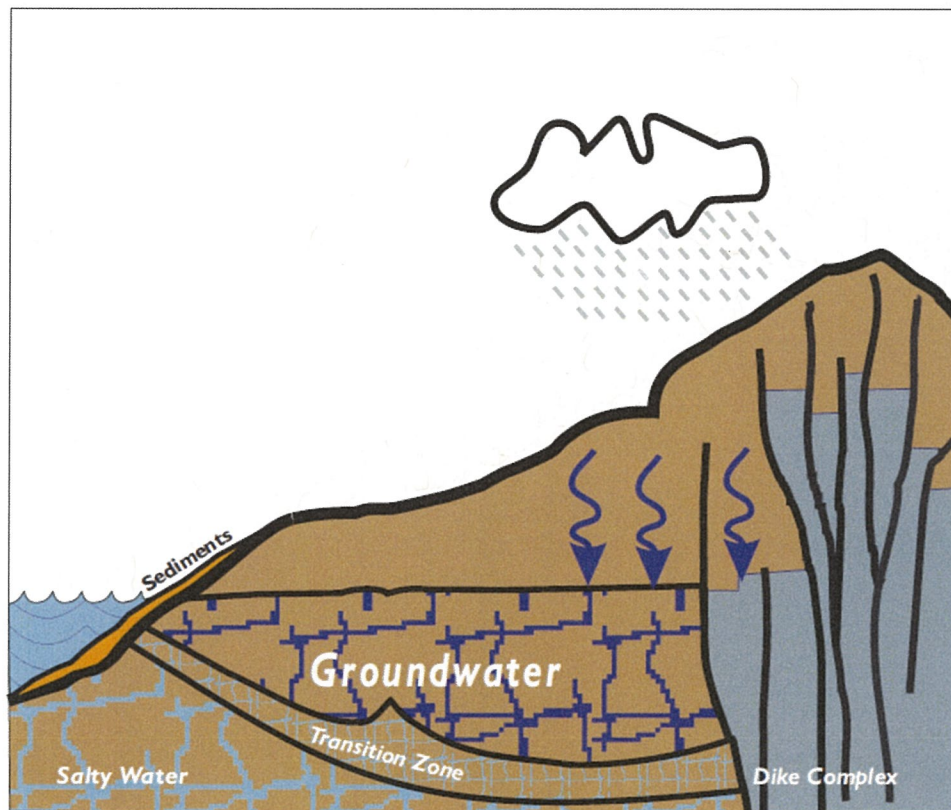


2018 Joint Government Water Conference

The King Kamehameha Golf Club
Wailuku, Maui
August 7, 2018

7:30am - 3:45pm

“Protecting Hawaii’s Groundwater”



Sponsored by:



2018 - 4th Joint Government Water Conference
“Protecting Hawaii’s Groundwater”
The King Kamehameha Golf Club, Wailuku, Maui
Tuesday, August 7, 2018 ~ 7:30 am - 3:45 pm

Drinking Water/Groundwater/Wastewater Professional(s):

The Department of Health (DOH) Environmental Health Administration (EHA) offices/branches invite you to register for the 4th Joint Government Water Conference. The Conference is intended to provide water industry personnel, government agencies, and other water-related organizations with an update of the groundwater protection strategies and activities being conducted in the State of Hawaii by the various DOH EHA offices/branches. In addition, we have invited several other water related agencies to give presentations on their activities and how it relates to or concerns our water systems and water-related activities. This conference will allow participants to keep abreast of the activities of the water-related government agencies, meet our staff and other water system personnel, ask questions and provide us with feedback, and learn what is in store for the drinking water/groundwater/wastewater industry in the coming years. We look forward to your attendance at our 4th Joint Government Water Conference.

Note: You must pre-register for this conference by MONDAY, July 30, 2018. No registration on the date of the conference will be accepted. **Registration is limited.** Priority will be given to people working professionally in water (groundwater, drinking water & wastewater) and government environmental protection personnel. A meal will be served as an integral part of the Conference.

