

NATIVE HAWAIIAN LEGAL CORPORATION LAND USE COMMISSION
 1164 Bishop Street, Suite 1205 STATE OF HAWAII
 Honolulu, Hawaii 96813
 Telephone: (808) 521-2302 2016 OCT 25 P 1: 20

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Attorneys for Intervenor Lanaians For Sensible Growth

BEFORE THE LAND USE COMMISSION
 OF THE STATE OF HAWAII

In the Matter of the Petition of)	Docket No. A89-649
)	
LANAI RESORT PARTNERS,)	INTERVENOR LANAIANS FOR
)	SENSIBLE GROWTH'S SUBMISSION OF
To Consider an Order to Show Cause as to)	TESTIMONY OF ROBIN S. KNOX;
whether certain land located at Manele, Lanai,)	EXHIBIT "A"; CERTIFICATE OF
should revert to its former Agricultural and/or)	SERVICE
Rural land use classification or be changed to)	
a more appropriate classification due to)	
Petitioner's failure to comply with condition)	
No. 10 of the Land Use Commission's)	
Findings of Fact, Conclusions of Law, and)	
Decision and Order filed April 16, 1991.)	
)	
Tax Map Key No.: 4-9-02: Por. 49)	
(Formerly Tax Map Key No. 4-9-02: Por. 1))	
)	

**INTERVENOR LANAIANS FOR SENSIBLE GROWTH'S SUBMISSION OF
TESTIMONY OF ROBIN S. KNOX**

Pursuant to Minute Order No. 2 filed July 6, 2016 and HAR 15-15-57, Intervenor Lanaians For Sensible Growth hereby submits this written notice of the testimony of expert and rebuttal witness Robin S. Knox.

Ms. Knox is an ecosystem, watershed, and clean water expert with more than 30 years of experience in environmental sampling and analysis, water quality monitoring, water quality modeling, and federal water regulation compliance. Her C.V. is attached hereto as Exhibit "A."

Ms. Knox will provide expert and/or rebuttal testimony regarding water quality testing methodologies and practice. She will provide testimony as to the average costs to perform a comprehensive test for primary drinking water contaminants, sampling methodologies which comply with industry standards, and the availability of local EPA approved laboratories to perform such tests. Ms. Knox will testify that the term “potable” water generally means water that is suitable for drinking. She will discuss industry standards regarding chlorides in potable water, and the relevance, if any, of the presence of chlorides in determining a water supply’s potability. She will also provide testimony that, based on the information provided by the Resort, that there is no indication that the water produced from Wells 1 and 9 are not “potable.” She will provide rebuttal testimony addressing written direct testimony submitted in this case, as well as any testimony submitted at the hearing on this matter, regarding the potability of Wells 1 and 9.

The naming of Ms. Knox at this date is made with good cause. LSG had to search for and engage Ms. Knox to replace expert witness Bill Meyer, who, due in part to the extended delay in this matter, is no longer able to testify in this case. Ms. Knox will provide valuable expert testimony regarding water quality standards and sampling methodologies. Given the advanced notice provided to the parties, the practice of supplemental disclosures of witness testimony exhibited in this docket, LSG’s herein declared willingness to agree to additional time to allow for rebuttal of Ms. Knox’s testimony, and HAR 15-15-57’s provision for the calling of rebuttal witnesses without prior disclosure, good cause exists to allow for the naming of Ms. Knox.

DATED: Honolulu, Hawai‘i, October 25, 2016.



DAVID KAUILA KOPPER
LI‘ULĀ NAKAMA
Attorneys for Intervenor
Lanaians for Sensible Growth



Water Quality Consulting, Inc.

