Environmental Health Management Report 2011-2013

Environmental Health Administration

HAWAII STATE DEPARTMENT OF HEALTH

HEALTHY PEOPLE - HEALTHY COMMUNITIES - HEALTHY ISLANDS

In Honor of the Late Director Loretta J. Fuddy, A.C.S.W., M.P.H.

In December 2013, we mourned the passing of our health director Loretta "Deliana" Fuddy. Deliana was loved and respected for her passion and dedication to public health and the children and people of Hawaii. She will be greatly missed by all. Below is a message from Director Fuddy, which we keep in mind as we move into 2014 and beyond.

"The administration challenged the Department of Health (DOH) and other State agencies to envision and pursue 'A New Day in Hawaii.' A vital part of this 'New Day' includes ensuring the quality of our environment. In 2011, DOH enacted a strategic plan (Fiscal Year 2011-2014) to align our foundational principles of sustainability, health promotion and disease prevention, health equity, emergency preparedness, and quality and service excellence. These principles guide all of our policies, protocols, programs, and new initiatives. At the close of 2013, DOH is on course to continue in its path toward reaching Hawaii's environmental health goals by reinvesting in programs that received a reduction in budget and staffing due to past fiscal constraints. DOH takes seriously its responsibility of working with the people of Hawaii to protect and improve public health and the environment. Our work, as outlined in this Fiscal Year 2011-2013 Environmental Health Management Report, has led to a revitalization of essential public health and environmental protection programs. We look forward to a new year in which we will continue to work with public and private partners in pursuing our vision – Healthy People. Healthy Communities. Healthy Islands."

Message from Acting Director Gary Gill

The Environmental Health Administration (EHA) plays a key role in ensuring the health and safety of the air we breathe, the ocean and streams we enjoy, the water we drink, the food we eat, the products we use, and safely processing the waste we create. The administration of the wide array of programs outlined in this FY2011-2013 Environmental Health Management Report is an exciting, yet challenging, responsibility. EHA takes this responsibility seriously because environmental health issues intricately touch upon almost every aspect of public life. EHA has delegated authority from the U.S. Environmental Protection Agency to implement a number of Federal environmental statutes. EHA also works closely with the U.S. Food and Drug Administration (FDA) and the Centers for Disease Control and Prevention (CDC) and the National Oceanic and Atmospheric Administration (NOAA). Together with these Federal partners we ensure that we meet national standards, while also focusing on issues that are unique to our islands. In this Environmental Health Management Report we provide EHA highlights from 2011-13, and look forward to finding ways to better protect and improve public health and the environment.

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Acknowledgements

The 2011-2013 Hawaii State Department of Health's (DOH), Environmental Health Management Report was prepared by the DOH Environmental Planning Office (EPO). The following organizations and individuals are recognized for their valuable contribution to this Report.

Hawaii State Department of Business, Economic Development & Tourism (DBEDT)

Hawaii State Department of Land and Natural Resources (DLNR)

Hawaii State Department of Hawaiian Home Lands (DHHL)

Hawaii State Department of Transportation (DOT)

Hawaii State Department of Agriculture (DOA)

University of Hawaii (UH)

United States Environmental Protection Agency (EPA) – (Region IX, Pacific Southwest)

United States Food and Drug Administration (FDA)

United States Centers for Disease Control (CDC)

United States National Oceanic and Atmospheric Administration (NOAA)

Photo: Makapuu Beach, Oahu

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Acronyms

CAA	Federal Clean Air Act
CAB	(DOH/EHA) Clean Air Branch
CAO	(DOH/EHA) Compliance Assistance Office
CDC	(US) Centers for Disease Control and Prevention
CERCLA	Federal Comprehensive Environmental Response, Compensation, and Liability Act
CTAHR	University of Hawaii College of Tropical Agriculture and Human Resources
CWA	Federal Clean Water Act
CWB	(DOH/EHA) Clean Water Branch
CWSRF	Clean Water State Revolving Fund
DBC	Deposit Beverage Container
DOH	(State of Hawaii) Department of Health
DWSRF	Drinking Water State Revolving Fund
EHA	(State of Hawaii) Environmental Health Administration
EHSD	(DOH/EHA) Environmental Health Services Division
EHW	Environmental Health Warehouse (IT)
EIM	Environmental Information Manager
EMD	(DOH/EHA) Environmental Management Division
EPA	(US) Environmental Protection Agency
EPO	(DOH/EHA) Environmental Planning Office
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
HAR	Hawaii Administrative Rules
HEER	(DOH/EHA) Hazard Evaluation & Emergency Response Office
HRS	Hawaii Revised Statutes
IRHB	(DOH/EHA) Indoor & Radiological Health Branch
IM	Information Management
LUST	Leaking Underground Storage Tank
MCL	Maximum Contaminant Level
MGD	Million Gallons per Day
MRDL	Maximum Residual Disinfectant Level
NAAQS	National Ambient Air Quality Standards
NPDES	National Pollutant Discharge Elimination System
OEQC	(DOH) Office of Environmental Quality Control
RCRA	Federal Resource Conservation and Recovery Act
SDWA	Federal Safe Drinking Water Act
SDWB	(DOH/EHA) Safe Drinking Water Branch
SHWB	(DOH/EHA) Solid & Hazardous Waste Branch
SLD	(DOH/EHA) State Laboratories Division
TRI	Toxic Release Inventory
UH	University of Hawaii
UIC	Underground Injection Control
UST	Underground Storage Tank
WQS	Water Quality Standards
WTP	Wastewater Treatment Plant
WWB	(DOH/EHA) Wastewater Branch

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SECTION I: STRATEGIC FOUNDATION ACHIEVEMENTS

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Introduction

"A New Day in Hawaii" Plan

The current Hawaii State Administration created a comprehensive plan entitled "A New Day in Hawaii." This plan provides a section on Environment and Natural Resources and is available at: http://governor.hawaii.gov/a-new-day-in-hawaii-plan/.

The New Day Plan recognizes the need to:

- Invest in education and rebuild our economy;
- Sustain our Hawaii for future generations; and
- Restore public confidence.

Photo: Kailua Beach, Oahu

The State of Hawaii has the following environmental goals:

- Return to 1990 Greenhouse Gas (GHG) levels by 2020;
- Reduce our solid waste stream by 50% by 2020;
- Reuse 20% of the State's wastewater by 2015; and
- Achieve 70% clean energy by 2030.

The draft State Strategic Plan has many lines of business. Environmental Health Management is one of these lines of business, led by DOH.

DOH Strategic Plan, Fiscal Year 2011-2014

Photo: Iao Needle, Maui

The Hawaii Department of Health Strategic Plan, FY 2011-14 sets out goals, strategies, and initiatives. The plan is available at: http://hawaii.gov/health/opppd/strategicplan.html.

The rolling work plan sets forth DOH's responsibilities and performance measures. The Strategic Plan focuses on building a sustainable economy, investing in people, and transforming government. The Strategic Plan's foundational principles, the Five Foundations for Healthy Generations, strive to:

1. Eliminate disparities and improve the health of all groups throughout the State of Hawaii;
2. Attain lifelong, quality health free from preventable disease, avoidable disability, and premature death;
3. Mitigate, respond to, and recover from external natural or man-made threats impacting individual and community well-being;
4. Create social and physical environments that promote and support good health for all; and
5. Develop internal systems to assure timely consumer responsiveness and satisfaction.

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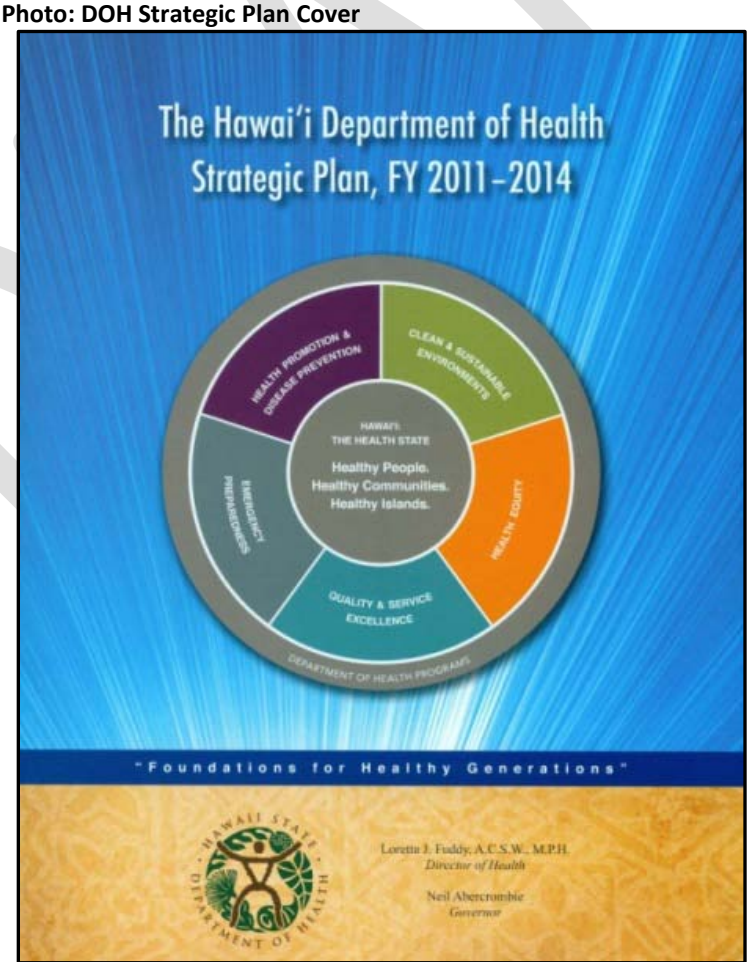
The DOH Strategic Plan: Five Foundations for Healthy Generations

In 2011, DOH created a Strategic Plan to align our foundational principles of health equity, health promotion and disease prevention, emergency preparedness, sustainability, and quality and service excellence. These principles guide all of our policies, protocols, programs, and new initiatives. Under **Foundation 1, Health Equity**, EHA worked on environmental justice projects that provided funds to non-profit community organizations to clean up marine debris in all of the counties. Under **Foundation 2, Health Promotion & Disease Prevention**, EHA increased the adoption of evidence-based interventions to improve health through its State Laboratories Division. Under **Foundation 3, Emergency Response & Preparedness**, EHA increased the State's readiness to mitigate, respond to, and recover from external threats through its Hazard Evaluation and Emergency Response Office and Environmental Health Services Division. Under **Foundation 4, Clean & Sustainable Environments**, EHA improved environmental protection through programs in its Environmental Management Division, improved consumer health through programs in its Environmental Health Services Division, and improved industry's ability to protect the environment through its Compliance Assistance Office and Environmental Planning Office. Finally, under **Foundation 5, Quality & Service Excellence**, EHA worked toward providing timely, accurate, useful, and clear public health information and risk communication through its Environmental Information Manager.

Photo: DOH Strategic Plan Cover



EHA Section of DOH Strategic Plan

All of EHA's initiatives align with the Foundations, Goals and Objectives in DOH's Strategic Plan. Several of EHA's initiatives are highlighted below.

EHA Initiatives

FOUNDATIONS & GOALS	ENVIRONMENTAL HEALTH ADMINISTRATION INITIATIVES
FOUNDATION 1: HEALTH EQUITY	
GOAL 1: Eliminate disparities and improve the health of all groups throughout Hawaii	
Increase culturally-and community-oriented interventions	Provided $100,000 in seed grant funding to six Hawai'i non-profit, community groups to remove marine debris from 54 miles of coastline across all four counties. By the end of 2014, they will have removed more than 30 metric tons of beach debris. Provided $2,150 in seed grant funding for native planting in Nanakuli to help address the community's dust concerns.
FOUNDATION 2: HEALTH PROMOTION & DISEASE PREVENTION	
GOAL 2: Attain lifelong quality health free from preventable disease, avoidable disability, and premature death	
Increase adoption of evidence-based interventions to improve health	Ensure the Hawaii State Laboratories in each county are nationally certified and ready to reliably and quickly test for known and potential diseases and health hazards.
FOUNDATION 3: EMERGENCY RESPONSE & PREPAREDNESS	
GOAL 3: Mitigate, respond to, and recover from external natural or man made threats impacting individual and community well-being	
Increase the State's readiness to mitigate, respond to, and recover from external threats.	Ensure dengue fever does not break out again in Hawaii. Increased radiation testing in response to radiation leaks at the Fukushima Daiichi Power Plant in Japan. Clean up contaminated soil at multiple sites, including Kilauea, Kauai.
FOUNDATION 4: CLEAN & SUSTAINABLE ENVIRONMENTS	
GOAL 4: Create social and physical environments that promote and support good health for all	
Improve environmental protection	Increase monitoring/testing of ocean water and air quality Increase enforcement of environmental laws
Improve consumer health	Hold various public meetings, conduct outreach activities, and develop and distribute fact sheets and brochures
Improve industry's ability to protect the environment	Re-establish the shellfishing industry in Hawaii by receiving federal training and certification Continue operating the Statewide Wastewater Operator Training Center Respond to information requests
FOUNDATION 5: QUALITY & SERVICE EXCELLENCE	
GOAL 5: Develop internal systems to assure timely consumer responsiveness and satisfaction	
Expand user-friendly web-based applications	Expand the E-permitting portal Expand the Environmental Health Warehouse

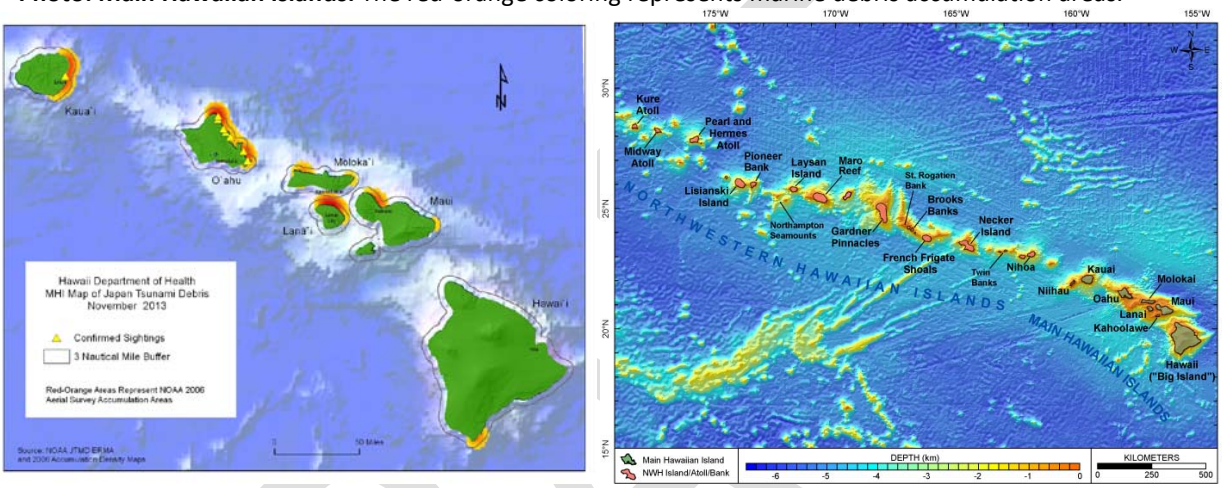
Foundation 1: Health Equity

Objective: Increase culturally- and community-oriented interventions

Program Highlight: Clean shorelines potentially affected by Japan Tsunami Marine Debris

EHA, in close cooperation with DLNR and NOAA, awarded six grants, totaling $100,000, to local non-profit community groups to clean up marine debris from the 2011 tsunami in Japan. The grants will fund marine debris removal on Kauai, Maui, Hawaii, and Oahu, and assist in keeping Hawaii's shorelines clean. The clean-up efforts will focus on beaches known to accumulate marine debris, primarily along the eastern shorelines of the Main Hawaiian Islands, which are depicted in the orange and red highlights on the map below.

Photo: Main Hawaiian Islands. The red-orange coloring represents marine debris accumulation areas.



However, the eastern shorelines of the Northwestern Hawaiian Islands have also been affected, and there have been two confirmed marine debris items found at Midway Atoll.

Photo: Shoreline debris

The grants support marine debris removal and beach clean-up efforts along 54 miles of coastline across all four counties. EHA anticipates that over 4,000 volunteers providing more than 8,000 volunteer hours will remove more than 30 metric tons of marine debris by the time the project is completed in December 2014. August 26, 2013 marked the beginning of a year-long Environmental Justice project to support volunteer beach clean-ups in known marine debris accumulation areas.