Register On-line at:

<http://events.egov.com/eventreg/HI/event.htm?name=4thjointgovernmentwaterconferencemaui>

| TENTATIVE AGENDA (as of August 2, 2018) | | |
|--|---|---|
| 7:30am | Registration | |
| 8:15am | <i>Opening Remarks and Introduction</i> | <i>Joanna Seto (DOH) & MDWS</i> |
| 8:30am | <i>SDWB: Groundwater Protection Strategy</i> | <i>Joanna Seto (DOH)</i> |
| 9:00am | <i>WWB: Cesspool Strategy & Water Reuse</i> | <i>Sina Pruder (DOH)</i> |
| 9:30am | <i>CWB: Polluted Runoff Program Strategy</i> | <i>Mike Burke (DOH)</i> |
| 10:00am | Break | |
| 10:30am | <i>HEER: Water Quality Activities</i> | <i>Fenix Grange (DOH)</i> |
| 11:00am | <i>DOA-Pesticides: Pesticides in Groundwater</i> | <i>Mitchell MacCluer (DOA)</i> |
| 11:45am | <i>LUNCH: MDWS – Source Water/Wellhead Protection</i> | <i>Alex De Roode and Robert DeRobles (MDWS - Water Resources)</i> |
| | CONCURRENT SESSION A (Cesspool Workshop) | CONCURRENT SESSION B (Water Quality Workshop) |
| 1:00pm | <i>Cost Effective Actions to Mitigate Land-Based Sources of Pollution in West Maui through Decision Models. Kirsten Oleson (UH)</i> | <i>Groundwater Monitoring Status Report Dan Chang (DOH)</i> |
| 1:30pm | <i>On-Site Wastewater Treatment & Disposal Technologies-Function, Design, Operation, and Maintenance. Roger Babcock (UH)</i> | <i>Importance of Watershed Protection to Groundwater - Part 1. Katie Ersbak (DLNR)</i> |
| 2:00pm | Break | |
| 2:15pm | <i>Native Oysters for Water Quality Improvement. Rae Chandler (Oahu Waterkeepers)</i> | <i>Importance of Watershed Protection to Groundwater - Part 2. Chris Brosius, West Maui Mountains Watershed Partnership (WMMWP)</i> |
| 2:45pm | <i>Discussion: Funding and Implementing Cesspool Upgrades—“now to 2050”.</i> | <i>Protecting Hawaii’s Groundwater Through Coordination and Collaboration with Other Agencies & Outreach and Education Efforts.</i> |
| 3:30pm | Wrap-up | |

For more information, contact the Safe Drinking Water Branch at (808) 586-4258.

We provide access to our activities without regard to race, color, national origin (including language), age, sex, religion, or disability. Write or call our Affirmative Action Officer at Box 3378, Honolulu, HI 96801-3378 or at (808) 586-4616 (voice) within 180 days of a problem.

MORNING SESSION

HAWAII'S GROUNDWATER PROTECTION STRATEGY
Joanna L. Seto, P.E.
Safe Drinking Water Branch, Hawaii Department of Health

BIOGRAPHY

Joanna L. Seto, P.E., is the Engineering Program Manager of the Department of Health's Safe Drinking Water Branch. She has more than 25 years of combined private and public engineering experience working at Hawaiian Dredging & Construction Company, Sato & Associates, Inc., and the Department of Health, Clean Water Branch and Safe Drinking Water Branch. Joanna is currently the webmaster of the American Water Works Association-Hawaii Section. She was past president of the Hawaii Section of the American Society of Civil Engineers and is involved with Na Wahine Softball Club and as class representative for the 'Iolani Bulletin. She graduated from 'Iolani School and Washington University in St. Louis, Missouri where she earned a Bachelor of Science in Civil Engineering.

ABSTRACT

The Hawaii Department of Health (DOH) Groundwater Protection Strategy was finalized in June 2017. The Safe Drinking Water Branch will present the three goals of the strategy and the related objectives.

Goal 1: Monitor and assess groundwater quality.

Goal 2: Identify and prioritize groundwater contaminations threats.

Goal 3: Mitigate priority contamination threats and prevent contamination.

This strategy involves multiple DOH branches and offices (and potential funding sources): Safe Drinking Water Branch (GW106/DWSRF 15%), Wastewater Branch (CWSRF), Clean Water Branch (SW106), Solid & Hazardous Waste Branch (SHWB), Hazard Evaluation and Emergency Response Office (HEER).

Hawaii Groundwater Protection Strategy

Hawaii Department of Health Coordinating Branches/Offices:

Safe Drinking Water Branch (GW106/DWSRF 15%), Wastewater Branch (CWSRF), Clean Water Branch (SW106),
Solid & Hazardous Waste Branch (SHWB), Hazard Evaluation and Emergency Response Office (HEER)

June 2017

Mission: To safeguard groundwater quality and public health by protecting Hawaii's groundwater from contamination.
(potential funding source listed within parentheses)

Goal 1: Monitor and assess groundwater quality. (GW106)

Objective 1: Collect and analyze groundwater monitoring data with focus on priority threats to groundwater quality.

Objective 2: Work with other agencies that collect groundwater data to understand what data they collect and how it is collected.