Qualifications Summary

- More than 30 years experience including project management, staff training and development, environmental science and engineering, and quality control.
- Experienced in development of Workplans, Quality Assurance Project Plans, Sampling and Analysis Plans, data validation, data management, report production, and deliverable QA/QC
- Experienced manager of coastal restoration projects
- Experienced manager of water quality projects in 8 EPA regions, 21 states and the Commonwealth of Puerto Rico.
- Five years as an NPDES permit writer, water quality planner, and water quality modeler for Louisiana DEQ.
- Experience conducting large-scale water body studies, including collection of hydrologic, chemical, bacteriological, radiological and sediment data using USGS and EPA methods.
- Experienced in environmental compliance, litigation support, and as an expert witness

ROBIN S. KNOX

Contact: (808) 866-6659 or Robin.S.Knox@gmail.com

Ecosystems/ Watersheds/ Clean Water Specialties

Project Management; Environmental Sampling and Analysis; Water Quality Monitoring; Coastal Biogeochemistry; Wastewater Treatment; Watershed Planning; Water Quality Modeling; Coastal Restoration; Clean Water Act/National Pollutant Discharge Elimination System (NPDES) compliance; Expert Witness

Credentials

B.S., Agriculture (Environmental Health), Louisiana State University (1982)
Graduate studies including five courses on water/wastewater treatment unit operations, Louisiana State University Department of Civil Engineering (1982- 1986)
Advanced Biological Wastewater Treatment Short Course (University of Texas, Austin) 1988
NPDES Permit Writer's Course (EPA) 1986
NPDES Compliance Inspections Course (EPA) 1986
Qual2-E Modeling Course (EPA Center for Exposure Assessment Modeling) 1989
Receive II Modeling Course (Louisiana Department of Environmental Quality) 1989
OSHA 40-Hour Supervisory Training 1991
Symptox Modeling Course (Water Environment Federation) 1992
Project Manager Body of Knowledge Training (Weston Solutions) 2003

Employment History

- Water Quality Consulting, Inc.(1999 – present)
- University of Hawaii, Botany Department (2008-2010)
- WESTON Solutions, Inc.(2001-2004)
- ARCADIS Geraghty & Miller, Inc.(1993-1999)
- C-K Associates, Inc. (1989-1993)
- University of Southwestern Louisiana, Center for Louisiana Inland Waters (1989-1989)
- Louisiana Department of Environmental Quality, Office of Water Resources (1984-1989)
- Louisiana State University, Center for Wetland Resources (1983-1984)
- Louisiana State University, Center for Hazardous Waste Research (1982-1983)

EXHIBIT A

PUBLICATIONS

Knox, Robin. 1989. "Extending Standards to Louisiana's Wetlands." *Water Quality Standards for the 21st Century*. EPA.

Knox, Robin. 1989. "Towns of Florien and Fisher, Revised Advanced Treatment Facility Water Quality Review." *LDEQ Report No. ATR 89.12*.

Delaune, R.D., R.P. Gambrell and R.S. Knox. 1989. Accumulation of Heavy Metals and PCB's in an Urban Lake. *Environ. Technology Letters*. 10:753-762

Delaune, R.D., L.M. Salinas, R.S. Knox, M.N. Sarafyan, and C.J. Smith 1989. Water Quality of the Calcasieu River: Ammonium Nitrogen Transformations. *Technical Report Louisiana Department of Environmental Quality, Office of Water Resources*.

Delaune, R.D. C.W. Lindau, R.S. Knox and C.J. Smith. 1990. Fate of Nitrogen and Phosphorus entering a Gulf Coast Freshwater Lake: A Case Study. *Water Res. Bull. Vol.26, 4:621-631*

Ford, Elizabeth and R.S. Knox. September 1997. "Constructing an Effective NPDES Permit Application", *Water Environment and Technology*.

Saar, Robert and R.S. Knox. October 1998. "Buyer Beware! A Guide to Purchasing Analytical Laboratory Services". *Industrial Wastewater*.

Dailer ML, Smith JE, Knox RS, Napier M, Smith CM., 2010 Using $\delta^{15}\text{N}$ values in algal tissue to map locations and potential sources of anthropogenic nutrient inputs on the island of Maui, Hawai'i. *Marine Pollution Bulletin* 60 (2010) 655–671.

CONFERENCE PROCEEDINGS & PRESENTATIONS

Instructor and Author, "**Negotiating Your NPDES Permit**", *Water Environment Federation Professional Development Short Course, 1995-1997*.