For more information, please visit:
http://health.hawaii.gov/epo/104-2/

Program Highlight: Native Planting Project along Lualualei Road in Waianae

EHA, in partnership with the Malama Learning Center, Nani O Waianae, PVT Land Company, U.S. Navy, local students, teachers, and the broader community, initiated a planting project to help control dust along the Navy Road in Lualualei Valley. This project was initiated after the Nanakuli Dust Study (prepared for EHA in December 2011) recommended that EHA work closely with the community in conjunction with PVT and the Navy base to initiate a plan to address the bare dirt pullout sections (berms) on either side of the road. The pilot project included the planting of 600 native coastal plants. The Malama Learning Center worked with local public high schools (Kapolei, Nanakuli, Waianae, Pearl City, and Kahuku) to grow the plants with $2,150 in funding. On June 9, 2013, over 30 community volunteers planted six species of native Hawaiian plants—akia, naupaka, aalii, pohinahina, mao, and ilima—along approximately 50 feet of Lualualei Road near the PVT Land Company. PVT Land Company provided technical assistance, and continues to water the plants to ensure that they thrive in their new environment. All partners involved look forward to continuing this project and seeing more of the makai portion of Lualualei Road lined with native plants.

Download the December 20, 2011 Report here:
http://health.hawaii.gov/epo/files/2013/05/nanakuli_tech_and_eval_final.pdf

Photos: Before

During

Planting Team

After

Foundation 2: Health Promotion & Disease Prevention

Objective: Increase adoption of evidence-based interventions to improve health

Photo: State Laboratory Building and Staff at Waimano Ridge, Pearl City, Honolulu

The State of Hawaii Laboratory has received the following recognitions and awards:

- Association of Public Health Laboratories (APHL) Nation's Healthiest Lab Runner-Up 2013
- Laboratory Response Network (LRN) National Meeting 2012
- Award for Excellence in Partnership
- Award for Depiction of LRN Activities as All in A Day's Work
- Hawaii Laboratory Emergency Response Program in Action Video
- Certificate for Hosting the LRN Conventional Methods Training Course for the Republic of South Korea 2012
- APHL Certificate of Membership 2012-2013
- Laboratory Emergency Response Program Certificate of Achievement 2012
- APHL Best Poster Award 2012
- Continuity of Operations Plan Certificate 2011

Program Highlight: Testing of known diseases and potential health hazards

Representative State Laboratory Tests (CY 2006-2012*)

Number of Selected** Samples Tested	2006	2007	2008	2009	2010	2011	2012
Salmonella DNA fingerprinted	300	352	310	357	335	327	291
Birds for Avian Influenza	412	942	637	434	386	214	72
Norovirus outbreak specimens	130	144	147	94	83	55	95

Source: Department of Health, State Laboratories Division (SLD)
* Calendar year
** SLD tests a wide variety of samples as needed. Not all tests by SLD are shown above.

The Hawaii State Laboratories Division (SLD) continues its critical work of testing for harmful substances. In 2012, it tested 291 samples for salmonella, 72 samples for potential avian influenza, and 95 norovirus outbreak specimens.

For more information about SLD, please visit: http://health.hawaii.gov/statelab/

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SLD's recent accomplishments:

- Improved testing for STDs:
  - Implemented syphilis EIA in 2012;
  - Selected by CDC/APHL for a multi-site study for reproducibility of antibiotic resistance testing of Neisseria gonorrhoeae.
- Detected influenza A (H2N3) variant in patient on Maui;
- In 2012, FDA determined that SLD is a confirmed shellfish laboratory (per the National Shellfish Sanitation Program) with the capability to test water and meats from the shellfish industry. SLD has begun sampling two Oahu shellfish ponds, and other farmers on the neighbor islands have also shown interest in sanitary surveys of potential shellfish growing areas;
- Enhance enteric testing including:
  - Developed new technology to screen for E. coli O157:H7, Salmonella sp. and Shigella sp;
  - Began Salmonella testing support for US FDA's surveillance of Ready-to-Eat (RTE) imported food, food products, and produce;
  - Norovirus outbreak testing including detection of new Sydney strain;
  - Established molecular testing methods for the identification of non-Influenza viruses (HMPV, rhinovirus, adenovirus, RSV), dengue virus, and various Salmonella serotypes;
  - Threat testing support for FBI, HEER, Postal Inspectors, APEC in Hawaii, and USAPI;
  - Chemical biomonitoring and environmental monitoring projects, including total mercury in Pacific Blue Marlin fish jerky, total mercury in Pacific bottom fish in collaboration with UH SOEST, and selenium and total mercury in fish and fish feed in collaboration with UH CTAHR.
  - Developed a test method for the insecticide cypermethrin in blood at the request of the Medical Examiner.

Photo: State Laboratory Staff at work

SLD is also very active in community involvement and training, which includes licensing 1400 clinical laboratory scientists.

- Licensing 100 medical review officers for substance abuse testing;
- Certifying local and mainland laboratories that perform drinking water testing for Hawaii;
- Certifying 3 forensic blood alcohol and 8 drug abuse laboratories;
- Emergency response exercises & training with the Honolulu Fire Department, and county, state, & federal law enforcement;
- Leading the Hawaii Laboratory Response Network;
- Training law enforcement supervisors on breath alcohol testing; and
- Provide adjunct faculty to area colleges and universities.

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Foundation 3: Emergency Response & Preparedness

Objective: Increase the State's readiness to mitigate external threats.

Program Highlight: Ensuring dengue fever does not break out in Hawaii

In 2013, the EHA Vector Control Program identified the *Aedes aegypti* mosquito breeding at the Honolulu International Airport for the fifth time since the species was first seen on March 5, 2012. This mosquito has the ability to rapidly spread dengue and yellow fever. In 2011, EHA investigated a total of six cases of dengue fever contracted abroad. Dengue fever is a constant threat in many tropical regions of the planet.

Photos: Mosquito and Bromeliads

In light of the rare mosquito find at Honolulu International Airport, EHA urged residents and property owners to take precautions and preemptive actions, which included encouraging the community to eliminate all sources of standing water like water-collecting plants such as bromeliads. Keeping down the mosquito population can prevent the spread of serious illnesses. Mosquitoes were collected the week of January 9-17, 2012 from an ovitrap designed to capture eggs laid by adult females. Of the twenty or so eggs reared from one trap, eight mosquitoes (4 female and 4 male) were positively identified as *Aedes aegypti*. The eggs were reared to adulthood to obtain a positive species identification. EHA initiated follow-up surveillance immediately to determine if the *aegypti* species had established itself; however, no further *aegypti* mosquitoes have been found. In most parts of Hawaii, the *Aedes albopictus* mosquito is abundant. The *albopictus* mosquito is similar to the *aegypti* and can carry dengue fever, but is not as effective as the *aegypti* in spreading and sustaining the disease. Due to cut-backs in the Vector Control program, the traps at the Honolulu International Airport are the only routine mosquito surveillance performed on Oahu.

For more information, please visit: http://health.hawaii.gov/san/vector-control/

Objective: Increase the State's readiness to respond to external threats.

Project Highlight: Response to the Molasses Spill in Honolulu Harbor

EHA led the clean-up of the molasses spill at Honolulu Harbor in September 2013. As much as 1,400 tons of molasses, or about 233,000 gallons of the liquid, entered the Harbor. Due to the spill, approximately 26,000 marine animals died. The plume of dark water moved with the tides and currents from Honolulu Harbor into the Keehi Lagoon and the public was promptly advised not to enter the ocean if they noticed a brown color in the water. In response to the spill, EHA quickly initiated its "Incident Command" and conducted additional water sample testing and posted warning signs at beaches, especially in the Keehi Lagoon area. EHA also investigated the need for additional beach closures along Sand Island or the Ewa coastline. EHA emergency response crews actively collected dead fish in the area and continued to do so for as long as was necessary to assess the threat. The nutrient-rich molasses had the potential to cause unusual growth in marine algae and stimulate an increase in harmful bacteria in the water, which could trigger other environmental impacts. EHA is ready to respond to such unexpected events, and will continue to work with representatives from the State Department of Land and Natural Resources (DLNR) and many federal partners, including the U.S. Coast Guard (the federal lead), the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (FWS), and U.S. National Oceanic and Atmospheric Administration (NOAA), to reduce the environmental impact from this unprecedented spill.

For more information, please visit: http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/Honolulu-Harbor-Molasses-Spill-September-2013

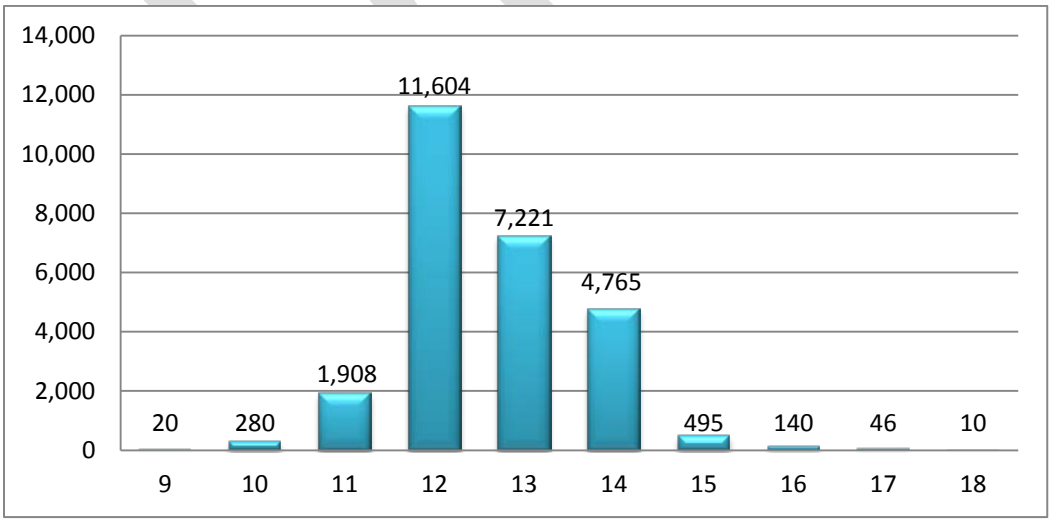
Photo: Molasses Spill at Honolulu Harbor, Honolulu on September 12, 2013

DOH modified its water sampling sites throughout the course of its response to the molasses spill. During the early days of the spill (September 11-17), DOH tested many more sites than usual (refer to map below). Over time, water sampling revealed that dissolved oxygen and pH levels slowly returned to previous levels in Honolulu Harbor, Keehi Lagoon, and along Moanalua and Kapalama streams. As results revealing this water quality improvement became available, DOH reduced its water sampling to six locations.

Photo: Water Quality Monitoring Sites During Molasses Spill

During the course of the spill, 26,489 organisms were collected. As water quality levels returned to normal, the number of affected marine organisms declined.

Number of Marine Organisms Collected in Honolulu Harbor and Keehi Lagoon, September 2013



Program Highlight: Increase radiation testing in response to leaks at the Fukushima Daiichi Power Plant in Japan

Since April 2011, DOH staff has increased air and shoreline radiation surveillance in all counties. Attention has focused on the Fukushima Daiichi Power Plant because of indications that radioactive material is leaking from the reactor buildings into surrounding areas.

DOH continues to monitor the results of Tokyo Electric Power Company (TEPCO) water quality surveys and does not anticipate any effects to public health around the Hawaiian Islands because ocean water acts as a diluting agent. While there may be significant quantities of radioactive material released into the sea near the Fukushima reactor site, the massive amount of water in the Pacific Ocean rapidly dilutes and disperses the materials to negligible levels. In addition, some radioactive isotopes rapidly decay over time, minimizing their ability to cause harm.

Shoreline Surveys for Radiation and Japan Tsunami Marine Debris (JTMD)

In addition to closely monitoring the situation in Japan, DOH continues to perform shoreline surveillance on Oahu, Kauai, Maui and the Big Island. Shoreline surveillance is normally performed on a quarterly basis; however, the frequency was increased to monthly during a short period when the DOH saw a boost in the arrival of JTMD. Results of surveys performed from January – June 2013 showed normal background radiation levels, which range from 1 to 5 micro-Roentgens per hour.

Photo: Regular radiation shoreline and debris monitoring

There is consensus among Federal and State scientists that radioactive debris is very unlikely, for several reasons and all readings thus far have been within normal background radiation levels. Additionally, DOH has provided detection equipment to NOAA to perform shoreline and debris monitoring in the Northwestern Hawaiian Islands (NWHI). In April 2013, NOAA performed surveys on JTMD found on Midway Atoll but did not detect any radiation above background levels.

For more information, please refer to NOAA's website:
http://marinedebris.noaa.gov/info/japanfaqs.html

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Objective: Increase the State's readiness to recover from external threats.

Program Highlight: Kilauea, Kauai soil clean-up

During the course of a year-long investigation beginning in 2010, DOH's Hazard Evaluation and Emergency Response Office Site Discovery Program found historical documents suggesting surface soils in the area around the former Kilauea Sugar Mill had elevated levels of arsenic and dioxin, as a result of its former use as a pesticide mixing and storage area. Inorganic arsenic is a known human carcinogen and short-term exposure to high levels of dioxins may result in skin lesions, such as chloracne and patchy darkening of the skin, and altered liver function. Long-term exposure is linked to impairment of the immune system, the developing nervous system, the endocrine system, and reproductive functions. The Site Discovery Program has been systematically investigating soil contamination originating from historic sugar plantation operations throughout Hawaii. In May 2012, DOH, in coordination with the County of Kauai, made a formal request for EPA Superfund Removal Program assistance to clean up Kilauea.

DOH and EPA used Superfund Removal Program assistance to cleanup remove over 814 tons of contaminated soil from residential and commercial property in Kilauea. The removed soil contained residues of arsenic and dioxin from the pesticides stored and mixed at the site. Soil testing also found elevated levels of the contaminants in a stormwater drainage ditch behind a commercial warehouse, and at two adjacent residential properties. In addition to backfilling the area with new clean soil, the drainage ditch was capped with a concrete barrier. Throughout the process, over 230 air samples were taken that showed that this remediation work did not release any detected contaminants. The removed soil was safely disposed. The level of contamination in the soil was relatively low and did not require any treatment. This joint effort illustrates this program's success at targeting and remediating old pesticide contamination areas that have the potential to harm nearby communities.

The County of Kauai worked closely with the state and federal government to bring this project to a successful conclusion. We would like to thank the Mayor's team and the residents of Kilauea for their support and patience as we all worked together to make the community safer for children and families, now and into the future.

DOH and EPA have cleaned up the following Superfund Sites in Hawaii:

Location	Site
Pearl Harbor, Oahu	Naval Computer & Telecommunication area
Pearl Harbor, Oahu	Pearl Harbor Naval Complex
Lahaina, Maui	Pioneer Mill Company
Hawaii County	Puna Geothermal Vent
Village of Kunia, Oahu	Del Monte Corporation
Wahiawa, Oahu	Schofield Barracks

For more information, please visit: http://eha-web.doh.hawaii.gov/eha-cma/Org/HEER/

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Foundation 4: Clean & Sustainable Environments

Objective: Improve environmental protection.

Program Highlight: Increase monitoring and testing of ocean water quality

In 2012, certified labs in each county conducted 4,854 ocean water sampling tests to ensure the safety of our ocean resources.

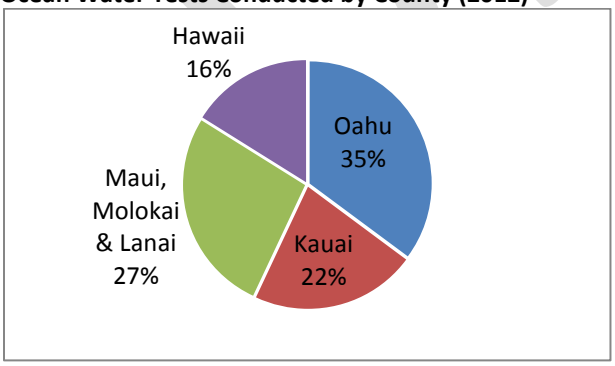
Representative Ocean Water Tests (CY 2006-2011*)

Number of Selected** Samples Tested	2006	2007	2008	2009	2010	2011	2012
Oahu State Lab	2,661	3,472	3,115	3,081	871	952	1,706
Kauai District Lab	864	858	923	777	973	1,007	1,060
Maui District Lab	590	909	1,204	1,109	1,219	1,095	1,306
Hawaii (Hilo) District Lab	761	816	996	1,207	985	1,211	782
Total	**2,215**	**2,583**	**3,123**	**3,093**	**3,177**	**3,313**	**4,854**

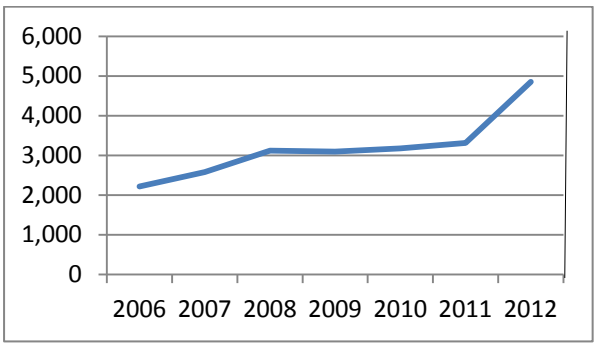
Source: Department of Health, State Laboratories (SLD)
* Calendar year
** SLD tests a wide variety of samples as needed. Not all tests of SLD's tests are reflected above.