Objective 3: Every four years, generate a Groundwater Status Report which provides a review, analysis, and summary of groundwater monitoring data to understand contaminant trends and sources of contamination. The Report shall include a list of proposed future monitoring of contaminants of concern with rationales and priorities based on severity of public health impacts.

Goal 2: Identify and prioritize groundwater contamination threats.

Objective 1: Recognize that groundwater quality monitoring since the 1990s has shown that the priority threats to groundwater quality as determined by DOH and review of data are as follows (GW106):

| Priority Threats to Groundwater Quality - 2017 |
|---|
| Onsite sewage disposal systems/cesspools/injection wells (WWB/CWB/SDWB) |
| Large scale use of recycled water (WWB/SDWB) |
| Large fuel storage facilities (SHWB/SDWB) |
| Increasing nitrate concentrations (WWB/CWB/SDWB) |
| Agricultural chemicals (HEER/SDWB) |

Objective 2: Identify future threats to groundwater quality and prioritize for Goal 1 or Goal 3 follow-up (GW106/CWSRF/SW106/319/HEER/SHWB).

Goal 3: Mitigate priority contamination threats and prevent contamination.

Objective 1: Coordinate protection efforts with other branches/offices/agencies:

- Safe Drinking Water Branch Underground Injection Control Program - issuing permits for discharges to wells
- Wastewater Branch - protection from onsite sewage disposal systems and cesspools
- Clean Water Branch - surface water protection that also protect groundwater
- Solid & Hazardous Waste Branch - leaking underground storage tanks, landfills, and other wastes that may contribute to groundwater contamination
- Hazard Evaluation and Emergency Response Office - toxicology and health impacts of groundwater contamination and use of hazardous chemicals and pesticides
- Environmental Planning Office - review of new development projects and their impacts to groundwater
- Department of Land and Natural Resources, Commission on Water Resource Management – water quality planning via the Hawaii Water Plan, Water Resources Protection Plan – Section 10, Water Use Permits, Well-drilling applications, salt-water intrusion data
- Department of Agriculture – pesticide use and application

Objective 2: Coordinate use of funding sources to support the HIGWPS: Safe Drinking Water Branch (GW106/DWSRF 15%/DWSRF Fees), Wastewater Branch (CWSRF), Clean Water Branch (SW106, 319), Solid & Hazardous Waste Branch (SHWB), Hazard Evaluation and Emergency Response Office (HEER)

Objective 3: Coordinate the regulatory framework used by each branch/office/agency to protect groundwater from the prioritized contamination threats (e.g., Code of Federal Regulations, Hawaii Revised Statutes, Hawaii Administrative Rules, EPA Guidelines and online tools).

HAWAII'S CESSPOOL STRATEGY and WATER REUSE
Sina Pruder, P.E.
Wastewater Branch, Hawaii Department of Health

BIOGRAPHY

Sina Pruder received her engineering degree from the University of Hawaii. She also has her professional engineering license in civil engineering. She has worked in the Wastewater Branch for 24 years, where she is currently the Branch Chief. Wastewater Branch is responsible for regulating onsite wastewater systems (including cesspools) and water reuse in the State of Hawaii.

ABSTRACT

This presentation will cover cesspool and water reuse activities in the state of Hawaii. Topics include: New requirements on cesspools and mandatory upgrades by 2050, available income tax credits for cesspool upgrades, cesspool upgrade prioritization legislative report and the cesspool conversion working group required by Act 132 of 2018. The work group was established to develop a long-range, comprehensive plan for cesspool conversion statewide of all cesspools by 2050.

Recycled water usage statewide, trends and challenges, and update of the Water Reuse Task Force authorized by House Concurrent Resolution 86 D1 of 2018 to identify barriers and solutions to expand water reuse in Hawaii. Recent findings have raised concerns about the long-term security of fresh water in Hawaii, and increasing the amount of water reuse in the State will help alleviate pressure on fresh water drinking supplies.

CWB: POLLUTED RUNOFF PROGRAM STRATEGY
Michael T. Burke
Clean Water Branch – Polluted Runoff Control Program
Hawaii Department of Health

BIOGRAPHY

Michael T. Burke is the Program Specialist of the Department of Health's Clean Water Branch, Polluted Runoff Control (PRC) Program. He has been with PRC for almost ten years and supervisor for the past three. Prior to joining PRC, he worked at the Department of the Attorney General, Pomaré, Inc. (Hilo Hattie's corporate office), and Hoku Scientific, Inc. where he developed extensive contracting, project management, and procurement experience. Mike grew up in Wai'anae (and still considers his parents' house "home") and graduated from Hawaii Baptist Academy. He earned a Bachelor of Arts in Political Science from Loyola Marymount University and earned a Juris Doctor from Loyola Law School, in Los Angeles, California.

