural Resources Director, where I managed projects such as Humboldt Bay water quality monitoring, baseline monitoring in the South Humboldt Bay Marine Protected Area, and the completion of the Indian Island / Tuluwat cleanup.

Since becoming a Harbor Commissioner, I have been involved with ongoing projects such as mariculture permitting and mitigation, eel grass mapping and restoration, dredging and sediment beneficial reuse, sea level rise planning, redevelopment of the former Samoa Pulp Mill, and potential offshore wind power development. At the January 2018 HBHRCD District Board Meeting, I presented a draft letter to the Bureau of Ocean Energy Management (BOEM) opposing the Trump Administration's proposal to open almost all federal waters of the United States, including the Northern California Region, to offshore oil drilling and exploration. I argued that this would be devastating to the environment and local economy while representing a backward step in energy development that would make us less competitive in the world economy. Furthermore, we have the potential to become a leader in wind energy, which could bring long-term sustainable job growth to Humboldt County. The Board voted unanimously in favor of sending the letter, with one Commissioner absent. Ω

VOLUNTEER SERVICE

I said previously that ERE students seem to "self-select for positive cooperation and mutual support rather than negative competition and I'm-only-in-it-for-me-ism." This culture attaches to our students during their journey through our program, and many participate in one or more of the five professional clubs associated with our program (see the Clubs Board on page 26 for details). It also attaches to our graduates. The result is that many of them volunteer in support of community and / or professional organizations and activities even as they tackle the demanding work loads associated with the engineering profession.

TABLE 9 shows a sample of 20 local ERE grads currently involved in volunteer service.

TABLE 9. ERE ALUMNI – VOLUNTEER SERVICE

American Society of Civil Engineers (ASCE) N Coast Branch
Susan Tappan (Dispute Resolution Services) – Life Member Lianna Winkler-Prins (Caltrans) – Treasurer Gavin Zirkel (GHD) – YMG Vice President Yaad Rana (looking for work) – YMG Secretary Austin Corbet (looking for work) – YMG Treasurer Michelle Aldrete (NorthPoint Consulting) – YMG Multi Media Coordinator Marty Lay (SHN, Retired) – member
Engineers Without Borders (EWB) North Coast Prof Chapter
Chuck Swanson (SHN) – President – Camoapa, Nic and La Manzanilla, Mex Tony Llanos (Michael Love and Assoc) – Director – Camoapa, Nicaragua Richella Maeda (GHD) – member – Camoapa, Nicaragua Patrick Sullivan (GHD) – member – Camoapa, Nicaragua Marty Lay (SHN, Retired) – member Brett Vivyan (GHD) – member
Society of Women Engineers (SWE) Calif Redwood Coast Sect
Desiree Edgar (Caltrans) – Secretary Nancy Kuykendall (Caltrans) – Treasurer Susan Tappan (Dispute Resolution Services) – Certified Project Manager
Big Brothers Big Sisters of the North Coast
Lianna Winkler-Prins (Caltrans) – "Big Sister" GHD (as company, including ERE grads) – Bowl for Kids' Sake
Alcohol Drug Care Services (Eureka)
Mark Dubrow (Mattole Valley School District) – Board Member
Arcata Library
Oona Smith (HCAOG) – weekly for the past 18 years
Creative Sanctuary (supporting the arts)
Mark Dubrow (Mattole Valley Sch Dist)
Bike Month Humboldt and bike skills rodeos
Oona Smith (HCAOG)
Blue Ox Charter School
Mark Dubrow (Mattole Valley Sch Dist) – wood shop instructor
Boy Scouts of America (Humboldt and Del Norte Counties)
David Edmonds (SBC Calif, Retired) – Public Affairs Director
Eureka Symphony
Lisa Hockaday (Caltrans) – Board Member
Fortuna City Police Department
Susan Tappan (Dispute Resolution Serv) – 'Citizen on Patrol' progr
Hospice of Humboldt
Camille Penny (Northern Hydrology)
Humboldt Area Saltwater Anglers
Scott McBain (MaBain Associates) – President
Humboldt Bay Toastmasters
Nancy Kuykendall (Caltrans)
Professional Engineers in California Government (PECG)
Lisa Hockaday (Caltrans) – President Elect
Redwood Coast Village
Camille Penny (Northern Hydrology)
Rotary Club of South West Eureka
Marty Lay (SHN, Retired) – Member

ERE Alumni Impacts – Volunteer Service: Engineers Without Borders (EWB)

by Antonio Llanos, PE (BS ERE 1996)
Director and Past President
and
Senior Project Engineer
Michael Love & Associates, Inc.
Arcata, California

> volunteerism
> noun | vol·un·teer·ism | \ vä-lən-tir-i-zəm \
>
> *"the principle of donating time and energy for the benefit of other people in the community as a social responsibility rather than for any financial reward"*
>
> —Collins English Dictionary

A defining quality for many of us living here in Humboldt is a strong sense of community and awareness of the greater good. While in the ERE program, I felt that sense of community and collaboration. Perhaps it's that spirit that leads so many of our alumni toward volunteering, locally and internationally.