Photo: Clean Water Branch staff taking ocean water samples at Ala Moana Beach, Oahu

Ocean Water Tests Conducted by County (2012)



Number of Ocean Water Tests (CY 2006-2012*)



Program Highlight: Increase regular monitoring and testing of our air quality

Air monitoring and testing

In 2012, SLD continued its critical work of testing for harmful substances in our air. Certified laboratories in each county conducted over 785,000 tests to ensure the safety of the air we breathe.

Number of Air Samples (Tests) Performed (CY 2006-2012*)

Number of Sampling Tests	2006	2007	2008	2009	2010	2011	2012
Oahu	263,673	263,673	263,673	307,167	291,837	353,022	347,115
Kauai**	0	0	0	0	0	45,990***	52,560
Maui****	35,162	35,162	35,162	35,040	35,040	35,040	70,080
Hilo****	254,040	254,040	289,080	289,080	297,900	219,000	315,360
TOTAL	**554,881**	**554,882**	**589,923**	**633,296**	**626,787**	**655,063**	**785,115**

Source: Department of Health, State Laboratories
* Calendar year
** Kauai did not have any ambient air monitoring stations from 2006-10
*** In 2011, the Kauai station was established to monitor the impact of cruise ship emissions
**** In 2012, new monitoring stations came online on Maui (in response to cane burning) and Hawaii (in response to vog)

Photos: Kilauea Crater

Kilauea Iki Trail

Number of Exceedances of 1-Hour Standard (75 ppb)**

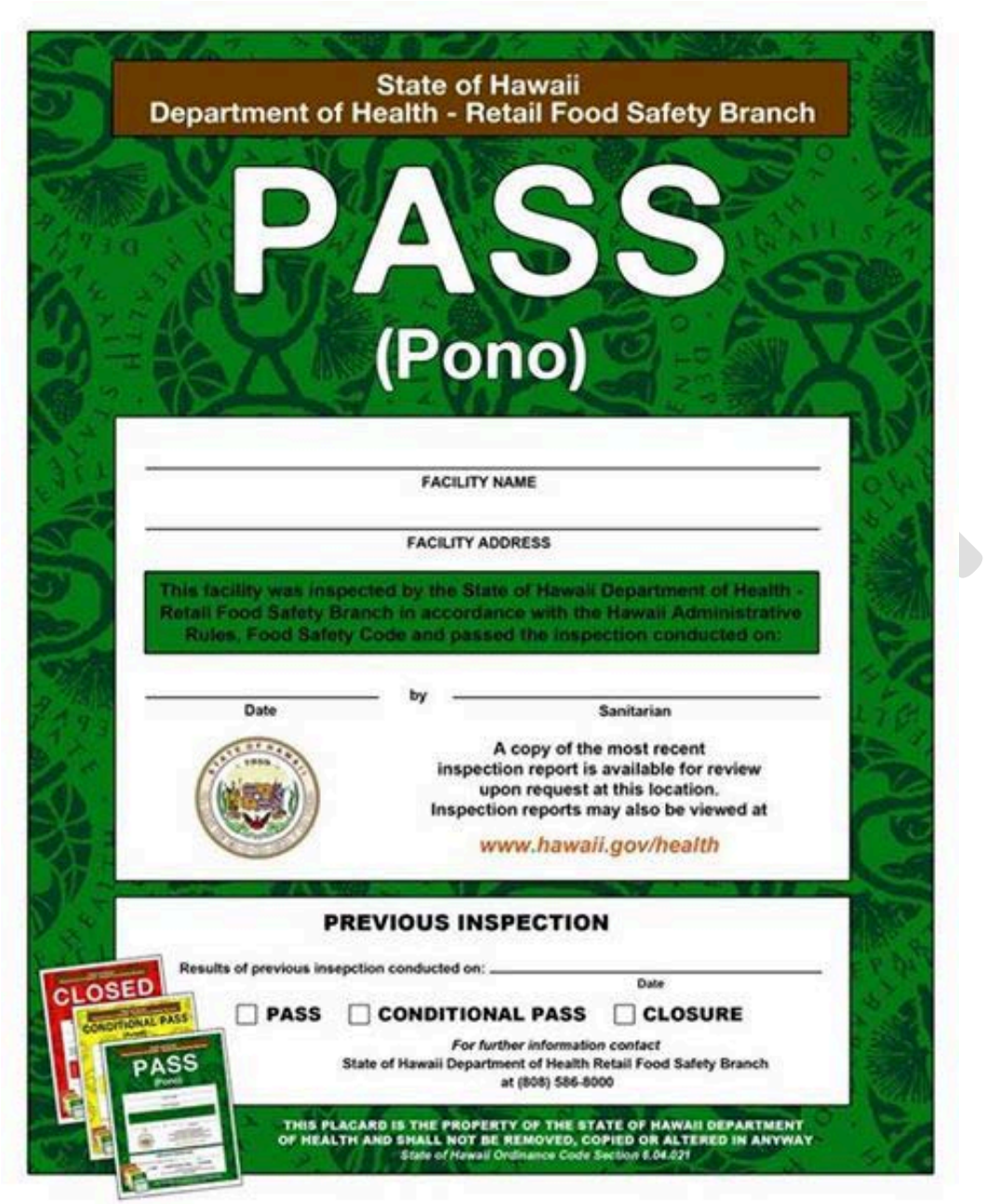
ISLAND	STATION	Calendar Year		
		2010	2011	2012
Hawaii	Hilo	14	8	20
Hawaii	Kona	0	1	2
Hawaii	Mountain View	8	16	20
Hawaii	Ocean View	76	95	177
Hawaii	Pahala	156	214	292
Hawaii	Puna E	0	0	0
Oahu	Honolulu	0	0	0
Oahu	Kapolei	0	0	0
Kauai	Niumalu	na	1	1
TOTAL	**9 stations total**	**254**	**335**	**512**

Source: Department of Health, Clean Air Branch
*Exceedances since the NAAQS became effective in June 2010
**ppb = parts per billion

Note: The Ocean View monitors began operation in April 2010. In December 2010, the Mountain View station was relocated. In April 2011, the Niumalu monitors were added, and in July 2012 the Waikoloa station came online.

Objective: Improve consumer health.

Project Highlight: DOH Works to Establish New Rules to Reduce Foodborne Illness



EHA proposed new administrative rules in 2013 that would require Hawaii restaurants and other food establishments to post highly-visible green, yellow, or red placards to alert patrons to a facility's performance during its most recent health inspection. A green placard means that the restaurant passed inspection, yellow means that the restaurant had two or more major violations during an inspection that require a follow-up inspection, and red means that inspectors identified health hazards that require immediate closure of the facility (like sewage overflows, vermin infestation, etc.). The purpose of the program is to reduce foodborne illness among Hawaii consumers by allowing people to make informed choices about where they eat, and is consistent with the FDA's Model Food Code. The rules would also increase food permit fees to help fund inspections that protect public health.

Project Highlight: Increase enforcement

In state fiscal year 2013, EHA conducted a total of 15,389 field inspections, issued 538 warning notices and 10,423 field citations, initiated 47 enforcement cases, and resolved 203 formal cases.

Enforcement Summary for State Fiscal Year 2013

	Inquiries & Complaints	*Field Inspections*	*Warning Notices*	Field Citations	Enforcement Cases Issued	Enforcement Cases Pending	Penalties Sought	Formal Cases Resolved	Funds Received
	Informal								
Clean Air Branch	715	1,952	97	6	25	42	$108,600	19	$176,700
Solid & Hazardous Waste Branch	3,088	827	140	27	12	63	$351,455	175	$464,400
Clean Water Branch	203	136	9	2	3	7	$50,586	2	$0
Wastewater Branch	161	308	52	39	0	11	$0	3	$10,450
Safe Drinking Water Branch	1,173	74	13	0	0	0	$0	0	$0
Hazard Evaluation & Emergency Response	0	14	38	3	0	0	$7,099	0	$7,099
Indoor & Radiological Health Branch	468	1,172	136	2	7	12	$53,000	4	$12,133
Sanitation Branch	2,102	10,906	53	10,344	0	2	$90,000	0	$0
Environmental Health	**7,910**	**15,389**	**538**	**10,423**	**47**	**137**	**$660,740**	**203**	**$670,782**

Source: Department of Health, Environmental Planning Office

Enforcement case #1: Mailiili Stream, Waianae, Oahu $1.4 million settlement

DOH and the City and County of Honolulu signed a settlement agreement in April 2012, bringing one of the largest and most controversial water pollution cases in Hawaii to a close. EHA fined the City for violations of the Clean Water Act for the alleged placement of 257 truckloads of concrete waste in Mailiili Steam, Waianae, in 2008 and 2009. The City was ordered to pay a $1,735,000 administrative penalty and a DOH Hearings Officer agreed that the city had violated the law and upheld the fine amount. The City appealed the Hearing Officer's decision to the First Circuit Court, but as a result of negotiations, the parties were able to reach a settlement.

Under the settlement agreement, the City agreed to pay $1.2 million to support water quality improvements on the Waianae Coast. In addition, the City agreed to construct $200,000 worth of new stormwater control projects, bringing the settlement agreement to a total value of $1.4 million. The penalty payment will be used to:

1. Fund a computerized environmental information sharing project to better allow the public to track and investigate permitted facilities in their communities;
2. Develop a Mailiili Watershed Management Plan that will facilitate the funding of future projects to protect leeward Oahu water quality; and
3. Fund community-based water quality improvement projects in the Mailiili area that are consistent with the new watershed plan.

The City will also invest $200,000 to install stormwater control projects to improve water quality in the Mailiili area. Projects could include the construction of swales, pervious pavement, stormceptors, or trash removal devices. This settlement agreement resolves the DOH Administrative Hearings Officer's pending order and the City's appeal.

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Enforcement case #2: Koyo USA Corporation fined $2 million

Koyo USA Corporation (Koyo) and DOH reached a settlement in a DOH enforcement action filed against Koyo in September 2011. Koyo produces a bottled drinking water product branded as Mahalo Hawaii Deep Sea Drinking Water, which has been marketed to consumers in a variety of locations, including Japan and Hawaii. DOH issued a Notice of Violation and Order to Koyo for utilizing an unapproved manufacturing process for its bottled water from July 7, 2006 to May 19, 2011. Test results from independent laboratories and SLD confirmed that consumption of the affected bottled water product did not pose an immediate and/or substantial risk to human health because Koyo used a disinfection process prior to selling its water product. The Koyo company staff and leadership cooperated in making corrections to the unpermitted drinking water filtration process and DOH did not initiate a recall or embargo of the Koyo bottled water.

As a result of this action, Koyo has agreed to pay DOH a total of $2 million. The settlement payments are being dedicated to support DOH's drinking water, food safety, and laboratory programs. Koyo remains permitted to produce its bottled drinking water product.

Enforcement case #3: Kanemitsu Bakery on Molokai fined $90,000

DOH suspended the permit for Kanemitsu Bakery in Kaunakakai, Molokai for producing baked goods manufactured at the facility under unsanitary conditions. State health officials met with owner on June 25, 2012 and issued the suspension, which closes bakery operations until the bakery completes a DOH-approved plan of correction. On June 15, 2012, DOH received an anonymous public complaint alleging that insects and foreign substances had been found in bread rolls purchased from Kanemitsu Bakery. The facility also had pending violations that resulted in issuance of a $90,000 DOH penalty for unsanitary conditions found during routine inspections conducted in March 2012.

Health officials investigated the facility on June 20, 2012. The inspection revealed serious deficiencies in its maintenance and manufacturing practices, including: visual sighting of rodents during the inspection, failure to make water available at the sink's rinse compartment, unclean food preparation surfaces, no soap and hand towels at hand-washing sinks, and general unsanitary conditions. In order to assist Kanemitsu Bakery in correcting the conditions that led to the permit suspension, DOH worked closely with the owner and provided a check-list of concerns that need to be addressed before the permit could be reinstated. The bakery portion of the Molokai facility remained closed while an intensive mitigation plan, developed with DOH, was completed, and measures were taken to ensure consistent and lasting compliance with all food safety regulations. The restaurant portion of the facility remained open and was not included in the permit suspension as it operated out of a separate, permitted kitchen.

DOH's Sanitation Branch protects and promotes Hawaii resident and visitor health through food industry worker education and regulation of food establishments statewide. The Branch conducts routine inspections of facilities where food products are prepared, manufactured, distributed, or sold. It also investigates potential food safety violations that may cause foodborne illnesses, and allegations of adulterated foods.

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Enforcement case #4: Pesticide misuse at some Oahu basil farms

Misuse of pesticides at some Oahu basil farms prompted state and federal authorities to develop a plan with local farmers to prevent further mishandling and improper application of pesticides on farm produce. During an investigation of fresh basil samples grown on Oahu, DOH identified four farms that were using unapproved pesticides on their basil crops. The pesticides are approved for use on other vegetables but not specifically for use on basil.

On April 17, 2012, DOH ordered a farm to cease the sale, delivery, holding, or offering for sale of basil until further notice and on April 20, the farm destroyed the affected basil. DOH conducted follow-up testing and collected 10 basil samples from 5 different produce distributors on Oahu, and found that 7 out of 10 samples were positive for the presence of one or more pesticides that are not approved for basil application. Further laboratory testing of basil samples taken directly from six Oahu farms indicated that four basil farms tested positive for at least one pesticide that is not approved for that use. All contaminated crops have been restricted from sale and distribution.

Photo: Basil

DOH is working closely with the Hawaii State Department of Agriculture (HDOA), University of Hawaii College of Tropical Agriculture and Human Resources (CTAHR), U.S. Department of Agriculture - Farm Service Agency (USDA-FSA), and U.S. Food and Drug Administration (FDA) to address this serious pesticide misuse issue. DOH, CTAHR, and USDA will share resources and expertise to expand their established educational programs in order to quickly reach a broader segment of the farming community. The agencies have plans to expedite on-site training with farmers about proper pesticide use, farm worker safety while applying pesticides, and correct selection of approved pesticides for specific crops. Working together, our agencies can reach out to and educate farm workers more quickly to ensure the safety of produce grown in Hawaii. DOH will continue its investigation and laboratory testing of fresh produce to identify any new sources of contamination for enforcement action, while HDOA will conduct follow-up testing to verify corrective measures. DOH will expedite follow-up testing to confirm that these farms may resume their distribution and sale of basil.

Objective: Improve industry's ability to protect the environment.

Program Highlight: Re-establishment of shell fishing in Hawaii

In May 2013, DOH approved the growing area water and issued a permit for harvesting shellfish to Sunrise Capitol Inc., d/b/a Kauai Clams. The company is located in Kekaha, Kauai, and is the first operation in 27 years to receive DOH approval to farm and sell shellfish in the state. The last shellfish operation in the state, Hawaiian Seafood Gardens, closed in 1997 for financial reasons, and after its closure, local interest in shellfish farming waned. As a result, DOH allowed its U.S. Food and Drug Administration (FDA) shellfish laboratory certification to lapse in 2000.

Recently, Governor Abercrombie asked DOH to help bring a thriving shellfish industry back to Hawaii, and since then, DOH laboratory and food safety staff has worked hard for the required federal certification to allow Hawaii businesses to raise and sell fresh shellfish. Over a 16 month period, DOH Laboratory and Food Safety programs underwent intense FDA evaluation and training to receive federal certification and ensure that the industry complies with the appropriate safety standards. For example, shellfish must undergo a depuration process that reduces pathogenic organisms that may be present by using a controlled aquatic environment as the treatment process.

Local interest in reviving shellfish production has gained momentum. Kauai Clams expects that its initial sales will focus on Kauai but as it increases production, it anticipates expanding its distribution statewide. DOH has also recently classified growing area water for shellfish operations in Hilo and at Molii Ponds (owned by Kualoa Ranch, Inc.) on Oahu. In order to classify the growing area water, the sites had to undergo environmental surveys to ensure safe water quality, including examination of the growing waters for microbial contaminants. Interested parties on Molokai and in Heeia on Oahu are currently in the process of having their growing waters classified.

This locally-grown shellfish will provide a great benefit to both Hawaii consumers and businesses, and DOH will continue to do our part to promote food sustainability and economic development while we ensure the safety of Hawaii's food products.