ABSTRACT

The PRC Program's mission is "to protect and improve the quality Hawaii's water resources by preventing and reducing nonpoint source pollution." The PRC achieves its mission by administering the U.S. Environmental Protection Agency's Clean Water Act Section 319(h) Nonpoint Source Management Program, which provides federal grants to support the PRC and fund implementation projects that improve water quality in watersheds throughout the State. This presentation will highlight some of the PRC's implementation projects, and outline funding opportunities and challenges for potential partners.

HEER: WATER QUALITY ACTIVITIES
Fenix Grange
Hazard Evaluation and Emergency Response Office
Hawaii Department of Health

BIOGRAPHY

Fenix Grange, M.S. is the Program Manager for the Department of Health's Hazard Evaluation and Emergency Response Office. Trained an environmental toxicologist, Fenix has 18 years of combined environmental regulatory experience in Superfund as well as human and ecological toxic chemical exposure assessments. Working for the Oregon Department of Environmental Quality, she was one of two state co-managers for the Portland Harbor Superfund Site, acting as the primary tribal engagement coordinator, and initiated statewide implementation of innovative pesticide stewardship partnerships between farmers, university extension and regulators to effectively reduce off-target water quality impacts of pesticides while protecting crop quality. She was promoted to a senior science position to integrate toxic chemical hazard assessments across environmental programs. She came to HDOH in 2012 as the Supervisor of the HEER Site Discovery, Assessment and Remediation Section, and became Program Manager in 2016. In addition to overseeing Superfund and state cleanups of contaminated properties, HEER routinely provides technical and scientific support to other programs, state and local agencies on assessment and evaluation of environmental hazards.

ABSTRACT

In response to growing community concerns about possible offsite impacts of currently used pesticides on local communities and ecosystems, Hawaii's Departments of Health and Agriculture used agency special funds to design and implement a pilot study to sample surface waters and sediments state wide. We are sharing the results of the draft study with community and government stakeholders statewide so that we can begin to work together to learn more about the occurrence of currently used pesticides in non-target environments.

HAWAII DEPARTMENT OF AGRICULTURE -PESTICIDES
Mitchell MacCluer
Pesticides Branch, Hawaii Department of Agriculture

BIOGRAPHY

Mitchell MacCluer is the Environmental Health Specialist for the State of Hawaii's Department of Agriculture, Pesticides Branch, Education section for the island of Maui. He has 32 years of combined private and public experience concerning the safe use of pesticides. He has worked for Terminix, Wolfkill Feed and Fertilizer, Cenex, United Agri Products, and Crop Production Services. He is currently active with the Maui County Farm Bureau. He graduated from Seabury Hall on Maui, and Washington State University in Pullman, Washington. He earned a Bachelor of Science in Agricultural Mechanization with a minor in Agricultural Economics.

ABSTRACT

The Hawaii Department of Agriculture oversees major regulations affecting pesticide use in Hawaii. Activities include regulating the manufacture, sale, and use of pesticides in the State of Hawaii and regulating the distribution and use of pesticides to ensure safety and availability of important pesticides.

**LUNCH
SPEAKER**

MAUI'S SOURCE WATER and WELLHEAD PROTECTION PROGRAM
Alex de Roode and Robert DeRobles
Maui Department of Water Supply

BIOGRAPHY

Alex de Roode and Robert DeRobles are Planner Vi with the Maui Department of Water Supply's Water Resources Division.

ABSTRACT

The County of Maui Department of Water Supply's Source Water Protection Program continues to develop, building on several successful years of development and implementation. With a number of innovative programs under its belt, several underway, and a number of new programs in development, MDWS will provide an overview of program and project successes, lessons learned, and a taste of new programs and projects that have been recently launched or are in development.

As a part of the MDWS' Wellhead Protection Strategy, MDWS is developing a Wellhead Protection Ordinance intended to protect MDWS wells that provide critical potable water resources to Maui County residents and businesses. MDWS will provide an overview of the elements included in its draft Wellhead Protection Ordinance, including standards and regulations that are referenced in the current draft ordinance as well as the process currently underway to move the ordinance to adoption. Upon adoption, this will be the first Wellhead Protection Ordinance adopted by a County within the State of Hawaii.

CONCURRENT SESSION A

COST EFFECTIVE ACTIONS TO MITIGATE LAND-BASED SOURCES OF POLLUTION IN WEST MAUI THROUGH DECISION MODELS

Kirsten Oleson, Ph.D.
Dept. of Natural Resources and Environmental Management
University of Hawaii at Manoa

BIOGRAPHY

Kirsten Oleson is an Associate Professor of Ecological Economics with the Department of Natural Resources and Environmental Management at the University of Hawaii Manoa. She teaches environmental policy analysis, environmental valuation, and social-ecological systems. Her research lab integrates multiple methods from the natural and social sciences to study the reciprocal relationships between humans and ecosystems.