As an engineer, as with any career, we start by developing the skills that will define our profession. However, gaining experience can be difficult when you don't have much experience to offer a prospective employer. As a volunteer, you'll have the opportunity to learn and gain experience while helping others. Internships and community service are great opportunites to develop your skill set. After I graduated from HSU in 1996, I joined the AmeriCorps Watershed Stewards Program (WSP). There I worked alongside natural resources professionals and gained invaluable experience working in fisheries restoration and river morphology. We earned a small stipend and money for school loans while working for a natural resource agency at no cost to them. We also spent time going to classrooms and educational events to teach students about science and our local ecosystem. It was a lot fun. I was able to learn from top leaders in the field, and I got to apply engineering concepts I learned in ERE to a non-engineering field.

Today, 20 years later, I work for a small engineering firm that specializes in stream and aquatic habitat restoration – a direct path from that experience with WSP. Many of the people we work with professionally are also WSP alumni who still live and work in Humboldt County. We were able to develop a career that grew directly from our WSP internship and community service.

Once you have started your career and gained some experience, there are many ways to apply that experience to the larger community. I started engineering with the idea of working internationally. My father was as an engineer in the petrol industry, and my mother a language teacher, and I was fortunate that we lived in Peru, Venezuela and Colombia. I liked engineering and wanted to pursue a more environmental application, which led me to HSU and what was, at the time, a new field known as "Environmental Engineering." That led to my BS ERE, and my current job as Senior Project Engineer at Michael Love & Associates in Arcata.

While my work keeps me busy locally, organizations like Rotary International, Peace Corps, and Engineers Without Borders (EWB) are good avenues for international, humanitarian and volunteer work.

In 2008, ERE Students along with Professor Bob Gearhart started a student EWB Chapter to explore wetland treatment opportunities in Mexico. While on an ERE rafting trip, Bob and I talked about how a professional chapter could support the students and further EWB's mission to:

"Support community-driven development programs worldwide by collaborating with local partners to design and implement sustainable engineering projects, while creating transformative experiences and responsible leaders."

After some work learning about by-laws and mission statements, we started the local Northcoast Professional

The 2011 EWB team in Camoapa, Nicaragua, checking out the local reservoir, which was losing capacity due to sedimentation. Left to right: Tyler Duncan, Sterling 'Pablo' Wallstrum, Gabe Salazar, Shira Wedemeyer, Emily Wortman, Carlos Diaz, and Antonio Llanos, all ERE grads or students at the time.

Chapter of EWB (EWB-NCP). We partnered with the Arcata-Camoapa Sister City project, which has a 30-year relationship with the Nicaraguan city of Camoapa. They immediately facilitated a collaboration with their mayor, the hospital and the water commission to develop a water well that could provide a more reliable source of water for the region's primary hospital. The hospital well project is currently wrapping up and EWB-NCP has started a new project in the coastal town of La Manzanilla Mexico, where local engineers and HSU students are assessing the town's wastewater distribution system and will be providing design recommendations for improvements and for a wetland treatment system. Once built, these improvements will help divert and treat sewage away from an important coastal lagoon and wildlife area.

Each of these projects provided students and professionals with an opportunity to use and further develop their engineering skills while being part of a personal cultural exchange. Although our focus is always on the technical aspects of engineering, one of the most valuable outcomes is the exchange of friendship that results from these experiences. Over the years, students, doctors, artists, and musicians from Camoapa have come to stay with families in Arcata, and the other way around, enriching both communities as a result.

Perhaps the next destination on the journey of volunteering is to use that experience to lead and teach. Another useful way to give back to the community is simply to be involved; helping with fund raisers, joining review committees, and going to classrooms to talk about engineering and science. Your experience as an engineer or scientist can be an asset to local organizations and boards. One of the more ambitious ways to volunteer is to run for political office. It is especially important right now that we have scientifically literate people hold office. If you look at our government and don't see people that represent you and your ideas – it's time to get involved. Ω

ERE GRADS – RETIRED

Currently, there are 20 ERE alumni who worked professionally in Humboldt County for all or part of their professional careers, and retired here or elsewhere. They are listed in TABLE 10 under the company, agency, or organization where they last worked before retiring.

All of these retired alumni made significant contributions over the years to the well-being of Humboldt County and its citizens. Examples of their impact on the county have already been presented in previous sections of this story.