Photos: Shellfish depuration at Molii Ponds, Oahu
Photos courtesy of Amanda Lowrey Ph.D., Sanitation Branch—Oahu, DOH

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Foundation 5: Quality & Service Excellence

Objective: Increase the implementation of management science best practices.

Program Highlights: E-permitting portal & Environmental Health Warehouse

DOH-regulated entities find it easier to apply for environmental health permits through the DOH's new e-Permitting Portal, which was developed with funding from the Hawaii State Department of Business, Economic Development and Tourism (DBEDT). The portal assists industry with preparing and submitting online applications, making secure electronic payment of fees, and keeping current on the status of submissions. It also allows the general public to learn about permitting requirements and procedures. The portal will further speed DOH's ability to review and process permits because it ensures that an application meets basic information requirements before it can be submitted. The portal also allows applicants to communicate directly with DOH permitting staff, further reducing the "back and forth" discussions that take up much of the total permit processing time.

Last year, DOH made the e-permitting system available on a trial basis and, to date, the Portal has received over 1,432 online submissions and collected electronic payments totaling more than $70,000. Currently, almost 30 different permits, from the Clean Water, Clean Air, Solid and Hazardous Waste, and Safe Drinking Water programs are available for online submission. The online systems have also proven to be a resource for Hawaii state agencies and other states that plan on implementing similar applications for their own programs. The Hawaii State Energy Office Administrator has stated that this tool will create a more efficient permitting process for energy developers. The e-Permitting Portal will help to maximize state resources, reduce permit and project development timelines, and move us closer to achieving our State's clean energy goals of 70 percent by the year 2030.

For more information, please visit: https://eha-cloud.doh.hawaii.gov/epermit/View/default.aspx

The Environmental Health Warehouse provides the public with a resource to easily locate regulated facilities and identify environmental health impacts within their own communities. Hazardous waste sites, underground storage tanks, polluted water discharge points, and other permitted facilities are just a few computer clicks away. The information can be found using text searches or by selecting map locations, such as school districts, neighborhood board areas, tsunami zones, and Tax Map Key (TMK) labels. The warehouse currently contains information on more than 13,000 locations regulated by DOH.

For more information, please visit http://eha-web.doh.hawaii.gov/ehw/Dashboard/

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SECTION II: INDICATORS

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INDICATORS

The Environmental Health Administration (EHA) tracks key environmental indicators as well as compliance and enforcement data in accordance with environmental laws, the State of Hawaii "A New Day Plan in Hawaii Plan" (The New Day Plan), the State of Hawaii Strategic Plan, the State of Hawaii Department of Health (DOH) Strategic Plan, and the U.S. Environmental Protection Agency (EPA) Region IX's Strategic Plan and initiatives. This report supports the reporting requirements for DOH's National Accreditation, DOH Environmental Council's annual reporting, and EPA Region IX. This report is also developed to provide the public with an overview of the Environmental Health Administration (EHA). However, it is important to keep in mind that government programs for the protection of health and the environment are implemented by a combination of local, State, and Federal agencies.

Accurate and timely information is essential to environmental enforcers' ability to protect public health, to deter and prosecute those that violate environmental laws and regulations, and to create a level playing field for business competition. Public transparency has been identified as a necessary element of promoting efficiency and effectiveness in government.

2014 Initiatives:

Over the next year, EHA will:

1) Obtain public input on proposed Greenhouse Gas Rules;
2) Establish a wastewater inspection pilot program;
3) Encourage health impact assessments;
4) Draft and release a State Water Quality Plan;
5) Develop a Hawaii Waste Management Plan;
6) Increase the frequency of restaurant inspections;
7) Expand the number of emergency preparedness trainings; and
8) Implement a new restaurant inspection placard system.

Photo: Punaluu Beach, Big Island

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Clean Water, Safe Drinking Water, and Wastewater Branches

Consistent with the federal Clean Water Act; federal Safe Drinking Water Act; relevant federal regulations; Hawaii Revised Statutes (HRS) ch. 321 (partial), 322 (partial), 340E, 340F, 342D, 342E; and sections of Hawaii Administrative Rules (HAR) Title 11, the EHA water branches have made great strides to improve Hawaii's water quality over the last forty years. The water branches protect State waters by ensuring compliance with laws, issuing permits, and taking enforcement actions against illegal discharges of pollutants into surface and ground waters.

For all of its clean-water successes, Hawaii still faces many challenges. The water branches regulate a growing number of potential pollution sources and coordinate Hawaii's efforts to reach and maintain health-based Federal and State water quality standards and protect the public and the environment from exposure to pollutants. Vigorous enforcement ensures that these efforts achieve the anticipated results. More information on Water Quality can be found at: http://health.hawaii.gov/water/.

Water Indicators

The Clean Water Branch (CWB), http://health.hawaii.gov/cwb/, tracks a number of indicators, including the number of impaired coastal waters and streams and the total number of days of shoreline postings related to pollutant levels in nearshore waters. The Safe Drinking Water Branch (SDWB) also tracks a number of indicators, including: the percent of the State population's drinking water that is below maximum contaminant levels (MCLs); the number and regularity of surveys of safe drinking water systems; and the number and percent of underground injection control (UIC) permits. The Wastewater Branch (WWB) tracks the number and percent of waste water treatment plants in compliance with State laws and the percentage of wastewater recycled in the state.

Clean Water Branch

Number of Coastal Waters Listed as Impaired

The coastal water impairment indicator is based on the 2012 State of Hawaii Water Quality Monitoring and Assessment Report: Integrated Report to EPA and the U.S. Congress Pursuant to § 303(d) and § 205(b), Clean Water Act ("Integrated Report"). The report is available at:

http://health.hawaii.gov/cwb/files/2013/09/Integrated_2012_StateOfHawaii.pdf

The 2012 Integrated Report identifies waters where DOH's analysis of available data revealed non-attainment of State water quality standards, which necessitates that these waters be listed as "impaired." There are 225 waters listed as impaired in the 2012 Integrated Report. Turbidity was the most common reason for impairment in the State's marine waters—the 2012 Integrated Report identified 150 different areas where turbidity levels exceeded water quality standards. The CWB believes this is due to polluted runoff, and is continuing to focus its polluted runoff control program on selected watersheds to work toward making measurable improvements.

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Number of State Coastal Waters* Assessed by Island in Calendar Years 2010-2012**

Island	Number of Coastal Waters	Number of Impaired Coastal Waters	Percentage of Known Impaired Coastal Waters by Island
Hawaii	83	43	52%
Kauai	64	23	36%
Lanai	12	7	58%
Maui	84	76	90%
Molokai	32	3	9%
Oahu	114	73	64%
TOTAL	**389**	**225**	**58%**

Source: Department of Health, Clean Water Branch

* "Coastal Waters" means beaches, bays, harbors, and coastal estuaries.

** Assessed, as it is used in the chart above, means tested for any of the following: enterococci (a pathogen which negatively affects recreation), nitrogen, nitrates, phosphorus, turbidity, and/or other (including trash).

State of Hawaii Recreational Coastline Assessed in Calendar Year 2012

Island	Miles of Coastline	Miles of Coastline Assessed	Percent of Coastline Assessed
Hawaii	266	36	13%
Kauai	90	70	78%
Lanai	47	20	43%
Maui	120	65	54%
Molokai	88	18	20%
Oahu	112	94	84%
TOTAL STATEWIDE	**723**	**303**	**42%**

Source: Department of Health, Clean Water Branch (Draft Data)

Number of Shoreline Postings due to Sewage or Other Water Pollution

Sewage or chemical spills and other pollutant releases restrict the public's enjoyment and use of the shoreline and negatively affect aquatic life. The table below shows the number of times shoreline waters were posted with warning signs (explaining that they were unsafe due to water pollution) by the counties, military, private parties, or the Department of Health. For any sewage spills, shoreline warnings are posted first, followed by water sampling. The CWB then reviews bacteria data prior to allowing removal of warning signs. Unfortunately, the number of days per year of shoreline postings due to water quality concerns is increasing. Shoreline postings tend to vary according to the year's weather—because storms can result in brown water advisories and cause overflowing sewer lines they often lead to an increase in sewage spills, which results in shoreline water quality postings.

Total Number of Shoreline (Water Quality) Postings Per Year

State Fiscal Year	Total	Number of Shoreline Postings Caused by Sewage Events
2010	403	403
2011	529	529
2012	729	15

- These numbers do not reflect warning sign postings on streams, lakes, and other inland waters, such as the Ala Wai Canal.
- Other agencies may also post other shoreline warning signs.
- These numbers do not include "brown water advisories," which are general media releases anticipating or responding to heavy stormwater runoff events and are not necessarily accompanied by actual shoreline postings.

Photo: View of Kahoolawe from Big Beach, Maui

Number of Shoreline Water Quality Postings Per Year

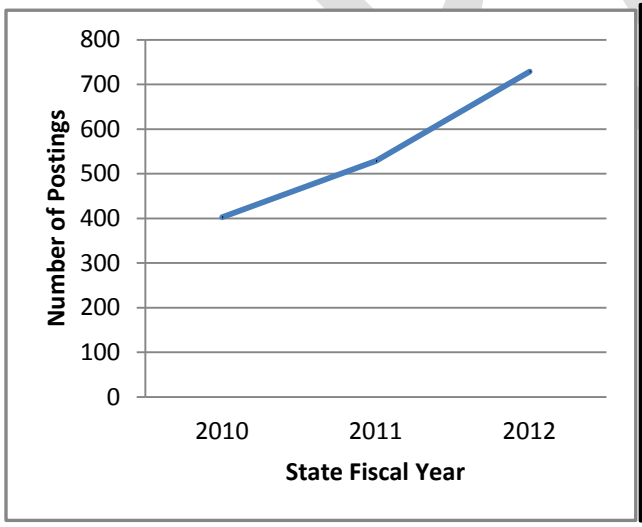

Photo: Shoreline posting sign

Number of Impaired Streams

This stream quality indicator is based on the 2012 Integrated Report. The Report identifies streams where analysis of available data indicated that the waters are not meeting State water quality standards. The stream quality indicator refers only to the freshwater, inland parts of a watershed that have salinity lower than 0.5 parts per thousand (ppt), including all stream tributaries. The identification

of these streams initiates a process that gives agencies, non-profits, businesses, and community groups the tools to begin to control sources of pollution, improve water quality, and protect and enhance aquatic ecosystems.

Perennial* Stream Impairment in the State Assessed by Calendar Year**

Island***	Number of Perennial Streams	Number of Impaired Perennial Streams					
		2002	2004	2006	2008	2010	2012
Hawaii	132	12	15	16	17	17	17
Kauai	61	8	11	20	16	16	16
Maui	90	9	10	11	11	11	11
Molokai	36	0	0	1	1	1	1
Oahu	57	30	34	45	46	46	46
TOTAL	**376**	**59**	**70**	**93**	**91**	**91**	**91**
% of Streams Impaired in the State		**16%**	**19%**	**25%**	**24%**	**24%**	**24%**

Source: Department of Health, Clean Water Branch
* Perennial means that the stream flows all year long.
** Assessed, as it is used in this table, means tested for any of the following: enterococci (a pathogen which negatively affects recreation), nitrogen, nitrates, phosphorus, turbidity, and/or other (including trash).
***Kahoolawe, Lanai, and Niihau had no perennial streams.

Polluted Runoff Control

Polluted runoff, or nonpoint source pollution, occurs when stormwater or irrigation water washes pollutants off the land into streams and coastal waters. These pollutants, like dirt (sediment), nutrients (from fertilizers), bacteria (from animal waste), oil, trash, and yard waste, affect water quality. DOH's Polluted Runoff Control Program utilizes Clean Water Act funding to provide grants for polluted runoff control projects in Hawaii, including watershed planning and implementation projects, and nonpoint source outreach and education.

Photo: Iao Stream, Maui

For more information on the Polluted Runoff Control Program and the Program's most recent End of Fiscal Year Report, please visit: http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/polluted-runoff-control-program/.

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Safe Drinking Water Branch

The Safe Drinking Water Branch's (SDWB), http://health.hawaii.gov/sdwb/, primary function is to ensure public water systems meet state and federal health-related standards for drinking water. These standards include: 75 maximum contaminant levels (MCLs), 10 treatment technique requirements, and 3 maximum residual disinfectant level (MRDL) requirements.

Percentage of Population Served Safe Drinking Water

Drinking water that exceeds MCLs creates a risk of harm to human health. In calendar year 2012, 100% of Hawaii's residents and visitors were served drinking water that fell below all of the MCLs on a monthly basis. Even using conservative assumptions, the compliance rate has consistently exceeded 99.0%. Whenever a violation is found in a public water system, the public is notified through electronic media, hand-delivered notices, or published notices. About 40,000 persons are served by small, unregulated systems such as individual home catchments. These systems are excluded from the statistics presented below.

The SDWB employs many programs to strengthen public water system protection.

Percentage of Population* Served Safe Drinking Water

State Fiscal Year (July-June)	Total Population Served Drinking Water	Population Served Water Below MCLs**	Percentage Population Served Water in Compliance with MCLs**
2009	1,440,715	1,432,116	99.40%
2010	1,471,887	1,470,664	99.92%
Calendar Year			
2011	1,473,960	1,472,420	99.90%
2012	1,476,931	1,476,931	100.00%

Source: Department of Health, Safe Drinking Water Branch
*= Water systems report their populations based on an estimated number of persons their systems serve. The total number of persons served will exceed the recorded population of the state (based on Census data) because some people are served by multiple water systems on a daily basis, and therefore are counted in multiple estimates.
**=Maximum Contaminant Levels (MCL)

SDWB Programs

Groundwater Protection Program – Hawaii's heavy dependence on groundwater as a source of drinking water places great importance on groundwater protection. There are many county, state and federal agencies that have the potential to directly or indirectly affect groundwater on an advisory, research, regulatory, and planning level. Besides coordinating with these agencies, the Program collects groundwater data and will be conducting its own monitoring in accordance with a monitoring strategy that is currently in development.

Source Water Assessment and Protection Program - These programs delineate the boundaries of areas that provide source water for public water systems and identify the origins of regulated and unregulated contaminants in the delineated area to determine the susceptibility of the public water system. Recent efforts include educating water systems, the public, and other organizations on development and implementation of drinking water protection strategies and plans. SDWB meets with water systems and government agencies to discuss the results of source water assessments and plans for source water protection.

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Capacity Development Program - The purpose of this program is to make sure water system owners have the technical, managerial, and financial capacity (knowledge and ability) to properly operate and maintain a public water system and, if necessary, expand these capabilities. This program involves direct technical assistance to owners of individual water systems and general training sessions on system operations.

Underground Injection Control (UIC) Program - The goal of this program is to protect existing and potential sources of drinking water from contamination by injected fluid wastes. The program issues and administers permits for injection well facilities and limits the areas where this type of fluid waste disposal can be sited. Maps that delineate the UIC line can be found at: http://health.hawaii.gov/sdwb/uicprogram/.

The overall percentage of underground injection well facilities in compliance with State and Federal regulations (those with a current permit) for fiscal year 2013 is 72%. Most of the non-compliant injection well facilities use drainage injection wells for rainfall runoff disposal. Sewage disposal and industrial-related wastewater disposal injection wells had a slightly higher compliance percentage at 57%. Permit renewals for sewage- and industrial-related injection are processed before permit renewals for drainage injection because of their higher risk of causing groundwater contamination.

Underground Injection Control (UIC) Well Compliance (2004-2013)

Calendar Year	Total UIC Permits	Total Expired Permits	Percent of Total with Current Permits	Percent of Current Sewage & Industrial UIC Permits
2004	677	298	56%	77%
2005	679	345	49%	57%
2006	714	358	50%	56%
2007	768	364	53%	60%
2008	796	379	52%	60%
State Fiscal Year				
2009	818	374	54%	63%
2010	857	385	55%	67%
2011	879	394	55%	67%
2012	911	393	57%	71%
2013	926	389	58%	72%

Source: Department of Health, Safe Drinking Water Branch

SDWB Approvals

New Source Approvals - All new sources of water intended to serve as part of a public water system are required to be approved by the Director of Health. Approval is based on satisfactory submission of an engineering report addressing many aspects of the source, including water quality.

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Photos: Well

Surface Intake

Rain-Water Catchment

Treatment Plant Approvals - The addition of new drinking water treatment facilities is generally considered a major or substantial modification of a public water system, which also requires approval by the Director of Health.

Photos: Granular Activated Carbon

Packed Tower Aeration

Reverse Osmosis

Water Treatment Plant and Distribution System Operator Certification - This program is designed to ensure that water treatment plant and distribution system operators have the proper education and experience to operate their systems. In State Fiscal Year 2012, there were approximately 212 certified water treatment plant operators in the State.