ABSTRACT

A cocktail of land-based sources of pollution presents serious threats to coral reef ecosystems and addressing these has become a key global management and policy challenge. Using a decision science approach, we identified a suite of actions and policy measures to improve nearshore water quality in West Maui. We present the process and results of this structured decision making approach, including objectives development, decision models that combine biophysical models of sediment and nutrient models, and management alternatives that incorporate feasibility and pragmatic constraints collaboratively developed with stakeholders, as well as their relative costs and benefits of and a cost-effectiveness analysis. Through embedding decision science into stakeholder processes, we have validated the network of waste management in West Maui, identified high risk areas, and co-developed sites for new projects.

**ON-SITE WASTEWATER TREATMENT AND DISPOSAL
TECHNOLOGIES –
FUNCTION, DESIGN, OPERATION, AND MAINTENANCE**

**Roger W. Babcock, Ph.D.
University of Hawaii at Manoa
Department of Civil and Environmental Engineering**

BIOGRAPHY

Dr. Roger Babcock is a Professor of Civil & Environmental Engineering in the College of Engineering and the Water Resources Research Center at the University of Hawaii at Manoa. He obtained his Ph.D. in Civil Engineering from UCLA. Dr. Babcock worked for Carollo Engineers in the early 1990s and has been at the University of Hawaii since 1995. He is the CE Graduate Program Chair. Dr. Babcock conducts research on biological wastewater treatment, on-site wastewater treatment, water recycling, membrane bioreactors, bioremediation, and stormwater runoff management. Dr. Babcock also has Professional Engineering licenses in California and Hawaii, does consulting work for several Hawaii firms, serves on the Board of Certification of Wastewater Treatment Plant Operators, and is director of Hawaii's Statewide Wastewater Operator Training Center.

ABSTRACT

This presentation will describe on-site wastewater treatment technologies including septic tanks, aerobic treatment units, recirculating sand filters, disinfection units, and others. On-site disposal technology descriptions will include cesspools, absorption trenches/beds, elevated mounds, ET systems, and water recycling. The presentation will include designs, expected performance of these units, effects of site conditions, and operation and maintenance requirements.

NATIVE OYSTERS FOR WATER QUALITY IMPROVEMENT

Rhiannon Chandler-'Iao, Esq., Executive Director and O'ahu Waterkeeper, Waiwai Ola Waterkeepers Hawaiian Islands

BIOGRAPHY

Rhiannon "Rae" Tereari'i Chandler-'Iao serves as the Executive Director and O'ahu Waterkeeper for Waiwai Ola Waterkeepers Hawaiian Islands. She earned a B.A. in Ethnic Studies from the University of Hawai'i at Mānoa in 2004. After graduating from William S. Richardson School of Law in 2016 with certificates in both Native Hawaiian Rights Law and Environmental Law, she worked as a Post-J.D. Research & Teaching Fellow at Ka Huli Ao Center for Excellence in Native Hawaiian Law. Prior to attending law school, Rhiannon served as the Executive Director of the environmental non-profit organization Community Work Day Program, d.b.a. Mālama Maui Nui. While on Maui, she served as a member of the Maui County Cultural Resources Commission, the Maui Nui Marine Resource Council, and the Steering Committee of Ka Ipu Kukui Fellows Leadership Program.

ABSTRACT

Waiwai Ola Waterkeepers Hawaiian Islands, a member of Waterkeeper Alliance, is currently working with the Pacific Aquaculture and Coastal Resources Center at UH Hilo on the first project in Hawai'i to restore native oysters to improve water quality and clarity. Oysters are filter feeders that remove harmful pollutants including sediment, bacteria, heavy metals, PCBs, oil, microplastics, sunscreen chemicals, and nutrients from the water column. In conjunction with the native oyster restoration project, Waterkeepers will engage youth in watershed education about stormwater, wastewater, water quality, and fishing safety. The oyster restoration project is set to begin in late 2018 at select locations around O'ahu. The project is modeled after several successful partnerships with Waterkeeper organizations on the East Coast involving the restoration of native oysters for bioremediation, including the Billion Oyster Project in New York Harbor.

Waterkeepers' second major initiative is the "Clean Water Under Our Homes" program to address Hawai'i's pressing cesspool issue. In partnership with the Hawai'i Department of Health, Waterkeepers is working to create a low-cost loan program to help residents afford to upgrade their cesspools to septic tanks or aerobic treatment units. This will reduce bacteria levels and pathogens in our water resources.