TABLE 10. ERE ALUMNI – RETIRED

Company / Agency / Org ERE Grad Name	Title	BS Yr	MS Yr	MS Opt
ATT				
Dave Edmonds	Route Mgr, T&T Engineer	1973		
Caltrans				
Gary Banducci, PE	Branch Chief, Proj Coord	1976		
Alan Escarda, PE	Area Constr Engineer	1987		
Chris Holm, PE	Traffic Safety Engineer	1986		
Wes Johnson, PE	Materials Engineer	1996		
Lucy Kostrzewa, PE	Resident Engineer	1986		
Ralph Martinelli, PE	Off Chief, Traf Safety	1987		
Rick Mayberry, PE	Struct Constr Engineer	1986		
Kemset Moore, PE	Hydraul Design Engineer	1996		
Alan Radford, PE	Proj Mgr, Minor B Projects	1979		
City of Eureka				
Charles Roecklein, PE	City Engineer	1981		
Hilltop Design				
Phil Perez, PE	Principal Consult Engineer	1974		
Humboldt Community Services District				
Stephen Davidson, PE	District Engineer	1977		
Humboldt County Health Department				
Steve Gustafson	Sr Env Hlth Specialist	1994		
Humboldt County Public Works Department				
Art Reeve, PE	Deputy Director, Roads	1995		
Chris Whitworth, PE	Deputy Director, Engr	1988	1995	IDT
Redwood National and State Parks				
Greg Bundros	Geologist	1975		
SHN Consulting Engineers & Geologists				
Marty Lay, PE	Sr Envir / Civil Engineer	1973		
Schatz Energy Research Center				
Mark Rocheleau	Sr Research Engineer	1994		
George Waller Wetlands Systems				
George Waller	Owner	1990		

FINAL THOUGHTS

ERE alumni and faculty have had, and continue to have, significant positive impacts on Humboldt County, in both quality and quantity. Virtually every resident of the county feels this impact in their daily lives, perhaps most directly when they wake in the morning and turn on the lights, cook breakfast, wash the dishes, walk or drive to work, power up their computers at work or school, etc. And, there is so much more. We faculty and local alumni are grateful to live and work in this beautiful community, and proud to make our contributions to its welfare. *—cma*

ERE Clubs Information Board

Compiled by ERE Messenger Staff

Organization	Spring 2018 Activities	Fall 2018 Planned Activities
ERE Student Association (ERESA) **Email:** *eresa@humboldt.edu* **Temporary Webpage:** *http://tinyurl.com/HSUERESA*	• ASCE Wastewater Treatment Comp • Bowling night • ASCE Annual Crab Feed • Beach volleyball and bonfire • Mock interviews • Presentations by Professionals • ERE rafting trip • Ice Cream Social / ERE Awards • ASCE / ERE Awards Banquet • ASCE Order of the Engineer • ERE graduation reception	• Welcome Back Pizza • All Clubs meetings • ASCE Pizza with Professionals • Bowling nights • Hiking at Strawberry Rock • New officer elections • Fall Follies (Thurs before Thanksgiving) • Locker raffle • Presentation by Professionals
Engineers Without Borders (EWB) **Email:** *humboldtewb@gmail.com* **Webpage:** *Updated URL coming soon*	• Hospital well water project in Camoapa, Nicaragua with NCPC • AHHA domestic sanitation design proj • Data collection trip to La Manzanilla, Mexico with NCPC • NCPC Homebrew Festival fundraiser • NCPC Jam fundraiser • Design / build a demo ram-pump	• 2018 EWB Regional Conference in SF • Domestic sanitation design project with AHHA in Eureka • Hospital Well water project in Camoapa, Nicaragua with NCPC-EWB • Sanitation project in La Manzanilla, Mexico with NCPC-EWB • Build demonstration ram-pump
Renewable Energy Student Union (RESU) **Email:** *resu@humboldt.edu* **Webpage:** *https://www.facebook.com/HsuRenewableEnergyStudentUnion/*	• HEIF proposal(s) • Bike blender • New faculty lectures (TBA) • Rock Creek Ranch projects (TBD) • RESU reunion • Off grid repair workshop (TBD) • HSU Solar Radiation Monitoring Station (SoRMS)	• Bike blender • New Faculty Lectures (TBD) • Calibrate SoRMS pyranometer • Upgrade SoRMS pyranometer mount • HSU Solar Radiation Monitoring Station (SoRMS) • Rock Creek Ranch projects (TBD) • HEIF proposal(s)
Society of Women Engineers (SWE) **Email:** *swe@humboldt.edu* **Webpage:** *http://hsu.swe.org*	• SWE Social • Bowling night • Assist with MATHCOUNTS • Mentoring program with prof SWE • Rita's fundraiser • 2018 SWE Regional Conf in Portland • Girl Scout Day • Resume Workshop w/ prof head shots	• Engineering Day • Professional Development Workshops • Movie night • SWEshi • WE18 National Conference in Minneapolis • Dinner Fundraiser • Bowling night
Society of Hispanic Professional Engineers (SHPE) **Email:** *shpe@humboldt.edu* **Webpage:** *https://www.facebook.com/shpe.hsu/*	• ERE Drop-In Tutoring sessions • 5-year course planning • Celebración Latin@ – Cesar Chavez & Dolores Huerta Celebration at Los Bagels • SHPE Regional Conf at CSU Sac • ERE Graduation Party	• ERE Drop-In Tutoring sessions • 5-Year course planning • SHPE National Conference • Día de Los Muertos Alter Making & Potluck Celebration