A distribution system can be a source of water contamination. Water main breaks and stagnation are two of the many ways that the distribution system can affect drinking water quality. Operators must know how to address these and other conditions to maintain the best quality water possible. At the present time, there are 128 public water systems that require certified distribution system operators and 512 certified distribution system operators in the State.

Cumulative Sanitary Surveys of Safe Drinking Water Systems

One of SDWB's most significant responsibilities is conducting sanitary surveys, which provides a review of the water system field conditions. Sanitary surveys are conducted periodically to determine the condition of various aspects of the public water system including; sources, facilities, record-keeping, management, financial status, operation, and more. SDWB's goal is to regularly conduct "Sanitary Surveys" of all public water system source, treatment, and distribution operations over a five-year period.

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Cumulative Sanitary Surveys of Drinking Water Systems

Calendar Year	Target Number of Systems Surveyed in a year*	Surveys Actually Completed Annually	Target Cumulative Number of Systems Surveyed*	Actual Cumulative Number of Systems Surveyed
2007	26	23	26	23
2008	26	31	52	54
2009	26	28	78	82
2010	26	27	104	109
2011	26	41	130	150
2012	26	43	130*	193

Source: Department of Health, Safe Drinking Water Branch (SDWB)
* There were a total of 130 Drinking Water Systems in 2012.
Note: SDWB tries to do at least 26 surveys a year so that each system is inspected at least every 5 years

Drinking Water State Revolving Fund (DWSRF)

The DWSRF is a federally-capitalized low-interest loan program that provides funding to the four County water departments for water infrastructure projects, like treatment plants, new drinking water sources, the replacement of aging waterlines, and storage tanks. EPA provides the capitalization grants to SDWB, which administers the loan program with assistance from the Environmental Resources Office and Water Revolving Fund Staff. The DWSRF program is considering offering financing to state-owned and privately-owned water systems in the future.

Photos: Proposed DWSRF Project

Completed DWSRF Project

In State Fiscal Year 2013, the Safe Drinking Water Branch and Environmental Resources Office executed 10 final loan agreements, totaling $27,692,906. This represents a 100 percent increase in the number of loan agreements executed and a 373 percent increase in the dollar amount loaned when compared to State Fiscal Year 2012. These loan agreements provide funding to County Departments of Water Supply for repairs and improvements to their water systems.

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Wastewater Branch

The Wastewater Branch, http://health.hawaii.gov/wastewater/, administers the statewide engineering functions relating to water pollution control, the municipal and private wastewater treatment works program, and the individual wastewater systems program. The Branch's activities include review and approval of all new wastewater systems, monitoring of all existing wastewater systems, planning, design, and construction of several major wastewater treatment works projects, executing engineering and scientific contracts, and final project, operation, and maintenance inspection reports.

Wastewater Treatment Plant Operation & Maintenance Compliance

In 2012, 93% of wastewater treatment plants (WTP) were in compliance with State standards.

Wastewater Treatment Plant Operations & Compliance

Calendar Year	Total Number of Plants	Number of Plants Inspected	Number of Plants Rated Unsatisfactory	Percentage in Compliance
2006	180	93	14	92%
2007	180	102	33	82%
2008	180	34	15	92%
2009	180	119	38	79%
2010	180	114	13	93%
2011	180	62	17	91%
2012	190	58	13	93%

Source: Department of Health, Wastewater Branch

Percentage of Wastewater Recycled Annually

Wastewater recycling (or the reuse of water treated to a level appropriate for irrigation and other purposes) has remained in the range of 19.64 to 24.6 million gallons per day (MGD) between 2006 and 2012. The EHA plans to encourage reuse to approximately 30 MGD statewide, or 20% by 2015.

Wastewater Recycled

Calendar Year	Total Wastewater Treated (MGD)*	Wastewater reused (MGD)	Percentage Reused
2006	150	24.60	16.40%
2007	150	24.40	16.27%
2008	150	23.91	15.94%
2009	150	23.91	15.94%
2010	145	22.98	15.85%
2011	141	19.64	13.93%
2012	141	21.14	14.99%

Source: Department of Health, Wastewater Branch
*= Millions of Gallons per Day (MGD)

Photos: R-1 System at Waimea WTP, Kauai

Ultraviolet disinfection channel in West Maui

Clean Water State Revolving Fund (CWSRF)

The CWSRF was established by the Clean Water Act (CWA) to support construction of publicly owned wastewater treatment works by providing financial assistance in the form of low-interest loans. The CWSRF executed a total of $13,249,797 in final loans in State Fiscal Year 2013 for a variety of wastewater projects and improvements. The CWSRF is required to allocate a minimum amount of funds to Green Project Reserve (GPR) projects, which are projects that contribute to energy efficiency, water efficiency, and/or sustainable infrastructure.

The Waimea Wastewater Treatment Plant Expansion, a multi-year GPR project, was completed in May 2013 with assistance from the CWSRF. It includes new 124 kW photovoltaic and UV disinfection systems that help with energy efficiency and water reuse.

Photo: Waimea Wastewater Treatment Plant photovoltaic panels, Kauai

The CWSRF also provided assistance for the Kalanianaole Avenue Interceptor Sewer Rehabilitation project in the County of Hawaii that rehabilitated 4,800 feet of sewers.

Photos: Sewer rehabilitation along Kalanianaole Avenue, County of Hawaii

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Clean Air Branch

The Clean Air Branch (CAB), http://health.hawaii.gov/cab/, has made great strides in improving Hawaii's air quality over the last forty years under the federal Clean Air Act and Hawaii's air pollution control laws. The CAB has delegated authority from EPA to administer the Federal Clean Air Act in Hawaii. However, for all of its clean-air successes, Hawaii still faces many challenges, ranging from diesel pollution to climate change. The Branch regulates an ever-growing number of air pollution sources. The CAB coordinates Hawaii's efforts to reach and maintain the health-based Federal and State air quality standards and to protect the public from exposure to toxic air contaminants. Vigorous enforcement ensures that these efforts achieve the anticipated emissions reductions and provides a level playing field among the regulated community. More information on the Clean Air Branch and indoor air quality can be found at: http://hawaii.gov/health/environmental/air/index.html

Activities

CAB has:

- Established new rules (amendments to HAR chapter 11-60.1) to restrict open burning on all islands;
- Released draft rules to reduce greenhouse gas emissions to 1990 levels by 2020 for public comment and made rule revisions;
- Issued approximately 200 agricultural burning permits in 2011 and 160 in 2012;
- Issued more than 75 air permits in 2011 and more than 80 in 2012;
- Completed roughly 350 air permit inspections in 2012;
- Conducted 170 agricultural burning permit evaluations in 2012; and
- Continued to expand the statewide ambient air quality monitoring network.

CAB has added several new air monitors on the island of Hawaii over the past few years. In April 2010, the Ocean View air monitors began operations. In December 2010, the Mountain View station was moved to provide more accurate air quality data. In April 2011, DOH added the Niumalu monitors and in July 2012, the Waikoloa station came online bringing the total number of Clean Air Branch monitoring stations in the state to 13.

Photos: Sunrise over Haleakala from Kahoolawe

AES Coal Unloader at Barber's Point Harbor

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Air Indicators

CAB monitored ambient levels of eight air pollutants, including airborne particulates (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), carbon monoxide (CO), and hydrogen sulfide (H_2S). Vog is measured as $PM_{2.5}$ and SO_2.

Greenhouse Gas Emissions

Climate change and global warming have the potential to severely affect Hawaii's economy, public health, natural resources, and environment. In 2007, the Legislature passed Act 234 committing the State to reduce its greenhouse gas (GHG) emissions (primarily caused by fossil fuel based electricity generation and transportation uses) to, or below 1990 levels by 2020. Act 234 created a Greenhouse Gas Emissions Reduction Task Force to oversee development of a work plan to achieve this goal. The Clean Air Branch is currently developing the administrative rules. For more information, please visit: http://health.hawaii.gov/cab/proposed-amendments-to-hawaii-administrative-rules/.

Greenhouse Gas Emissions 1990-2010 (MMTCO2Eq)*

	Calendar Years	
Greenhouse Gas Emissions By Type	**2010**	***2020 Goal***
Energy**	8.85	*8.08*
Ground Transport	3.10	*3.23*
Marine Transport	2.15	*1.65*
Freight	1.37	*1.53*
Waste	1.10	*0.85*
TOTAL	**16.57**	***15.34***

Source: ICF International (DBEDT Consultant for the GHG Task Force), Proposed GHG Reduction Work Plans for Hawaii, November 10, 2009
*MMTCO2Eq = Million Metric Tons of Carbon Dioxide Equivalent
**Energy= residential, commercial, industrial, electric power, oil and gas
Note: Aviation emissions are excluded from Act 234, and thus are not included in this table

2020 Greenhouse Gas Emissions (MMTCO2Eq) Goal

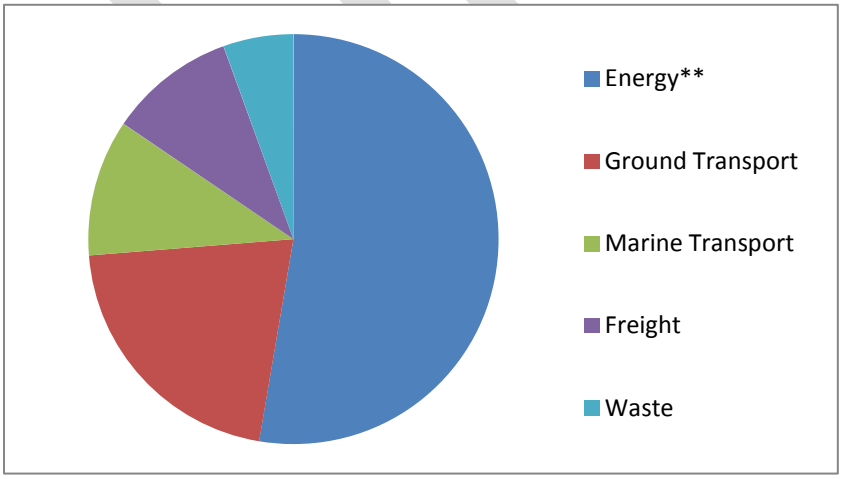

Photo: View from Mt. Ka'ala, Oahu

Ambient Levels of Sulfur Dioxide and Airborne Particulates

Sulfur dioxide (SO_2) and fine particulate matter ($PM_{2.5}$) are monitored across the state. On the island of Hawaii, and sometimes on the other islands, the two pollutants indicate the impact of volcanic emissions. In other areas of the state, the monitored levels are primarily the result of human-induced pollution. The following tables list every station that monitors for SO_2 and $PM_{2.5}$. The tables indicate the number of times the National Ambient Air Quality Standard (NAAQS), set by the U.S. EPA, were exceeded during the year.

Number of Exceedances* of 1-Hour Standard (75 ppb)**

ISLAND	STATION	Calendar Years		
		2010	2011	2012
Hawaii	Hilo	14	8	20
Hawaii	Kona	0	1	2
Hawaii	Mountain View	8	16	20
Hawaii	Ocean View	76	95	177
Hawaii	Pahala	156	214	292
Hawaii	Puna E	0	0	0
Oahu	Honolulu	0	0	0
Oahu	Kapolei	0	0	0
Kauai	Niumalu	na	1	1
TOTAL		**254**	**335**	**512**

Source: Department of Health, Clean Air Branch

*Exceedances since the NAAQS became effective in June 2010

**ppb = parts per billion

Number of Exceedances of 24-Hour Block Average PM 2.5* Standard (35 ug/m^3)

ISLAND	STATION	Calendar Years			
		2009	2010	2011	2012
Hawaii	Hilo	1	0	0	0
Hawaii	Kona	8	6	0	0
Hawaii	Mountain View	na	0	0	0
Hawaii	Ocean View	na	1	0	0
Hawaii	Pahala	5	3	0	2***
Hawaii	Waikoloa	na	na	na	0
Maui	Kihei	0	0	0	0
Oahu	Honolulu	0	1**	0	0
Oahu	Kapolei	0	1**	0	0
Oahu	Pearl City	0	0	1**	0
Oahu	Sand Island	0	0	0	0
Kauai	Niumalu	na	na	0	0
TOTAL		**14**	**10**	**0**	**0**

Source: Department of Health, Clean Air Branch

PM 2.5=particulates with an aerodynamic diameter less than or equal to 2.5 microns.

** Exceedance occurred on 1/1/11, during the New Year's fireworks celebration

***Due to brushfires near station

Note: In April 2010, the Ocean View monitors began operations. In December 2010, the Mountain View station was moved. In April 2011, DOH added the Niumalu monitors and in July 2012, the Waikoloa station was brought online.

Ambient Levels of Carbon Monoxide

EPA sets the 1-hour average limit for carbon monoxide concentrations in ambient air. Hawaii statistics are taken from the Honolulu monitoring station located downtown. The Honolulu data clearly show that levels are consistently well below the national standard.

Ambient Levels of Carbon Monoxide (CO) in Honolulu

Calendar Year	Highest 1-hour Average (ppm)	National Standard (ppm)
2005	3.4	35
2006	2.5	35
2007	2	35
2008	2.1	35
2009	1.6	35
2010	1.8	35
2011	1.4	35
2012	1	35

Source: Department of Health, Clean Air Branch
ppm=parts per million

Ambient Levels of Carbon Monoxide (CO) in Honolulu

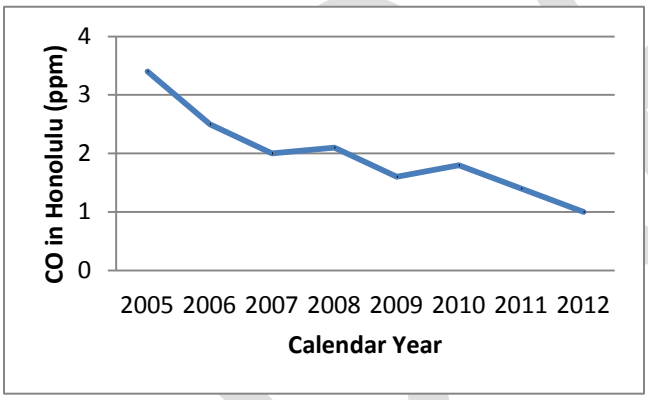

Photo: View from Diamond Head Summit

Solid & Hazardous Waste Branch

The Solid and Hazardous Waste Branch (SHWB), http://health.hawaii.gov/shwb/, operates under the Federal Resource Conservation and Recovery Act (RCRA), HRS chapters 342G, 342H, 342I,342J, 342L, and 342N, and relevant sections of HAR Title 11. The SHWB consists of the hazardous waste section, office of solid waste management, pollution prevention and waste minimization program, underground storage tank section, Hawaii electronic device recycling program, and Hi-5 deposit beverage container (DBC) recycling program. The hazardous waste section regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. Solid waste management regulates landfills, incinerators, transfer stations, recycling, composting facilities, and illegal dumping.

Activities

SHWB encouraged the recycling of solid waste, drafted E-waste recycling legislation, helped to clean up leaking underground storage tanks, and helped properly dispose of solid waste. SHWB noted that participation in the HI-5 recycling program remains strong.

Photo: PVT Landfill, Oahu

Enforcement

From July 2012 to June 2013, SHWB investigated over 3,000 solid and hazardous waste complaints, conducted over 800 related inspections, sent 140 warning notices and issued 27 field citations. Large enforcement actions included the citation of Charles Lee and PRC Corporations for solid waste violations, Kapunakea Partners for underground storage tank (UST) violations, Atlas Recycling Centers for deposit beverage container violations, and the Hawaii Prince Hotel Waikiki for a UST violation.

Solid Waste Indicators

The SHWB tracks several key indicators including the amount of solid waste recycled, the number of leaking underground storage tanks (LUST), and the Hi-5 DBC redemption rate.

Solid Waste Recycled in Hawaii

As a result of increases in Hawaii's population, the amount of waste being produced, land-filled, and recycled has increased. The addition of a third boiler, mass burn at the H-POWER facility was completed in May 2012. By calendar year end, the expanded facility is expected to be fully operational, with the capacity to process an additional 300,000 tons of waste per year and to divert bulky combustible waste from landfills. The combined H-POWER facilities will have the total capacity to process 2,900 tons per day and sell 73 megawatts of renewable energy to HECO.