DISCUSSION SESSION
HAWAII'S CESSPOOL STRATEGY – WHERE DO WE GO FROM HERE?
Funding and Implementing Cesspool Upgrades – “up to 2050”

- The Legislature has taken important actions to address Hawaii's cesspools, supported by DOH.
- Cesspools have significant impact on the quality of drinking water, general water quality, the health of our reefs, and the health of Hawaii's residents and visitors.
- Through federal regulation, the USEPA is already working with operators in the state to address large-capacity cesspools, and we must now focus on addressing smaller-scale domestic use of cesspools statewide.
- During Legislative session 2017, Act 125 was passed, requiring the replacement of all cesspools by 2050 and directing DOH to evaluate cesspools in the state, develop a prioritization method, and work with the Department of Taxation on possible funding options to reduce the financial burden on homeowners.
- The report identifies 14 areas in the state where an evaluation of data on hand indicates greatest need for action. As we gather more data in the future, the areas prioritized may change.
- During Legislative session 2018, Act 132 was passed to establish a Cesspool Conversion Working Group to develop a comprehensive plan for the conversion of all statewide cesspools by 2050.
- Act 132 identifies 14 tasks that need to be evaluated by the working group.
- Provides a \$1M appropriation to retain the services of a consultant to assist the work group with the evaluation of these 14 specific task items.

Tasks required under Act 132 related to financing of cesspool upgrades

- Develop a long-range, comprehensive plan for cesspool conversion statewide of all cesspools by 2050, to be known as the cesspool conversion plan.
- Examine financing issues and the feasibility of various mechanisms, including grants, loans, tax credits, fees, special assessment districts, requirements for conversion at point of sale, and any other appropriate mechanisms for accomplishing and funding cesspool conversion, or any combination of these mechanism.
- Consider owners' ability to pay for cesspool conversions, and, especially how assistance can be provided for lower-income homeowners.
- Consider the most cost-effective approach to cesspool conversion.

**CONCURRENT
SESSION B**

GROUNDWATER MONITORING STATUS REPORT
Daniel Chang
Safe Drinking Water Branch, Hawaii Department of Health

BIOGRAPHY

Daniel Chang is an Environmental Health Specialist with the Hawaii Department of Health's Safe Drinking Water Branch. He has over 30 years of experience in hazardous waste, groundwater and drinking water quality and protection programs. Mr. Chang received his Bachelors degree from the University of Hawaii at Manoa majoring in Chemistry. His duties and responsibilities at the Safe Drinking Water Branch includes: oversight/supervision of the Monitoring & Analyses Section and the Groundwater Protection Program. He also provides guidance/assistance to the Wellhead/Source Water Assessment and Protection Program.

ABSTRACT

As part of the Hawaii Groundwater Protection Strategy, the Groundwater Protection Program must prepare a Groundwater Monitoring Status Report every four (4) years.

Goal 1: Monitor and assess groundwater quality.

- ▶ Objective 3: Every four years, generate a Groundwater Status Report which provides a review, analysis, and summary of groundwater monitoring data to understand contamination trends and sources of contamination. The Report shall include a list of proposed future monitoring of contaminants of concern with rationale and priorities based on severity of public health impacts.

This presentation will provide an overview of the history of groundwater monitoring, summarize current monitoring projects, and propose future monitoring of potential contaminants of concern.

IMPORTANCE OF WATERSHED PROTECTION TO GROUNDWATER
Katie Ersbak
Division of Forestry and Wildlife, Hawaii Department of Land and
Natural Resources

BIOGRAPHY

Katie Ersbak is a Watershed Planner with the State of Hawai'i, Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife (DOFAW). She has B.A. in Urban Studies and Planning from the University of California, San Diego and a Master's Degree in Urban and Regional Planning from the University of Hawai'i at Mānoa. Katie began her career at DLNR in 2011 with the Commission on Water Resource Management. Her experience working on fresh water issues helped set the stage for a position with DOFAW where she currently coordinates statewide protection efforts for Hawaii's native forests and mauka watersheds working closely with groups like the Watershed Partnerships. As the head of DOFAW's Watershed Partnerships Program, Katie administers funding to support the partnerships and other groups in their efforts to control ungulates, stop the spread of invasive weeds, build fences and engage with policy makers.