Workshop Instructor and Author – "**Negotiating and Attaining Water Quality-based Metals Limitations**" *Water Environment Federation Industrial Waste Specialty Conference, 1998*

"**NPDES Permit as a Shield**", *Louisiana Water Environment Association, 2002*

"**East and West Grand Terre Island Restoration – A Case Study**", *Louisiana Water Environment Association Annual Conference, 2003*

"**Negotiating Higher NPDES Permit Limits – Strategies for Optimizing Technology and Water Quality-based Effluent Limitations for Petroleum Refining**", *National Petrochemical and Refineries Association, 2004*

"**Why the Clean Water Act Nutrient Criteria Have Failed to Protect Hawaii's Coral Reefs**" *Proceedings of WEFTEC, Water Environment Federation, 2014*

PROFESSIONAL MEMBERSHIP

Water Environment Federation (member 1982 to present) –

- Surface Water Quality and Ecology Symposium - Program Committee
- Aquatic Resources Technical Committee
- Toxic Substances Committee Chair
- Total Maximum Daily Loads (TMDL) Program Committee
- Louisiana Water Environment Association (member 1982 to present);
 - Vice-president 2005; Annual Conference Co-chair
- Hawaii Water Environment Association (2006-present)

Volunteer Work

Maui Nui Marine Resource Council - Council member 2008-2012, Founder Turbidity Task Force, Chair of Clean Water Committee 2008-2010, Member Maui Coral Recovery Team 2011-2015.

Maui Tomorrow Foundation, Board Member 2006-2008. Provided testimony to County Council that was successful in requiring water quality data collected by developers to be considered by the DOH when assessing water quality. This made previously privately held data readily available to the DOH. In the case of Makena Resort, the developers' expert claimed no problem with water quality even though his data clearly showed that water quality was not meeting state standards. When provided with his data, the DOH listed the waters as impaired.

Don't Inject, Redirect Effluent (DIRE) Coalition 2009-2010; provided expert guidance in addressing Maui County Sewage injection well concerns. Provided expert testimony to EPA that resulted in Administrative Orders to County of Maui from EPA and provided the basis for the Earth Justice lawsuit on behalf of Hawaii Wildlife Fund, Sierra Club, Surfrider, and West Maui Preservation Association. Developed public educational materials to publicize the issue.

<https://www.youtube.com/watch?v=rZTXTK4SvJ8>

<https://www.youtube.com/watch?v=iDAse0NjMno>

Hawaiian Islands Humpback Whale National Marine Sanctuary – established and supported volunteer citizen science program for water quality monitoring.

http://hawaiihumpbackwhale.noaa.gov/involved/volunteer_maui.html

Served on Water Quality Working Group for Sanctuary Plan update.

http://hawaiihumpbackwhale.noaa.gov/council/workinggroups/water_quality_wg.html

Coral Reef Alliance- supported development of a database for citizen scientist data.

<http://monitoring.coral.org/>

Southwest Maui Watershed Advisory Group – provide one hour of pro bono time for every hour of paid work, provided project office, utilities and communication services at no charge to project for a two year long effort. Volunteered as Coordinator for an additional year.

<http://www.mauiwatershed.org/>

Community Wastewater Working Group- appointed by Mayor Tavares to the working group exploring wastewater needs and alternatives to injection wells for sewage disposal.

<http://www.co.maui.hi.us/index.aspx?NID=1495>

Key Projects

WATER QUALITY STUDIES

Water Quality Experts Working Group, Hawaii Department of Health, Consultant

Facilitated workgroup of 45 State of Hawaii water quality experts to review the state's Integrated Water Quality Reporting Criteria for Use Attainment Decisions for Hawaii State Surface Waters (pursuant to Clean Water Act §303(d) and §305(b)). Produced a technical document outlining the consensus among these experts for recommended changes to the assessment procedures.