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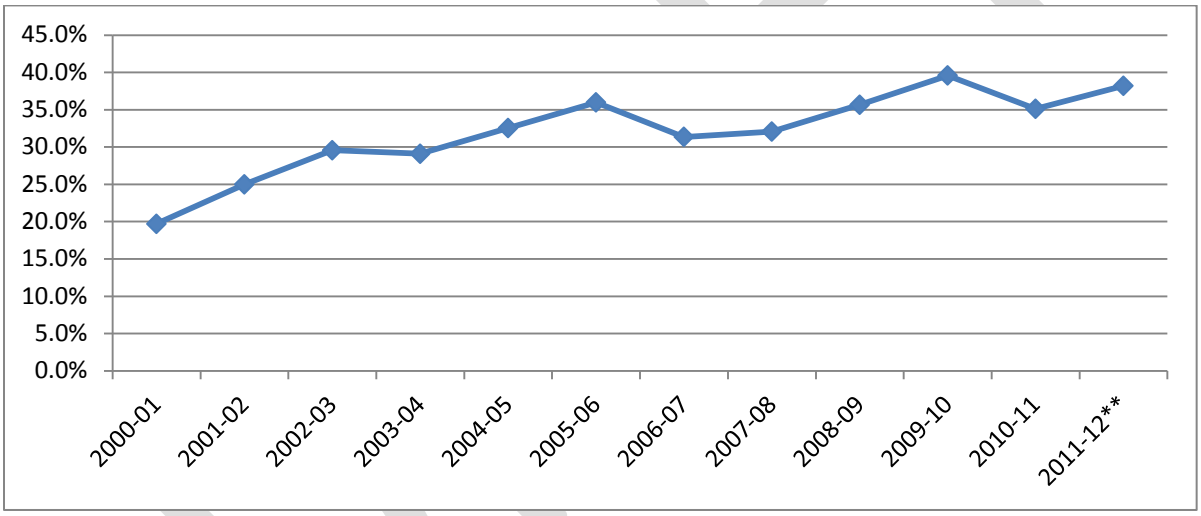
Solid Waste Recycled in Hawaii (in tons)

State Fiscal Year	Generated	Disposed	Diverted	Percent Diverted
2000-01	1,794,496	1,441,000	353,496	19.7%
2001-02	1,971,336	1,478,668	492,668	25.0%
2002-03	2,115,313	1,489,974	625,339	29.6%
2003-04	2,140,648	1,517,915	622,733	29.1%
2004-05	2,116,724	1,427,904	688,820	32.5%
2005-06	2,227,124	1,425,752	801,373	36.0%
2006-07	2,526,134	1,733,889	792,245	31.4%
2007-08	2,617,350	1,778,009	839,341	32.1%
2008-09	2,532,370	1,629,397	902,973	35.7%
2009-10	1,636,298	988,444	647,854	39.6%
2010-11	1,786,343	1,159,027	627,316	35.1%
2011-12**	1,593,887	1,147,194	608,857	38.2%

Source: Department of Health, Solid & Hazardous Waste Branch

** Incomplete: Statistics for diversion and generation from the County of Maui are currently unavailable.

Percent of Solid Waste Diverted



Deposit Beverage Container Redemption Rate

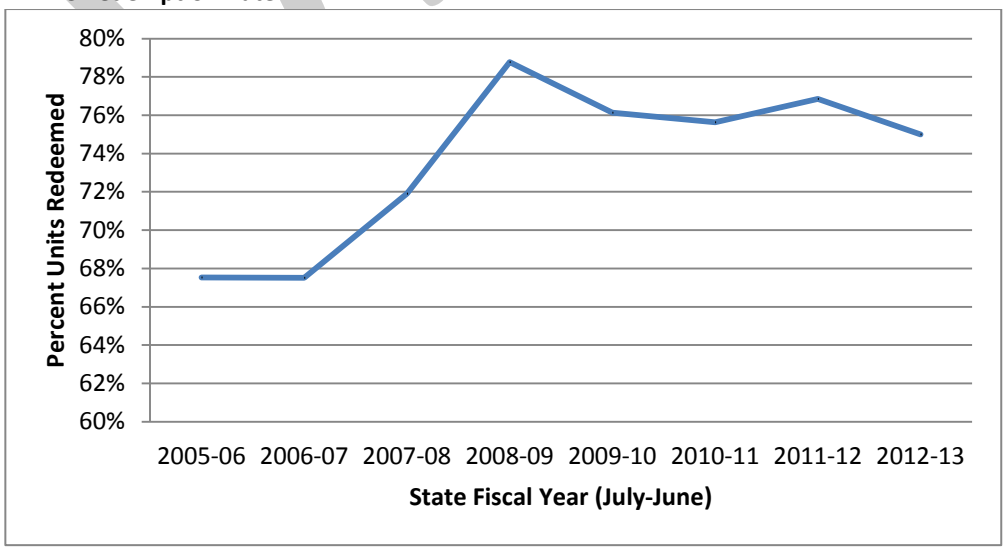
Each year, over 900 million beverage containers are sold in Hawaii. Consumers can help to recycle as many beverage containers as possible to prevent these containers from ending up in the waste stream or as litter. As an incentive, the Hawaii Deposit Beverage Container (DBC) Program places a 5 cent redeemable deposit on each beverage container. Consumers get back their 5 cents when they return their containers to a redemption center. Over 4.7 billion beverage containers have been recycled since the program began in January 2005. The redemption rate continues to remain high. For the last four years, more than three out of every four beverage containers have been recycled.

Deposit Beverage Container Redemption (DBC) Rate

State Fiscal Year	Units Sold (in millions)	Units Redeemed (in millions)	DBC Redemption Rate
2005-06	930	628	68%
2006-07	936	632	68%
2007-08	947	681	72%
2008-09	895	705	79%
2009-10	901	686	76%
2010-11	907	686	76%
2011-12	907	697	77%
2012-13	912	684	75%

Source: Department of Health, Solid & Hazardous Waste Branch

DBC Redemption Rate*



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Number of Leaking Underground Storage Tanks (LUST)

There were 1,907 cumulative LUST clean-ups between 2006 and 2012.

Leaking Underground Storage Tanks

Calendar Year	Total Tanks	Active Tanks	Closed Tanks	Confirmed Releases	Clean-ups Partially Addressed	Clean-ups Not Initiated	Cumulative Completed Clean-ups
2006	7,832	2,001	5,831	1,875	206	94	1,574
2007	7,916	1,895	6,021	1,909	192	86	1,631
2008	7,845	1,770	6,075	1,955	184	76	1,695
2009	7,873	1,701	6,172	1,989	154	80	1,755
2010	7,897	1,679	6,248	2,019	180	45	1,794
2011	7,904	1,639	6,265	2,037	142	35	1,860
2012	7,974	1,653	6,321	2,052	109	36	1,907

Source: Department of Health, Solid & Hazardous Waste Branch

Cumulative Completed LUST Clean-ups (2006-2012)

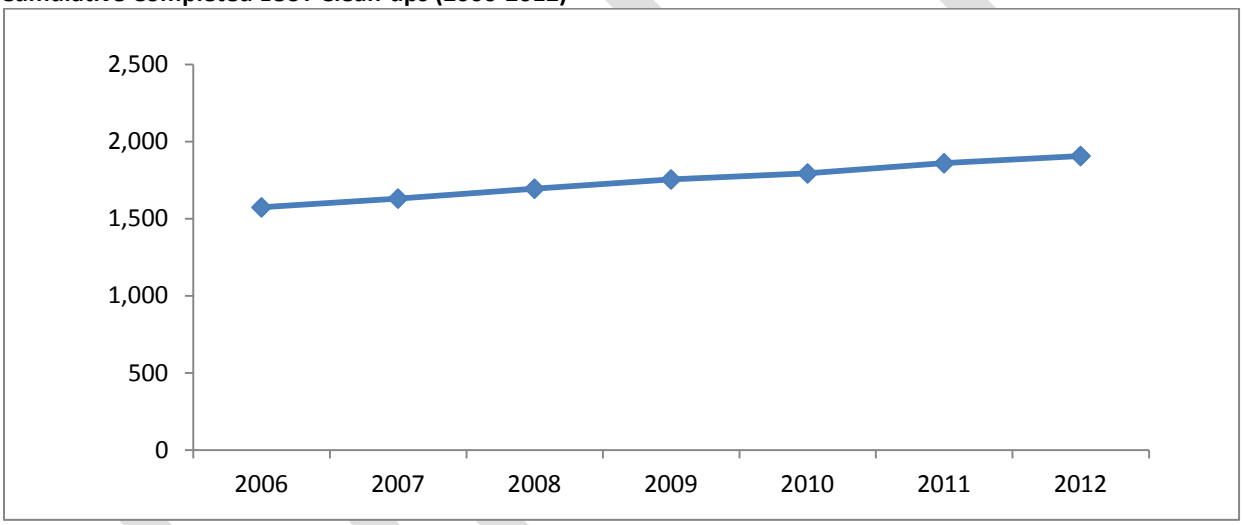

Photo: Removal of an underground storage tank

Environmental Health Services Division

The Environmental Health Services Division (EHSD) operations are governed by the federal Food, Drug, and Cosmetic Act (FDCA); HRS chapters 321, 322, 328, 328C-E, 330, 330C, 342F, 342P, 466J, 469; and relevant HAR Title 11 chapters. EHSD currently has three branches: Food and Drug, Sanitation, and Indoor and Radiological Health.

Food Safety & Vector Control Branch

The Food Safety & Vector Control Branch administers Hawaii sanitation laws in the areas of inspection and enforcement, permit and license issuance, licensing of professionals, and education. The branch is one of the core public health programs that affect the broadest range of health-related activities. Its programs are statewide, as established by statute and administrative rules. The Branch's purpose is to promote and maintain a sanitary and healthful environment for the people and visitors of Hawaii by implementing legally-required programs for food protection, assessing and assuring that hospitals and medical facilities meet sanitation requirements, licensing of tattoo artists and embalmers, and regulating barber shops, beauty parlors, massage parlors, tattoo shops, mortuaries, and public swimming pools. Due to recent organizational changes, the Branch now includes a Vector Control Section which recently identified a mosquito species at the Honolulu International Airport not seen on Oahu in 60 years.

One of the Branch's primary focuses is food protection, which has evolved into a complex program that consists of public health practices through education, partnerships, prevention, assessment, and compliance. The Branch permits over 10,044 food establishments statewide. In 2013, new food safety rules went out for public comment. The new rules include the adoption of the 2009 U.S. Food and Drug Administration (FDA) Model Food Code. Adoption of the new rules will provide Hawaii with nationally-recognized standards based on the most current scientific findings on food safety. The new rules will expand food safety testing, pesticide monitoring of local produce, and increased shellfish monitoring.

More information about the Food and Drug Safety is available at:
http://hawaii.gov/health/environmental/food_drug/index.html

More information about Sanitation is available at:
http://hawaii.gov/health/environmental/sanitation/index.html

Food Establishment Permitting & Plan Reviews

Type	State Fiscal Years (July-June)	
	2011-12	2012-13
Food Establishment (renewals)	4,800	5,300
Food Establishment (new)**	658	690
Temporary Food Permits	3,254	4,449
Building Plan reviews*** (Restaurants, etc.)	563	553

Source: Environmental Health Services Division
** Food Permit approval inspections are done within 24 hours of a request.
*** Plans are reviewed within 48 hours.

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Enforcement

The Branch's large enforcement actions included:

- Settlement of an enforcement case with Koyo USA Corporation;
- Suspension of Kanemitsu Bakery's permit for unsanitary conditions;
- State and Federal agencies addressed the improper use of pesticides used on basil grown on Oahu farms;
- An order to a local farm to cease the sale of green onions due to pesticide violation; and
- Citation of professional training in Hawaii for asbestos training violations.

Indoor and Radiological Health Branch

The Indoor and Radiological Health Branch, (IRHB), consists of the Community Noise, Radiation Control, Air-Conditioning/Ventilation, Asbestos, Lead-Based Paint, and Indoor Air Quality programs. In addition, the Branch operates the State Radiological Response Team under State Civil Defense, conducts community health assessments for noise, radiation, and indoor air pollution, provides for access to essential services, and directs its resources towards problems that pose the greatest risk to public health and the environment. For example, the Branch has been conducting quarterly or monthly shoreline surveillance since April 2011 (shortly after the tsunami in Japan). It has partnered with NOAA to provide training and detection equipment for debris and shoreline monitoring in the Northwestern Hawaiian Islands (NWHI) and has also provided training to non-profit volunteer beach cleanup groups, when requested. Thus far, no radiation levels above normal have been detected in any marine debris.
The Branch conducts investigations of health- and environment-related problems, and performs regulatory functions to monitor compliance with applicable statutes and rules. These functions include permit issuance, monitoring, and enforcement. The Branch also provides consultative services, works toward building partnerships, and participates in programs for public outreach and education. More information on the Branch is available at: http://hawaii.gov/health/environmental/noise/index.html.

Photo: Marine debris found on the island of Hawaii

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State Laboratories Division

Consistent with Federal and State regulatory agencies and partners, the EHA State Laboratories Division (SLD) provides a wide range of public health and environmental analytical services, as well as some oversight of community laboratory quality. For all of its successes, Hawaii still faces many challenges, ranging from unpredictable disease burdens to keeping current with technological advances. The Division tests for an ever-growing number of known and emerging health risks. The Division supports Hawaii's efforts to reach and maintain health-based Federal and State environmental quality standards. Test results are used to protect the public from exposure to dangers and toxins. Analyses conducted under vigorous quality management produce data that ensure the State can make informed and evidence-based decisions.

The State Laboratories facility on Oahu and the three District Health Laboratories on Hawaii, Kauai, and Maui, are all certified by the Centers for Medicare and Medicaid Services to perform human diagnostic testing, and by the EPA to test drinking water for microbial contaminants. SLD is EPA-certified to conduct Chemical Analysis of Safe Drinking Water and by the FDA to inspect shellfish. The Oahu State Laboratories are a member of the Centers for Disease Control and Prevention Laboratory Response Network for antiterrorism testing, the U.S. Department of Agriculture National Animal Health Laboratory Network for animal diseases that affect human health, and the Food Emergency Response Network for food defense and emergency response.

To learn more about SLD, please visit: http://hawaii.gov/health/laboratories/index.html

Activities

SLD continues to be a leader in public health labs. SLD is a member laboratory in the Association of Public Health Laboratories (APHL), and hosted Emerging Infectious Disease Fellowships, Environmental Public Health Fellowships, and undergraduate internships.

In January 2012, the FDA determined that SLD is a confirmed shellfish laboratory (according to the National Shellfish Sanitation Program) with the capability to test water and meats from the shellfish industry. SLD has begun sampling two Oahu shellfish ponds, and other farmers on the neighbor islands have also shown interest in sanitary surveys of potential shellfish growing areas.

In addition to providing chemical terrorism preparedness, SLD's Chemical Response Laboratory provides value-added bio-monitoring and environmental monitoring services. Examples include testing for mercury and arsenic from DOH Women, Infants and Children (WIC) program participants, testing fish and fish feed for mercury and selenium, and analyzing Pacific blue marlin fish jerky for mercury.

SLD continued surveillance for respiratory pathogens, influenza test support for the U.S. Affiliated Pacific Islands, evaluation of new technology platforms to detect multiple viruses, anti-viral resistance sequencing, and detection of Influenza A (H3N2) variant in a Maui resident.

SLD continues to update its information technology. SLD overhauled its website and upgraded online licensing for clinical lab personnel to release version 3.0. SLD-created or -improved electronic data reporting to the public, CDC, EPA, and community laboratories.

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Representative yearly analytical services (microbial or chemical contaminants) include 655,000 air samples, 5,500 recreational water samples, 600 food product samples (including shellfish), 5,000 drinking water samples, and 40,000 human clinical or surveillance specimens.

Testing

SLD continues to conduct a wide variety of tests for potentially-harmful substances, often in response to need and/or potential threats. For instance, in 2007 SLD conducted increased tests for avian influenza because of increased need.

Representative State Laboratory Tests

Number of Selected* Samples Tested	Calendar Year						
	2006	2007	2008	2009	2010	2011	2012
Salmonella DNA fingerprinted	300	352	310	357	335	327	291
Birds for Avian Influenza	412	942	637	434	386	214	72
Norovirus outbreak specimens	130	144	147	94	83	55	95

Source: Department of Health, State Laboratories (SLD)
* SLD tests a wide variety of samples as needed. Not all of SLD's tests are reflected above.

SLD continues to increase the number of air samples tested. SLD analyzed over 785,000 air samples in 2012.

Number of Air Samples (Tests) Performed

Number of Sampling Tests	Calendar Year						
	2006	2007	2008	2009	2010	2011	2012
Oahu	263,673	263,673	263,673	307,167	291,837	353,022	347,115
Kauai*	0	0	0	0	0	45,990	52,560
Maui**	35,162	35,162	35,162	35,040	35,040	35,040	70,080
Hilo (Hawaii)***	254,040	254,040	289,080	289,080	297,900	219,000	315,360
TOTAL	**554,881**	**554,882**	**589,923**	**633,296**	**626,787**	**655,063**	**785,115**

Source: Department of Health, State Laboratories
*There were not any ambient air monitoring stations on Kauai from 2006-10, but in 2011, the Kauai station was established to monitor the impact of cruise ship emissions.
** In 2012, new monitoring stations went online on Maui (in response to cane burning) and ***Hawaii (in response to VOG).