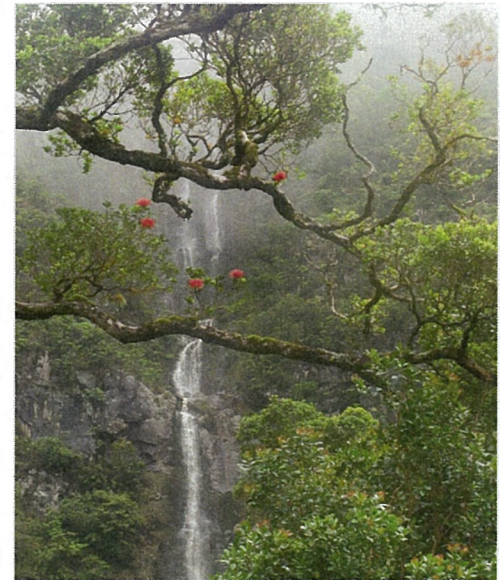
ABSTRACT

Hawaii's native forests absorb rain and cloud moisture across millions of acres - and are the source of Hawaii's fresh water. At the same time, they help reduce erosion that can impact water quality and damage coral reefs. For over a century, public-private partnerships have managed mauka forests by preventing the advance of invasive plants, animals and disease. This presentation will discuss the approaches to mauka watershed management in Hawai'i and the important role of the State's Division of Forestry and Wildlife and Watershed Partnerships in helping safeguard fresh water resources.

CO-PRESENTER

Chris Brosius has been the Program Manager of the West Maui Mountains Watershed Partnership (WMMWP) since 2004 and an active officer of the Hawaii Association of Watershed Partnerships (HAWP). His natural resource experiences have included work with the Maui Forest Bird Recovery Project's habitat management program, Haleakala National Park's endangered species program, a USGS avian disease project on Hawaii Island as well as an assignment with National Geographic in Belize. He is originally from Pennsylvania and graduated from the University of Vermont with a B.S. in Natural Resource Management.

Our Forests. Our Life. Watershed Protection by 2030.



Hawaii is home to unique ecosystems that are in need of our protection. Photo Credits (from left to right): Christian Kahahawai, Nate Yuen, Ryan Chang.

OVERVIEW

The Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife (DOFAW) is responsible for managing over 1 million acres of public land across the state. DOFAW managed lands include forested watersheds that supply Hawaii's drinking water, unique native ecosystems found nowhere else in the world and cultural resources. Protection is needed in order to safeguard these invaluable resources in the face of threats such as invasive species and climate change.

COMMITMENT AND GOALS

In response to these threats, the State is committed to protect 30% (253,000 acres) of Hawaii's highest priority watershed forests by 2030. Of the 843,000 acres identified as priority watershed across the State, only about 140,000 (17%) are currently protected.

Invasive plants and animals are the biggest threats to the health of Hawaii's native ecosystems. The State, with the help of partners, works to lessen the impact of these threats by removing ungulates (hooved animals such as pigs, goats, deer) from priority watershed areas, controlling the spread of invasive weeds, planting native trees to restore badly degraded areas, constructing fire breaks, acquiring new land for hunters and hikers, and building fences to keep out ungulates.

There have been over 40,000 acres of new fenced watershed areas in the last five years. However, more funding is needed to support the long-term management and maintenance of these newly protected areas. While our remaining forests are largely healthy and functioning, the State lacks the capacity to effectively manage and maintain that health in light of advancing threats and insufficient sustainable funding to support the staff and programs required to achieve the level of protection that is needed. DOFAW works to leverage non-State funds and is developing innovative financing mechanisms to help fill this gap.

EXPECTED BENEFITS

- Protect the source of Hawaii's fresh water - our native forests.
- Reduce erosion that muddies our streams and beaches.
- Prevent the extinction of animals and plants found nowhere else in the world.
- Increase carbon storage by protecting forests and planting native trees.
- Preserve cultural practices and sites in the wao akua.
- Combat the spread of invasive plants and pests, including diseases like Rapid 'Ōhi'a Death (ROD).



DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE



DIVISION OF FORESTRY AND WILDLIFE

1151 Punchbowl Street, Room 325 | Honolulu, HI 96813



Watershed Partnerships assist the State manage and protect native forests. Their ability to work on public and private lands enables landscape-scale protection across thousands of acres. Photo Credits (from left to right): Kirsty Gallaher and Ryan Chang.