Watershed Planning, Southwest Maui Watershed, Maui HI. Central Maui Soil and Water Conservation District, Watershed Coordinator Provided watershed planning and water quality modeling services. Facilitated watershed advisory group in developing a watershed-based plan for the Hapapa, Wailea and Mooloa watersheds in Kihei, Wailea, and Makena (50,000 acres). Developed watershed plan and supporting documentation for reducing land-based pollution and meeting water quality goals. Project scope included more than 40 meetings over two years of stakeholder facilitation, data gathering, preliminary modeling and pollutant load estimation, and creation of a watershed characterization report and implementation plan. The state and EPA have approved the plan and designated the south Maui watershed planning area as a priority watershed. <http://www.mauiwatershed.org/>

Water Quality Studies, Multiple sites, Maui HI. UH Manoa Botany Department, Research Assistant Conducted studies of land-based pollutant sources and impacts on marine waters in South and West Maui. Compared the quality of ocean water and submarine groundwater seeps in areas with and without sewage injection wells. Published results in Marine Pollution Bulletin that showed evidence of pollutants from County of Maui sewage injection wells reaching the ocean and causing or contributing to the failure to attain state water quality standards. The paper included my expert opinion that these discharges were illegal under the Clean Water Act because the County has no authorization to discharge under the National Pollutant Discharge Elimination System (NPDES).

<http://www.sciencedirect.com/science/article/pii/S0025326X09005232>. EPA cited the paper as evidence of illegal discharge and ordered the County of Maui to apply for a NPDES Permit which will require that pollutant discharge be limited to protect water quality and to support aquatic life and recreation. The County was subsequently sued by Earth Justice for violating the Clean Water Act; the federal district Court has upheld my professional opinion that the discharges are illegal. Potential penalties exceed \$100 million and will be assessed in August 2015

<http://earthjustice.org/news/press/2015/federal-court-again-finds-maui-county-in-violation-of-clean-water-act>

Citizen Science Water Quality Monitoring Training Course, Napili Bay and Beach Foundation, Course Author and Instructor

Taught Citizen Scientists how to prepare a water quality monitoring plan using Data Quality Objectives process. Trained participants to sample water, do visual assessment, and analyze for turbidity using EPA approved methods, including quality assurance and quality control procedures. Developed spreadsheet tools for managing data and reporting results. Instructed participants how to use online Coral Data Portal to report results. A graduate of this course recently used the skills gained to document Clean Water Act violations at a construction site that was causing brown water events at Honokahou Stream and Fleming Beach Park. The County issued stop work orders to the developer as a result.

Engaging West Maui Businesses in Watershed Planning, Water Resource Use Survey Coral Reef Alliance, Consultant

Conducted a survey of 11 hotels and condominiums, reviewed their water usage and water bills, sewer user fees and their compliance with Hawaii Green Business Standards. Developed a metric called the effective water resource rate which can be used to compare the economics of different water supply strategies (e.g., public vs. private, potable vs. recycled water for irrigation) Identified a policy that provides incentive for those on the County water supply to conserve and reuse water, but provides no incentive for private water companies to conserve water or use R-1 recycled wastewater for irrigation. 6 of the 11 hotels surveyed were on private water supply and thus have no financial incentive for conservation and reuse.

B-Wet Training for Teachers, Coral Reef Alliance and NOAA

Created a training course and tools for water quality data collection, quality control/quality assurance and reporting. Taught Maui island teachers in a four part workshop sponsored by the Coral Reef Alliance and National Oceanic and Atmospheric Administration grant. Worked with Baldwin High students to monitor Wailuku River (Iao stream).

West Maui Preservation Association Water Quality Monitoring A synoptic water quality survey of Honokowai Stream shows high levels of fecal bacteria. The stream is adjacent to the County of Maui Lahaina Wastewater Reclamation facility. This study created public interest in doing more bacterial studies in the vicinity of injection wells.

http://www.savewestmaui.com/news_mautime_071105.htm

Watershed-wide Pollutant Fate Studies, Multiple Sites, LA- LSU Center for Wetland Resources (Wetland Biogeochemistry Institute), Research Associate. Conducted coastal watershed nutrient and pollutant cycling studies; microcosm studies, and tracer studies to examine the fate of nutrients and pollutants in plant, water and sediment interactions in four Gulf Coast Water Quality Management Basins (Calcasieu, Barataria, Terrebonne and Lake Pontchartrain). Collected flow measurements, water column and sediment quality data for development of loading estimates, utilized N¹⁵ stable isotope tracer methodology to estimate nitrification and denitrification rates. Used Cs¹³⁷ dating to estimate sedimentation rates. Collected samples, conducted wet lab and instrumental analyses (GC, mass spec), conducted microcosm studies, prepared papers for publication.