In 2012, SLD tested 4,854 ocean water samples, an increase of 31% from 2011.

Representative Ocean Water Tests

Number of Selected* Samples Tested	Calendar Year				
	2008	2009	2010	2011	2012
Oahu State Lab	3,115	3,081	871	952	1,706
Kauai District Lab	923	777	973	1,007	1,060
Maui District Lab	1,204	1,109	1,219	1,095	1,306
Hawaii (Hilo) District Lab	996	1,207	985	1,211	782
Total	**3,123**	**3,093**	**3,177**	**3,313**	**4,854**

Source: Department of Health, State Laboratories (SLD)
* -SLD tests a wide variety of samples as needed. Not all of SLD's tests are reflected above.

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Offices

In addition to the Divisions discussed above, EHA has a number of Offices, including the Hazard Evaluation and Emergency Response (HEER) Office, Environmental Resource Office (ERO), Environmental Planning Office (EPO), Compliance Assistance Office (CAO), and the Environmental Information Manager.

Hazard Evaluation and Emergency Response Office

In line with the Federal Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (commonly known as Superfund); HRS 128D; and HAR Title 11, Chapter 11-451, the Hazard Evaluation and Emergency Response (HEER) Office works to clean up hazardous waste spills and sites. More information on the HEER office is available at:
http://hawaii.gov/health/environmental/hazard/index.html

Activities

HEER monitors many contaminated sites in Hawaii. When a contaminated site is discovered and confirmed, HEER takes immediate action to ensure public safety. Over the past few years HEER has helped to clean up a former pesticide mixing area in a residential community in Kilauea, Kauai.

Hazard Indicators

The HEER office tracks several indicators including toxic, oil, and chemical releases.

Toxics Release Inventory (TRI)

The EPA provides TRI State Fact Sheets. The 2012 data has been updated as of September 2013 and is available at:

http://iaspub.epa.gov/triexplorer/tri_broker_statefs.broker?p_view=STCO&SFS=YES&trilib=TRIQ1&year=2012&state=HI

Hawaii Toxic Release Inventory (Calendar Year 2012*)

Category	Amount in pounds
Recycled On-site	12,204
Recycled Off-site	2,326
Energy Recovery On-site	17,000
Energy Recovery Off-site	514
Treated On-site	3,886,674
Treated Off-site	24,718
Total On-site Disposal to Class I Underground Injection Wells	0
Total other On-site Disposal or other releases	2,494,931
Total Off-site Disposal to Class I Underground Injection Wells	194,858
Total other Off-site Disposal or Other Releases	666
Total Production-related Waste Managed	**6,633,891**

Source: EPA, TRI Explorer State of Hawaii Fact Sheets (Hawaii Department of Health, HEER)
* Preliminary 2012 data as of EPA update, released September 2013

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Oil and Chemical Releases to Land and Water

Any release of oil, chemicals, or other potentially toxic substances must be reported to DOH. Between 2006 and 2011, the HEER office crews respond to an average of 370 oil and chemical spills per year. Most are minor, a few are major, and some are false alarms.

Oil and Chemical Releases (2006-2011)

Calendar Year	Oil Releases to Land	Oil Releases to Water	Total Oil Releases	Chemical Releases to Water	Chemical Releases to Land	Total Chemical Releases	Total Oil & Chemical Releases
2006	--	--	**206**	--	--	**178**	**384**
2007	--	--	**289**	--	--	**200**	**489**
2008	--	--	**198**	--	--	**107**	**305**
2009	56	87	**143**	62	63	**125**	**268**
2010	126	92	**218**	65	131	**196**	**414**
2011	185	72	**257**	63	51	**114**	**371**
2012	194	69	**263**	53	43	**96**	**359**
2013*	138	84	**222**	48	47	**95**	**317**

Source: Department of Health, HEER

*Data is still preliminary pending conclusion of the 2013 calendar year.

Photo: Molasses Spill in Honolulu Harbor and Keehi Lagoon, 9/12/2013

Photo: Molasses Spill in Honolulu Harbor and Keehi Lagoon, 9/14/2013

Environmental Resources Office

The Environmental Resources Office (ERO) is tasked with managing grants and State Revolving Fund (SRF) loans, as well as tracking enforcement payments.

Number of Grants Managed

Type of Grant	State Fiscal Year 2013
Air Pollution	3
Lead	1
Asbestos Removal	1
Surface Water Pollution Control	5
Drinking Water Protection	3
Solid Waste Management & Protection	3
Wastewater Treatment	1
Hazard Evaluation, Emergency Response	4
Environmental Information	1
Marine Debris	1
TOTAL NUMBER OF GRANTS	**23**

Source: Department of Health, Environmental Resources Office

Photo: Trail near the base of Mount Kaala, Oahu

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Environmental Planning Office

EPO assists with strategic planning, collecting, and disseminating EHA related internal and external indicators, providing information and reporting. EPO works on a range of DOH initiatives, including future DOH accreditation and health equity. EPO also assists with the development of new EHA initiatives, such as the management of a new NOAA grant to assist non-profit groups' efforts to remove marine debris from State beaches. EPO provides a range of environmental Geographic Information System (GIS) services and reviews and disseminates land use documents. EPO also participates in a number of other initiatives led by other departments, including the revision of the Ocean Resources Management Plan (ORMP) under the direction of the Coastal Zone Management team at DBEDT. For more information on EPO, visit its website at: http://health.hawaii.gov/epo/

Activities

- Typically, EPO reviews about 185 land use documents a year. This includes:
  - Notification, draft, and final environmental assessments;
  - Notification, draft, and final environmental impact statements; and
  - Supplemental notification, draft, and final environmental assessments and environmental impact statements.

Number of Land Use Documents Reviewed*

Calendar Year	2006	2007	2008	2009	2010	2011	2012	2013
All Land Use Documents Reviewed	220	244	143	174	na**	285	229	213+

Source: Environmental Planning Office
*Includes PreEA, DEA, FEA, PreEIS, DEIS, FEIS, SEIS, SDEIS, and SFEIS.
**na=information not available as two land use positions and an environmental health specialist (3 General Funded positions) were discontinued due to removal of General Funds.

- EHA continues to participate in the Honolulu Bike Share Organizational Study, which is an initiative to get bike share rolled out in Honolulu by 2015. As of October 2, 2013, it would be feasible to create a system spanning from downtown Honolulu to Waikiki (bounded by the H1 freeway, but extending to UH Manoa) with 140-180 bike stations and 1,400-1,700 bikes. Based on the anticipated ridership in Honolulu, the Bike Share program would save roughly 4.3 million vehicle miles travelled (VMT) and reduce carbon emissions by 3.9 to 4.3 million pounds.

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Compliance Assistance Office

In accordance with HRS 342B-63, the Compliance Assistance Office (CAO) is a one-stop, non-regulatory office that can assist small businesses understand and comply with the environmental regulations that DOH administers. CAO services are confidential, free of charge, and provide a point of access to government, thereby facilitating the exchange of information and communication. As a neutral party and mediator, CAO can help by investigating and resolving disputes, and increase DOH's and other government agencies' understanding of small business concerns . The CAO works with government and business representatives to develop proposals which remove unwarranted hurdles to small businesses. CAO conducts voluntary site assessments of businesses to determine compliance with applicable environmental regulations; provides regulatory guides and other documents; and assists businesses which have exhausted readily available dispute resolution mechanisms within DOH.

In 2012, CAO held 85 meetings with members of the business community to improve their understanding of environmental regulations and laws.

Business Assistance Indicators

Number of Meetings Held with the Business Community

Type of Meeting	Calendar Year				
	2008	2009	2010	2011	2012
Workshops	1	8	5	3	8
Association - contractors	12	10	11	11	11
Meetings re: permits	24	42	25	53	66
TOTAL NUMBER OF MEETINGS	**37**	**60**	**41**	**67**	**85**

Source: Compliance Assistance Office

Photo: Meeting to discuss permitting with regulated community (2013)

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Office of Environmental Quality Control (OEQC)

The Office of Environmental Quality Control (OEQC) is an attached office under the direct administration of the Director of DOH, and receives and reviews an average of 230 land use documents a year. The office's main duty is to implement the Hawaii Environmental Policy Act, Hawaii's environmental review law, which is set forth in HRS chapter 343.

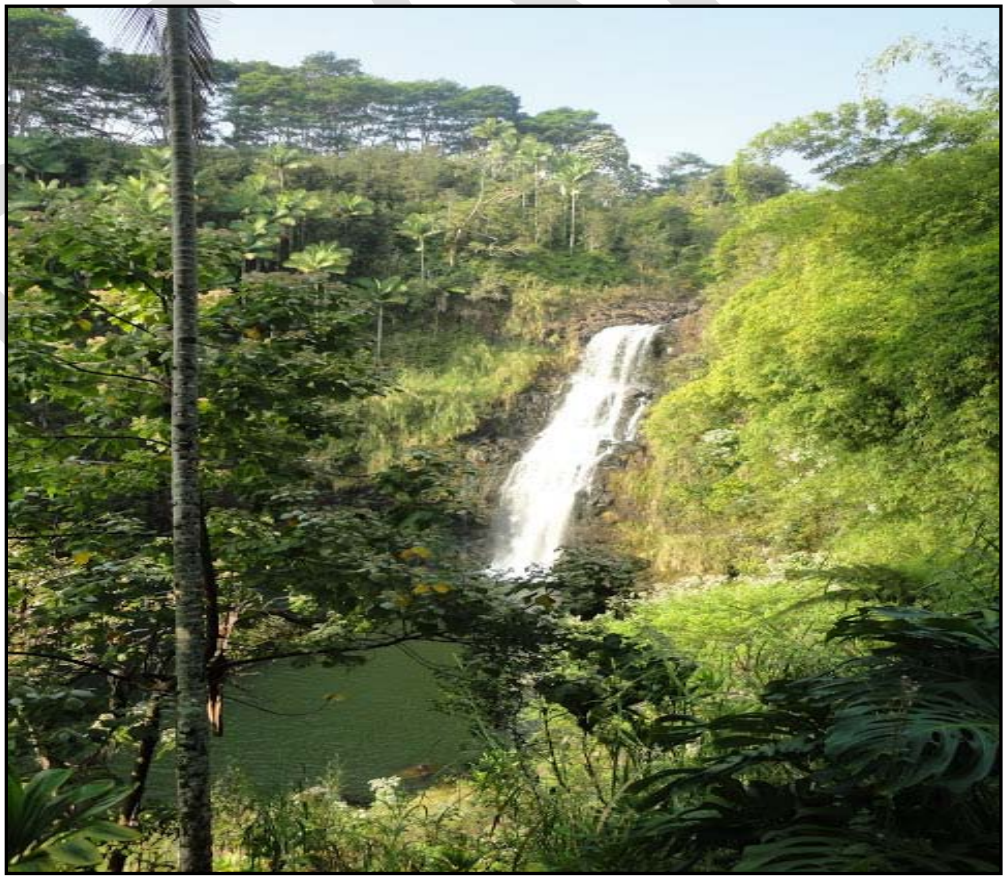
Number of HEPA Land Use Documents Received by OEQC by type

State Fiscal Year	2011	2012	2013	Average
Draft Environmental Assessment (DEA)	91	93	76	106
Final Environmental Assessment (FEA)	89	80	75	97
Pre-Notification Environmental Impact Statement (PEIS)	9	4	3	11
Draft Environmental Impact Statement (DEIS)	4	10	2	8
Final Environmental Impact Statement (FEIS)	6	7	7	8
Supplemental Pre-Notification of EIS (S PN EIS)	0	1	0	0
Supplemental Draft Environmental Impact Statement (SDEIS)	0	0	1	0
Supplemental Final Environmental Impact Statement (SFEIS)	0	0	0	0
TOTAL*	201	195	164	230

Source: Office of Environmental Quality Control (OEQC) -draft data

*Note: Numbers may not reflect pre-consultation letters, exemption declarations, withdrawal notices, etc.

Photo: Kulaniapia Falls near Hilo



Environmental Information Manager

The Environmental Information Manager (EIM) oversees the coordination, strategic planning, and facilitation of EHA's information management and information technology (IM/IT) activities. EIM's primary and most challenging goal is to provide data integration across all programs within the EHA, thereby facilitating better, more-informed decisions.

Activities

In 2013, a soft-launch of the new e-Permitting Portal application was made available to the regulated community and public for all environmental permit applications. This is a central web site where one can learn about, find, complete, and submit EHA's environmental permit applications online. It also allows for applicants to pay online for the permit application fees and track the status of their submitted application(s). This e-Permitting Portal was developed to streamline the environmental permitting process.

Another online tool, the Environmental Health Warehouse (EHW), was developed and implemented to provide EHA programs with integrated access to environmental facilities and sites in geospatial mapping and tabular formats. The EHW identifies facilities with National Pollutant Discharge Elimination System (NPDES) permits, as well as drinking water, underground storage tank (UST), and hazardous waste sites. EIM's goal is to include all facilities regulated by EHA program in the EHW, which would enable EHA to make better environmental decisions by sharing information across programs. After quality review, this data will be provided to the public. Currently, only the Leaking Underground Storage Tanks (LUST) facilities portion of the EHW is available to the public at: http://healthuser.hawaii.gov/health/environmental/waste/ust/index.html

The EIM has assisted the following programs with new IT systems:

Clean Air Branch

- Air Quality System (AQS) Data Flow to the EPA
- Integrated System Assessment
- Integrated System Design (In-progress)

Clean Water Branch

- Water Quality Data Viewer (Beach & Stream Warnings, Advisories, Postings)
- Water Pollution Control (WPC) System Assessment
- WPC System Implementation
- Beach Notification Data Exchange Flow to EPA
- Mobile Field Inspection Pilot (In-progress)
- Integrated Compliance Information System (ICIS)-NPDES Data Exchange Flow to EPA
- WPC and e-Permitting Integration (In-progress)

Safe Drinking Water Branch

- Safe Drinking Water Information System (SDWIS) Viewer
- GPS Unit Location Coordinate Capture Application
- Sample Analysis Tracking System (SATS)
- Sample Collection & Reservations System (SCRS) (In-progress)

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Solid and Hazardous Waste Branch

- Publicly-accessible Environmental Health Warehouse (EHW) that identifies all Leaking Underground Storage Tank (LUST) facilities in mapping or tabular formats

Hazard Evaluation and Emergency Response Office

- Website Redesign & Content Management Application (CMA)
- iHEER System (In-progress)
- Homeland Emergency Response Exchange (HERE) Application (In-progress)

State Laboratories Division: Environmental Health Analytical Services Branch

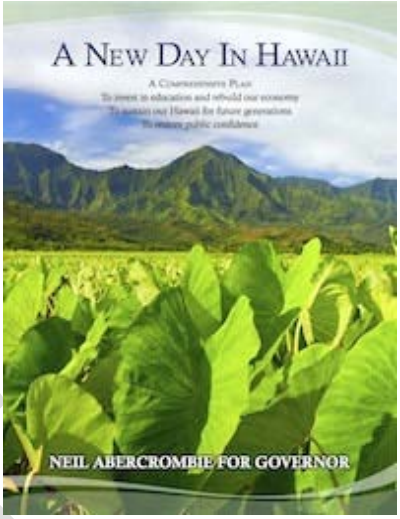
- Sample Analysis Tracking System (SATS)
- Sample Collection & Reservations System (SCRS) (In-progress)

Office of Environmental Quality Control

- System Assessment Project (for the submission and management of Environmental Impact Statements (EIS) and Environmental Assessments (EA) documents and its process)

Photo: View of Kahoolawe from Maui

Appendix A – Guidance Documents



State Plans

- The State of Hawaii New Day Plan: http://governor.hawaii.gov/a- new-day-in-hawaii-plan/
- Department of Health Strategic Plan: http://hawaii.gov/health/opppd/strategicplan.html

The EHA faces constantly-evolving environmental health management goals due to increasing pressures associated with a growing population and expanding tourism and defense activities. In carrying out its mission, the EHA is mindful of the underlying forces that stress the environment and influence the effectiveness of environmental regulation, enforcement, and policies. The State of Hawaii Data Book, produced annually by the Department of Business, Economic Development and Tourism (DBEDT), provides a wealth of information on many of these related factors that affect environmental health. Section 2 of the Data Book provides specific health statistics. The 2012 State of Hawaii Data Book can be reviewed at:

http://dbedt.hawaii.gov/economic/databook/databookupdate/

Additional information is available at: https://data.hawaii.gov/

Appendix D provides actual and forecasted key economic indicators for Hawaii for 2011 to 2016.