DOFAW PROGRAM PRIORITIES



Water



Fire & Forest Health



Native Ecosystems



Forestry



Recreation

PARTNERS

Many agencies and organizations help supplement State funding for watershed protection. These include:

- 10 Watershed Partnerships*
- U.S. Fish & Wildlife Service
- USDA Natural Resources Conservation Service
- Hawai'i Department of Health
- County Departments of Water Supply
- The Nature Conservancy
- U.S. Forest Service
- Kamehameha Schools
- And many more private and public organizations

NEED FOR WATERSHED PROTECTION

- 'Ōhi'a make up 80% of our watersheds. Our water supply is dependent on these native 'ōhi'a forests.
- Eroding soil caused by ungulate damage can smother coral reefs. Forests can reduce erosion by 90%.
- Studies by UH estimate the value of O'ahu's Ko'olau forests to provide fresh water and other ecosystem services at \$14 billion.
- A fraction of tourism dollars is spent to protect the forests that provide the aesthetic backdrop of our visitor industry.



BUDGET

Watershed protection is estimated to cost \$11 million per year. This includes the capital improvement project cost to build fences and general funds that support the removal of ungulates and weeds from priority areas.

*State funding for the State's Watershed Partnerships Program are typically matched 1:1. In FY17 \$4.1 million of non-State match was contributed to the Watershed Partnerships Program.

CONTACT PERSON

Emma Yuen
Native Ecosystems Program Manager
Division of Forestry and Wildlife, DLNR
Emma.Yuen@hawaii.gov
(808) 587-4170

PROTECTING HAWAII'S GROUNDWATER THROUGH COORDINATION and COLLABORATION WITH OTHER AGENCIES & OUTREACH and EDUCATION

The Hawaii Department of Health (DOH) Groundwater Protection Strategy was finalized in June 2017. The Safe Drinking Water Branch will present the three goals of the strategy and the related objectives.

Goal 1: Monitor and assess groundwater quality.

Goal 2: Identify and prioritize groundwater contaminations threats.

Goal 3: Mitigate priority contamination threats and prevent contamination.

Meeting Goal 3 of the Hawaii Groundwater Protection Strategy involves multiple DOH branches and offices: Safe Drinking Water Branch (GW106/DWSRF 15%), Wastewater Branch (CWSRF), Clean Water Branch (SW106), Solid & Hazardous Waste Branch (SHWB), Hazard Evaluation and Emergency Response Office (HEER), as well as other agencies, organizations and stakeholders.

Outreach and Education is also critical to protecting our groundwater resources. What message are we presenting and who do we need to present this to.

CONFERENCE EVALUATION

*2018 Joint Government Water Conference
 "Protecting Hawaii's Groundwater"
 The King Kamehameha Golf Club, Wailuku, Maui
 August 7, 2018*

CONFERENCE EVALUATION FORM

1. How much experience do you have working in water/wastewater industry program areas?

| | | | | |
|---------------|---------------|----------------|-----------------|---------------|
| ___ 0-1 years | ___ 2-5 years | ___ 5-10 years | ___ 10-20 years | ___ 20+ years |
|---------------|---------------|----------------|-----------------|---------------|

2. Which water industry area(s) do you work in? (Check all that are applicable)

___ Drinking Water ___ Wastewater ___ Water Quality

___ Water Resources ___ Water Protection ___ Watershed Management

___ Other (specify): _____

3. How would you rate the overall conference?

| | | | |
|---------------|----------|--------------|----------|
| ___ Excellent | ___ Good | ___ Adequate | ___ Poor |
|---------------|----------|--------------|----------|

4. What did you like about the conference? _____

5. What did you dislike about the conference? _____

6. How do you rate the presentation of technical information (was it presented in an understandable and interesting manner)?

| | | | |
|---------------|----------|--------------|----------|
| ___ Excellent | ___ Good | ___ Adequate | ___ Poor |
|---------------|----------|--------------|----------|

7. Did this conference meet your expectation?

| | |
|---------|--------|
| ___ Yes | ___ No |
|---------|--------|

Comments: _____

8. Have you attended any of the previous Joint Government Water Conference(s)?

Yes No If Yes, would you rate this conference as: BETTER WORST

9. In the future, would you attend this type of conference again?

| | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

Comments: _____

10. In April 2015, the Hawaii Department of Health (DOH) implemented a Nutritional Wellness Policy that committed us to provide a safe, healthy, and productive environment for its employees and members of the public using its facilities or attending a DOH sponsored event. The adoption of this policy shall ensure that healthy choices are available whenever food and beverages are purchased with state or federal funds for DOH meetings, conferences, and other DOH sponsored events throughout the state. Do you think that the food and beverages served at today's conference provided you with a healthy choice or not.

YES NO If NOT (please explain) _____

11. Are there aspects of the conference that you believe should have greater (or less) emphasis?

12. Do you have any suggestions on how the conference could be improved?

13. Do you have any suggestions for topics for future conferences?

Thank you for attending the 2018 Joint Government Water Conference and for completing this evaluation form. Your comments will help us to better plan future conferences.

OPTIONAL:

Name: _____