Mixing Zone Validation Study, Puerto Rico, Puerto Rico Aqueduct and Sewer Authority, Project Manager. Conducted \$1.8 million ocean mixing zone validation study for five publicly owned treatment works. Prepared project Quality Assurance Project Plan (QAPP) and Sampling and Analysis Plan (SAP) for sampling 8 to 12 mixing zone locations at each facility twice per day at three depths. Clean metals sampling and analytical techniques were utilized to achieve low detections limits necessary to demonstrate compliance with water quality standards at the edge of the mixing zone. Employed global positioning systems to meet sampling location accuracy and precision requirements of CWA 301(h). Established field laboratory for clean metals sample preservation and inoculation and incubation of bacteriological samples due to holding time and logistical constraints of remote locations. Developed an alternate study approach that was more cost effective and logistically feasible than the initial study requirements developed by EPA and the Puerto Rico Environmental Quality Board.

ENGINEERING MANAGEMENT

Coastal Restoration, East and West Grand Terre Islands, LA, La. Department of Natural Resources, Project Manager

Managed project financials, subcontractors (purchase orders, invoice approval, deliverable approval), data coordination, scheduling, and technical document production for coastal restoration project that included geotechnical investigation, surveying, hydrodynamic modeling, and preliminary engineering design for beach nourishment projects on East and West Grand Terre Islands, and construction of a wetland platform and marsh on East Grand Terre Island.

Fort Livingston Wave Protection, West Grand Terre Island, La. Department of Natural Resources, Project Manager

Managed project financials, subcontractors (purchase orders, invoice approval, deliverable approval), data coordination, scheduling, and technical document production for coastal restoration project that included geotechnical investigation, surveying, hydrodynamic modeling, and preliminary engineering design for wave protection measures for historic Fort Livingston.

CAFO Permitting, Enforcement Assistance, and Retention System Design, Ruidoso Downs NM, Ruidoso Downs Racetrack and Casino, Project Manager.

Provided permitting, enforcement, and design services to facility subject to Concentrated Animal Feeding Operation (CAFO) regulations. The regulations require segregation of regulated areas, prevention of run-on and retention of storm runoff from the 25-year, 24 hour storm event. The 200 acre facility is situated on the Rio Ruidoso in an area of complex hydrology with the river bisecting the racetrack and other CAFO-regulated areas. The site is highly developed and steeply sloping, leaving little room for retention structures. Scope of work included regulatory analysis, geotechnical investigation, site hydrologic analysis that identified 14 sub-basins, modeling to determine storm-water runoff volumes, and preliminary engineering design of retention basins. Provided enforcement assistance. Negotiated more than 50% reduction in proposed penalty for facility. Developed SEP to tie-in unsewered areas discharging to the Rio Ruidoso. Developed NPDES permit application.

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Tax Map Key No.: 4-9-02: Por. 49)
(Formerly Tax Map Key No. 4-9-02: Por. 1))
)

CERTIFICATE OF SERVICE

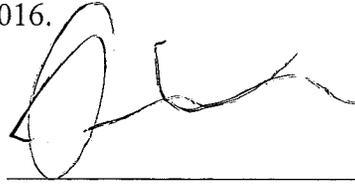
The undersigned hereby certifies that a copy of the foregoing document was served upon the following parties at their last known address by U.S. Mail, postage pre-paid on October 25, 2016.

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Attorney for County of Maui, Department of Planning

DATED: Honolulu, Hawai'i, October 25, 2016.

A handwritten signature in black ink, consisting of a large, stylized 'D' followed by several loops and a long horizontal stroke.

DAVID KAUILA KOPPER
LI'ULĀ NAKAMA
Attorneys for Intervenor
Lanaians for Sensible Growth