EPA Region IX Strategic Plan

EPA Region IX's Strategic Plan of EPA is also relevant to environmental health management in Hawaii: http://www.epa.gov/region9/strategicplan/.

EPA Headquarters is in the process of drafting its agency-wide 2014-2018 Strategic Plan. The public review draft is available at: http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OA-2013-0555-0002, and the agency will be accepting comments through January 3, 2014.

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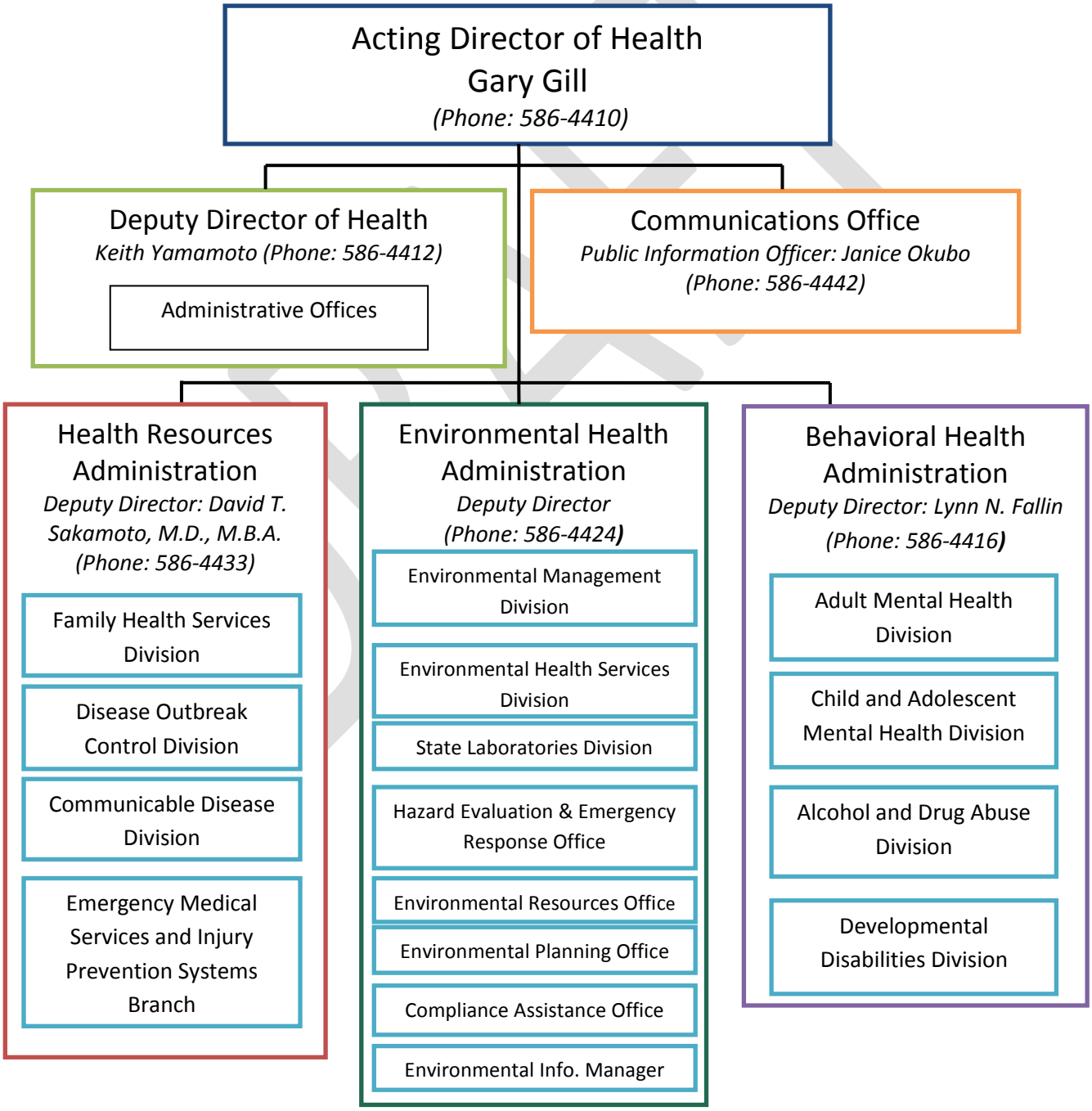
Appendix B – Organization Chart

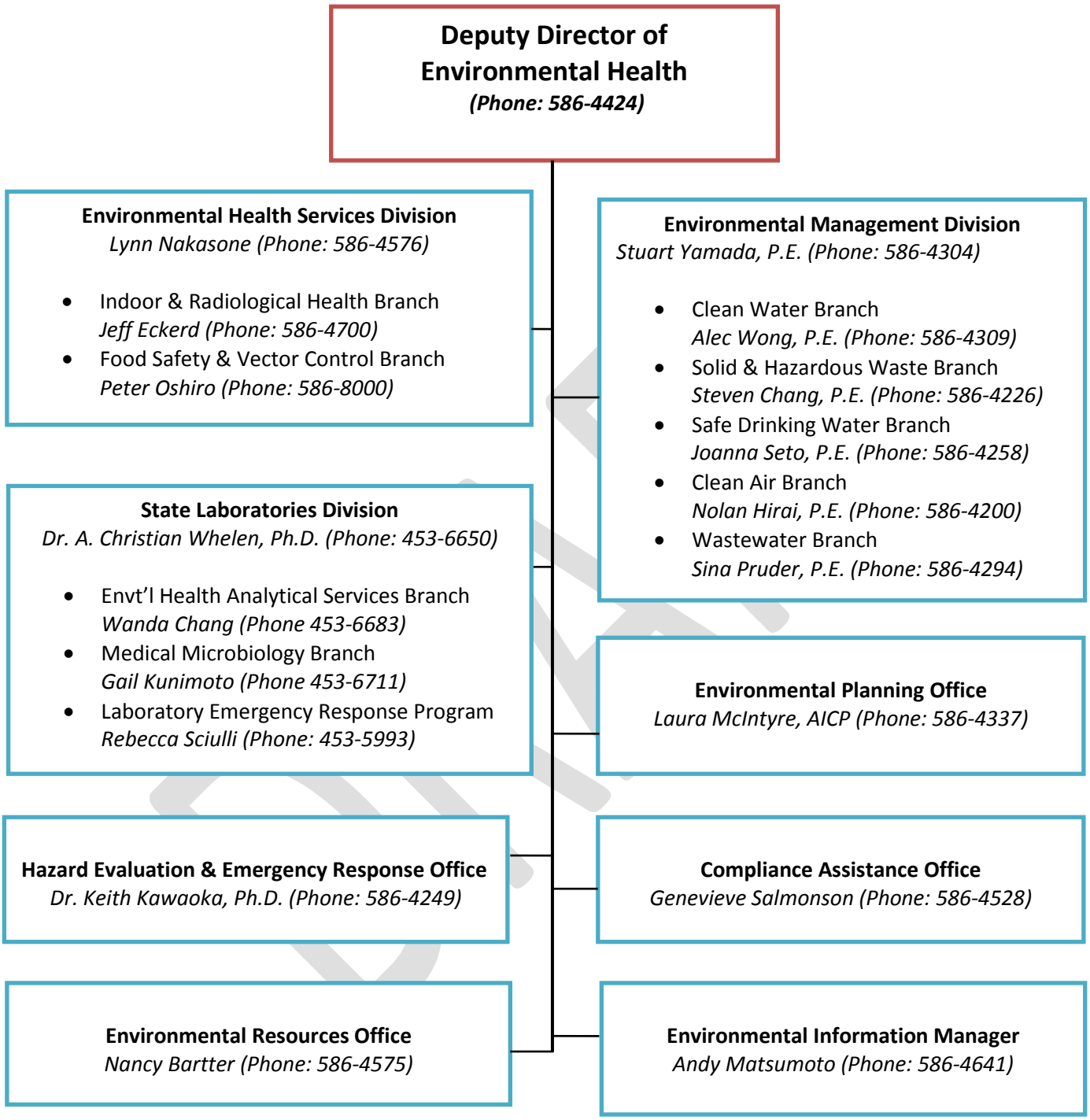
DOH is one of the largest, most diverse, and multifaceted agencies in Hawaii. DOH has a broad mandate to monitor, protect, and enhance the health and environment of Hawaii. It covers such areas as environmental health, behavioral health, health promotion and wellness, disease outbreak and control, infectious disease management, and primary prevention for all of the diverse populations and communities on every island.

DOH is comprised of four administrations, including Environmental Health; Health Resources; Behavioral Health; and General Administration. DOH has four neighbor island district health offices located on Hawaii, Maui, and Kauai.

DOH Organization



Environmental Health Administration Organization



Appendix C –Statutes and Rules

Relevant Federal Statutes

Statute	Citation
Clean Water Act (CWA)	33 U.S.C. § 1251 et seq.
Safe Drinking Water Act (SDWA)	42 U.S.C. § 300f et seq.
Clean Air Act (CAA)	42 U.S.C. § 7401 et seq.
Federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)	42 U.S.C. § 9601 et seq.
Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)	7 U.S.C. § 136 et seq.
Federal Resource Conservation and Recovery Act	42 U.S.C. § 6901 et seq.

State Laws

Title 19 of the Hawaii Revised Statutes (HRS) focuses on Health. Chapters 321 – 344 provide the general and administrative provisions in greater depth. These HRS Chapters can be accessed at:

http://www.capitol.hawaii.gov/hrscurrent/Vol06_Ch0321-0344/

Relevant Hawaii Revised Statutes (HRS)

DOH EHA Branch, Office, or Division	Chapter
Clean Water	342D, 342E
Safe Drinking Water	340E, 340F
Wastewater	321, 322, 340B, 340E, 342D
Clean Air	342B
Solid and Hazardous Waste	339D, 340A, 342H, 342I, 342J
Food Safety & Vector Control	328D, 342P
Hazard Evaluation	128D
State Laboratories	321, 329B
OEQC (Attached Office)	341, 343

State Administrative Rules

Hawaii Administrative Rules (HAR) that pertain to health programs can be found at:

http://hawaii.gov/health/about/rules/index.html

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Relevant Hawaii Administrative Rules (HAR)

Branch/Office	Chapter	Description
Clean Water	11-54	Water Quality Standards
	11-55	Water Pollution Control (NPDES Permits)
Safe Drinking Water Branch	11-19	Emergency Plan for Safe Drinking Water
	11-20	Rules Relating to Potable Water Systems
	11-21	Cross-Connection and Backflow Control
	11-23	Underground Injection Control
	11-25	Certification of Public Water System Operators
	11-65	Environmental State Revolving Fund
Wastewater	11-57	Private Wastewater Treatment Works and Individual Wastewater Systems
	11-61	Mandatory Certification of Wastewater Treatment
	11-62	Wastewater Systems
	11-65	Clean Water State Revolving Fund (Water Pollution Control Revolving Fund)
Clean Air	11-59	Ambient Air Quality Standards
	11-60.1	Air Pollution Control (Dust)
Solid and Hazardous Waste	11-58.1	Solid Waste Management Control
	11-68	Litter Control
	11-260	Hazardous Water Mgt. General Provisions
	11-261	Hazardous Water Mgt. Identification & Listing of Haz. Waste
	11-262	Hazardous Waste Management Standards Applicable to Generators of Hazardous Waste
	11-263	Hazardous Waste Management Standards Applicable to Transporters of Hazardous Waste
	11-264	Hazardous Waste Mgt. Standards for Owners and Operators of Hazardous Waste Treatment, Storage & Disposal Facilities
	11-265	Hazardous Waste Management Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage & Disposal Facilities
	11-266	Hazardous Waste Mgt. Standards for the Mgt. of Specific Hazardous Wastes and Specific Types of Hazardous Waste Mgt. Facilities
	11-268	Hazardous Waste Mgt. Land Disposal Restrictions
	11-270	Hazardous Waste Management State Administrative Permits
	11-271	Hazardous Waste Management Procedures for Decision Making
	11-273	Hazardous Waste Management Standards for Universal Waste Mgt.
	11-279	Standards for the Management of Used Oil
	11-280	Hazardous Waste Management Public Information
	11-281	Underground Storage Tanks (USTs)
	11-282	Deposit Beverage Container Recycling
Food Safety and Vector Control (Sanitation)	11-10	Swimming Pools
	11-11	Sanitation
	11-12	Food Service and Food Establishment Sanitation Code
	11-15	Milk
	11-17	Tattoo Artists
	11-18	Licensing of Sanitarians
	11-22	Mortuaries, Cemetaries, Embalmers, Undertakers, and Mortuary Authorities

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	11-26	Vector Control
	11-29	Food and Food Products
	11-33	Hawaii Drug Formulary of Equivalent Drug Products
	11-35	Shellfish Sanitation
	11-36	Sale of Prophylactics Through Vending Machines
	11-50	Food Safety Code
Hazard Evaluation and Emergency Response	11-5	Environmentally-Related Illness and Injury Reporting
	11-451	State Contingency Plan
	11-452	Requirements for Decontamination and Cleanup of Methamphetamine Manufacturing Sites
	11-453	Hawaii Emergency Plan (Community Right-To-Know Act)
Indoor and Radiological Health	11-39	Air Conditioning and Ventilating
	11-41	Lead-Based Paint Activities
	11-45	Radiation Control
	11-46	Community Noise Control
	11-501	Asbestos Requirements
	11-502	Asbestos Containing Materials in Schools
	11-503	Fees for Asbestos Removal & Certification
	11-504	Asbestos Abatement Certification Program
State Laboratories Division	11-110.1	Clinical Laboratories and Laboratory Personnel
	11-113	Substance Abuse Testing by Laboratories
	11-114	Testing of Blood, Breath, and Other Bodily Substances for Alcohol Concentration
OEQC (Attached Office)	11-200	Environmental Impact Statement Rules
	11-201	Environmental Council Rules of Practice and Procedure

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Appendix D – Driving Forces

ACTUAL AND FORECAST OF KEY ECONOMIC INDICATORS FOR HAWAII: 2011 TO 2016

Economic Indicators	2011	2012	2013	2014	2015	2016
	Actual		Forecast			
Total population (thousands)	1,378	1,392	1,407	1,421	1,436	1,451
Visitor arrivals (thousands) [1]	7,299	8,029	8,370	8,618	8,798	8,971
Visitor days (thousands) [1]	68,467	74,519	76,566	78,948	80,620	82,207
Visitor expenditures (million dollars) [1]	12,158	14,365	15,130	15,885	16,652	17,424
Honolulu CPI-U (1982-84=100)	243.6	249.5	254.2	259.8	266.3	274.3
Personal income (million dollars)	59,014	61,339	64,100	67,433	71,007	74,912
Real personal income (millions of 2000$) [2]	42,706	43,348	44,454	45,758	47,008	48,149
Non-agricultural wage & salary jobs (thousands)	594.0	605.3	616.2	627.3	638.0	647.5
Civilian unemployment rate	6.5	5.8	4.8	4.5	4.3	4.1
Gross domestic product (million dollars)	70,006	72,424	75,611	79,010	82,565	86,280
Real gross domestic product (millions of 2005$)	60,899	61,877	63,457	65,010	66,538	68,068
Gross domestic product deflator (2005=100)	115.0	117.0	119.2	121.5	124.1	127
Annual Percentage Change						
Total population	1.0	1.0	1.0	1.0	1.0	1.0
Visitor arrivals	4.0	10.0	4.3	3.0	2.1	2.0
Visitor days	4.6	8.8	2.7	3.1	2.1	2.0
Visitor expenditures	9.9	18.1	5.3	5.0	4.8	4.6
Honolulu CPI-U	3.7	2.4	1.9	2.2	2.5	3.0
Personal income	5.7	3.9	4.5	5.2	5.3	5.5
Real personal income	1.9	1.5	2.6	2.9	2.7	2.4
Non-agricultural wage & salary jobs	1.2	1.9	1.8	1.8	1.7	1.5
Civilian unemployment rate [3]	-0.3	-0.7	-1.0	-0.3	-0.2	-0.3
Gross domestic product	4.1	3.5	4.4	4.5	4.5	4.5
Real gross domestic product	2.1	1.6	2.6	2.4	2.4	2.3
Gross domestic product deflator (2005=100)	2.0	1.8	1.8	2.0	2.1	2.2

1/ Visitors who came to Hawaii by air or by cruise ship.

2/ DBEDT calculated using BEA estimate of nominal personal income deflated by U.S. Bureau of Labor Statistics Honolulu CPI-U.

3/ Absolute change from previous year.

Source: Hawaii State Department of Business, Economic Development & Tourism, August 15, 2013.